



Institute of Actuaries of Australia

Hard to Insure Flood Risks - Possible Funding Solutions

Prepared by the Flood Working Party of the General Insurance Practice Committee

*David Whittle, Stephen Underhill, Lucy Simpson, Charles Pollack, Daniel Smith, Tim
Andrews, Grant Billen and Hun Kim*

With special acknowledgment and thanks to Ankit Bansal

Presented to the Institute of Actuaries of Australia
2009 Biennial Convention, 19-22 April 2009
Sydney

*This paper has been prepared for the Institute of Actuaries of Australia's (Institute) 2009 Biennial Convention
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The Institute of Actuaries of Australia
Level 7 Challis House 4 Martin Place
Sydney NSW Australia 2000

Telephone: +61 2 9233 3466 Facsimile: +61 2 9233 3446

Email: actuaries@actuaries.asn.au Website: www.actuaries.asn.au

Section I – Introduction and Context

Previous papers and presentations in this series

This is the third in a series of papers and presentations produced by the Flood Working Party of the IAAust's General Insurance Practice Committee. The first two papers/presentations were presented at the General Insurance Seminar in November 2008.

The first paper provided an overview of the insurance of flood risks in Australia, with particular emphasis on the pricing (and, by implication, the underwriting) of such risks. One of the points made in that paper is that many Australians who have current homes and contents insurance are, nevertheless, not covered against loss due to riverine flood¹, because of exclusions in their policies. This paper is, in effect, a follow-up to that first paper.

The second presentation was concerned with the impact of climate change of insured flood costs. This paper is not a direct follow-up to that paper. It's probably worth noting, however, that any worsening in flood-related property losses is of more concern in the absence of cover for riverine flood across the insurance market.

This paper is directly concerned with domestic property risks only, although most of the conclusions could equally apply to flood cover for SMEs. Arguably, larger commercial property insureds "can look after themselves" (if necessary by obtaining appropriate insurance advice, and/or by moving their premises to a less flood-prone place).

Current state of flood cover in Australia

Currently the Australian insurance market provides a variety of coverages for riverine flood for domestic property.

Considering the direct underwriters alone, some provide cover for riverine flood (for example Suncorp, GIO, TIO) and some clearly exclude it (for example NRMA, AAMI). There is no "market standard" wording. Anecdotally, at least some of the insurers that provide flood cover do so at prohibitive prices.

The Insurance Council of Australia (ICA) has had a long-held aim of improving community understanding of flood cover, and (perhaps) facilitating some kind of collective solution involving insurers taking a common position on flood.²

¹ Riverine flooding typically occurs as a result of overflow of rivers and creeks following long duration rainfall over large catchment areas.

² Reference:

<http://www.insurancecouncil.com.au/IssuesSubmissions/Issues/ResidentialFloodInsurance/tabid/1297/Default.aspx>

A recent manifestation occurred in March 2008, when the ICA applied unsuccessfully to the Australian Competition & Consumer Commission (ACCC) to adopt a standard definition of flood. The proposal defined “inland flood” as “the covering of land that is not normally under water” resulting from overflows or escapes from either natural or man made watercourses or pools, inability to drain or run-off as a result of this, or from the releasing of dams. The definition was intended as a point of reference which would provide guidance to the industry and assist consumers in comparing flood cover, rather than a minimum standard. The ACCC rejected the proposal as conclusive evidence of the proposed benefits exceeding the detriments could not be found, with main concerns for its effectiveness and reduction in product differentiation and competition. Appendix A sets out more details of this ICA proposal.

Without debating the merits of the exact ICA proposal, it might be argued that the industry, as a whole, has a significant interest in the universal provision of flood cover. There is certainly potential for major public relations damage arising from a flood event for which different insurers provide very different coverage – one can certainly imagine a public and press outcry concerning different treatment of losses, purely on the basis of the (seemingly arbitrary) choice of different insurers.

It is, however, interesting to note that many of the events causing flood in Australia’s east coast river systems involve rainfall in a short, sharp period. These rivers are short and water generally gets from the location of the rain to the sea within a brief period. Thus the distinction between “riverine flood”, “storm water” and “flash flood” can be blurred – recent examples include events in Mackay, Coffs Harbour and the Hunter region.

Is this really a problem?

It is worth questioning why riverine flood should be treated differently from other natural disaster perils. There is clearly some difference from perils such as earthquake (and, to some, extent) storm, where the precise location of the insured property is not particularly relevant. In that sense the impact of such perils is random – a short distance makes no (measurable) difference to the likelihood of two properties being affected.

Riverine flood is different – a distance of, say, 100 metres (or even much less) can make a massive difference (and one quite easily discerned by the naked eye in many cases) in the chance that a particular property will be hit. In colloquial terms, there is much less chance of being affected if a dwelling is “further up the river bank”, and pretty much everyone knows that. This poses a potential anti-selection problem, if flood cover is not compulsory – people at higher risk of suffering flood damage have much more interest in being covered for flood than those who are at lower risk, and it is not necessary a straightforward task for the underwriter to know who is who.

However there is still some question as to whether this, in essence, distinguishes riverine flood from a peril such as bushfire, where clearly proximity to the bush is a

key factor in determining the level of risk. This paper does not seek to discuss bushfire in any detail at all (though clearly this may be a topic of interest in the light of recent tragic events). However, the analogy is drawn to illustrate the point that the public (and government) may well feel that it is only reasonable for riverine flood cover to be freely available to all those who are insurable in other respects.

Conceptually, pricing flood is a straightforward matter of combining the information at the risk level about the depth of the flood at various return intervals with the damage curve, to derive the “expected” costs that will emerge from these floods. Recent advances in flood risk data have further assisted in this process (for further references refer to Appendix A of Paper 1). Also with flood, there tend to be a small number of risks which carry a high percentage of the expected loss. It is hard to establish a sound insurance system under such a scenario. Many countries around the world now have good quality flood information available in order to price flood risks, yet none have successfully implemented a market solution without government support. The more practical global solutions typically focus on government risk mitigation, and subsidised premium for the very high risks.

However, limitations still exist around the accuracy of this data, double counting (resulting from the interplay with other perils such as storm) and pricing for the impact of climate change (for further references refer to Part I, Section 5 of Paper 1). Also administration systems of high data quality are required to ensure exact addresses can be determined for each risk; however, this in itself can be problematic due to typos, vanity addresses or devious behaviour. For high volume covers such as flood, there is a need to be able to calculate premiums without too much manual intervention, and the ability of all underwriters, large or small, to do this is a key constraint on any solution.

Purpose of this paper

When this Working Party was created and the series was conceived, in the first half of 2008, it seemed to many that the issue of riverine flood cover was fairly intractable, with most major insurers not offering flood cover at all within their domestic property policies. At that time, the Working Party was of a view that was perhaps best expressed in IAG’s Sustainability Report of 2005³:

“Another area of current concern is the lack of affordable and consistent flood insurance in Australia. It’s a challenge that we have been working hard to address, but it is fraught with complexity. Although the issue poses a significant risk to insurers, we believe it is a whole-of-society issue affecting local communities, governments and insurers - and one that must be resolved. We believe that a solution should allow premiums to vary according to flood risk, but provide some subsidy on the premium for householders whose risk is so high that risk-rated flood cover would be unaffordable.”

³ Reference:
http://www.iag.com.au/sustainable/reports/2005/media/pdf/Sustainability_Report_full_2005.pdf

The introduction of full riverine flood cover across much of the Suncorp group, in mid-2008, has perhaps made the problem less acute. Nevertheless, the majority of Australian domestic property insureds remain, at this date, not covered for riverine flood, even though the cover is now available to many, if not most, Australians.

In our opinion the industry faces a further dilemma: it may well be the case that there is little public or government interest in further resolving this issue, *except* in the aftermath of a (hypothetical) flood event that gave rise to:

- confusion about who was covered for what
- disquiet once it became clear that there would be significant disparity in the flood cover provided, and
- dissatisfaction with the insurance industry as a result.

It is probably an exaggeration to say that (in this respect) a major riverine flood is “a disaster waiting to happen”, but it is not beyond the realms of possibility that it could be characterised that way, after the event, by the press. Certainly, consumers who were not covered for a flood event, but had not realised that fact, would be aggrieved after such an event.

The aim of this paper is to set out a solution that could be considered after a major riverine flood event had occurred, rendering the current market-based solution somewhat difficult to maintain.

What happens overseas

In a number of major Western countries, the majority of insureds have full riverine flood cover, or have the opportunity to obtain it. Of course, simply providing riverine flood cover to the public does not, of itself, mean that the issue has been entirely dealt with. There are other criteria as well, that should be used to judge the success or otherwise of any solution. The criteria we have used to evaluate possible solutions are set out in Section II of this paper.

Appendix B sets out the basics of some key overseas flood insurance regimes.

Section II – Criteria for Evaluating Various Flood Cover Options

This Section sets out the criteria we used to evaluate various possible options for providing universal availability of riverine flood cover.

Equity of Price

The price payable for flood cover should be reasonable for all property owners and occupiers, taking into account the underlying risk, the value of the insured property, and what a reasonable person would expect to pay in view of the cost of insuring the same property against other perils.

Overall Affordability

By overall affordability we mean that the average premium for flood needs to be reasonable. It is hard to pinpoint a precise level at which overall affordability ceases to be, but, for example, there is no point in having a "fair" rating structure if the average flood premium is \$1,000! The cost to government that may apply under various possible solutions is covered separately under the heading of "government acceptability".

Overall Penetration

By overall penetration we mean the take-up of flood cover in the market.

Accessibility

This could also be construed as fairness of underwriting. Who should be covered? Is it reasonable to say that anyone should not be covered?

This is subject to overall insurability – we assume implicitly that flood cover would not be available:

- for properties which are uninsurable for other reasons, or
- for owners or occupiers who have been deemed uninsurable on account of past claims history, fraud or for other reasons.

Practicality of Implementation

This can be further categorised as follows:

- 1 Underwriting issues - is it easy to determine who is in what category for flood insurance
- 2 Price issues - eg is pricing consistent/justifiable as between privately underwritten and "pooled" areas
- 3 Wording issues - is the wording standard/understandable, can one set of words be imported into different insurers' underlying policies

- 4 Implementation generally - IT is an obvious consideration, but other issues come to mind including the ease of explanation to the public.

Commerciality

Any scheme must be set up so that commercial insurers will be willing to do what is expected of them. Insurers and their shareholders have a legitimate interest in achieving targets for profit and sales, in nurturing and promoting their brand, and in managing their capital and their risk profile. A flood cover scheme should not prejudice insurers' ability to achieve these goals and manage these facets of their business.

A further implication, almost certainly, is that a flood cover scheme must not inhibit the availability of property catastrophe reinsurance.

Reduction of overall flood costs and mitigation of flood risks

This seems to us to be a “no-brainer” to be on the list of criteria. But why is cost reduction and risk mitigation such a particular need in the case of flood? In our view there are two key reasons.

Firstly, the ability of individual owners and occupiers to influence their own level of cost and risk is quite limited, so there need to be collective (ie government-level) solutions. There are other perils (for example, burglary) where a significant contribution to risk management can be made by the insured – hence premium rates and underwriting criteria become effective tools in encouraging risk mitigation. On the other hand, if a particular dwelling is in a place where a flood comes, a significant loss to the owner and the occupier will come – notwithstanding the fact that there may well be a chance to move some belongings to a higher place.

Secondly, the incidence of this peril is so heavily biased to particular locations. For some other perils (notably storm and earthquake), it is much harder to predict specific “highly at risk” locations or regions. What this means in practice is that people need to be discouraged and/or prevented from building in risky places – which is virtually impossible to do without explicit or tacit action from governments. Any flood solution will need to take this into account.

Government acceptability

All else being equal, it is quite possible that any flood solution may require government action, for example:

- legislation and/or rulings to allow a common flood wording
- a commitment to spend on flood mitigation in return for various actions by insurers and/or insureds
- changes in taxes or government charges

We have to bear in mind that whatever we ask of government has to be something they are likely to consider doing.

It also seems to us that a solution that requires such legal changes ought to be "marked down", relative to solutions that do not. Major legal changes, with implications beyond this particular issue, will be difficult to achieve.

Public acceptability

In an ideal world, one would say that if a solution gets everything else reasonably right, public acceptance will follow. In practice there is always the chance that, for whatever reason, there will be an adverse reaction to any proposal, no matter how well thought out and rational that proposal may seem.

There is no way one can anticipate in advance all the conceivable objections that may arise. However, obvious objections should be considered as part of the evaluation of any options.

Long Term Sustainability

Ideally any scheme must be set up with a long-term objective of sustainability. In general terms, achieving the other criteria on this list will enable a solution to be sustainable.

Adequacy of Funding

A solution which is inadequately funded cannot last.

One point to consider is the time horizon on which adequacy is considered – whilst it may be actuarial (or regulatory) heresy to say so, for practical purposes there may be a way forward in reducing the Average Recurrence Interval (ARI) that is taken into account. For example, if one only considers floods that occur with frequency 1 in 100 years or greater, this may enable solutions to be considered that would not work if one felt obliged to allow for all floods with a frequency of 1 in 250 years or greater.

Claims Handling

This is where “the rubber hits the road” for consumers. Any collective solution has to be amenable to claims handling and service that is adequate in the aftermath of a major natural disaster. In particular, the coverage must be sufficiently clear as to not undermine claimants’ confidence in the claims process and the insurance industry.

Ease and Cost of Start Up of a new Scheme

This is an obvious criterion for judging any change to the current system. It is also an obvious argument in favour of maintaining the status quo (or, at least, a market-driven solution as opposed to a collectively driven one).

Section III – Possible Solutions

In this Section we look at five possible solutions to the dilemma which Australia and its insurance industry currently face in relation to flood cover. These solutions are set out below. In Section IV we evaluate each of these solutions based on the criteria described above.

Option A: Let the market proceed along current lines

As discussed in Section I of this paper, Australians can currently access flood cover from the insurance market. A number of high-profile underwriters offer the cover, under various wordings, and subject to various underwriting rules.

By contrast it is only about seven years since riverine flood cover was virtually unobtainable for most insureds in the Australian market.

One could therefore say that the market is in the process of solving this problem – why does anyone need to get in the way?

Moreover, it doesn't necessarily follow that the *entire* market needs to be offering flood cover. In fact, one could argue that a healthy market would be one in which there were insurers taking each of the following positions:

- providing flood cover as standard
- providing flood cover as an option at the insured's discretion
- providing flood cover (whether standard or optional) on an underwritten basis
- not providing flood cover at all.

It is not beyond the realms of possibility that the Australian general insurance market will end up with significant numbers of brands taking each of these positions.

Whilst this is a reasonable argument (and may well be what ends up happening), the risks of doing this are:

- Firstly, as outlined in Section I, that a flood event occurs in which different property owners and occupiers are treated in different ways, and/or there is much confusion about whether or not people are covered. (Unfortunately many, if not most, insureds don't read their policy document or PDS all that carefully). This has the potential to greatly undermine public confidence in the insurance industry.
- Secondly, even if the claims from such an event are dealt with (and are seen to be dealt with) in a fairly reasonable way, that the sheer cost of a major flood event might then lead to a subsequent withdrawal of much flood cover from the market. This risk is exacerbated by the fact the expected annual cost of flood events is high, and there seems to be little ability for insurers to raise premiums to the extent that is theoretically required to achieve full funding for flood.

Option B: UK scheme applied to Australia

History

From the early 20th century until the 1960s, despite flood cover being included in comprehensive contents policies, such policies were not widespread. During this period, flood cover was excluded from all comprehensive buildings policies.

A number of severe flood events occurred during the 1940s and 1950s, and in some cases victims of flood received compensation from the Lord Mayor's Fund, a charitable relief fund. Following the floods of the 1950s, pressure began to mount on the government to provide a national flood insurance scheme.

In 1961, members of the British Insurance Association (BIA), which was a predecessor of the Association of British Insurers (ABI) reached a "gentleman's agreement" with the UK government of the day regarding the provision of flood insurance. This agreement was known as "The Insurance Guarantee".

The agreement was that insurers would cover flood within property insurance policies for householders and small businesses, in return for an additional premium which would not exceed a maximum percentage of sum insured.

With this agreement in place, and flood cover more widely available the government no longer felt the need for a disaster fund to be established, as compensation was not the responsibility of individuals. Although discussions aimed at initiating a disaster fund continued through the 1970s and 1980s, they deteriorated as the insurance industry established itself as a key partner of the government and its agencies in flood risk management.

For many years the insurance industry granted flood cover to properties, even those in locations with high flood risk, at little or no extra cost, as part of a household insurance policy. However this arrangement was increasingly seen as unsustainable, and unfair on individuals living in low risk areas. Further, the system allowed people to obtain mortgages on property in hazardous locations, and was perceived as encouraging property development in flood plains.

During the 1990s, an increased knowledge and understanding of flood mapping and modelling techniques allowed the insurance industry to focus efforts on appraising the risk of flood at a more granular level. As a result, insurance premiums began to more accurately reflect the risk of individual properties.

Studies were undertaken by the ABI and insurers, which indicated that potential claims were higher than previously thought. This research enabled the insurance industry to present a case to the government for increased spending on flood defences. Severe floods in 1989 increased the industry's concerns, and further strengthened the case for increased government spending on defence mechanisms. Further flooding in 2000 confirmed industry fears that individual large flood events could cost the industry in excess of £1 billion.

In early 2001 the ABI agreed to continue to cover flood risk for properties and businesses for a further two years and during this two year period the ABI continued to put pressure on the government to ensure funding was available for flood defences to be improved.

Since 1 January 2003, the issue of insurance cover for properties at risk of flooding has been covered by the ABI's "Statement of Principles". The statement sets out the intention of the insurance industry to provide until 2007 a fully operational and competitive insurance market to all properties currently protected to at least a 1-in-75-year ARI, or where defences to this standard or greater will be in place by 2007. Premiums and other policy terms and conditions offered such as excesses remain for individual insurers to set and, and (in theory) they should reflect the actual risk property owners face, plus commercial considerations.

The Statement of Principles is still in place and the commitment from the ABI is reviewed annually, and is contingent on some key actions from the government including:

- sustained spending commitments on flood management;
- changes to the administration of flood defence spending;
- improvements to the development planning system;
- introduction of legislation similar to Scotland (Flood Prevention and Land Drainage Act (Scotland) 1997);
- availability of high-quality risk data;
- development of integrated drainage management systems.⁴

Appendix D includes a copy of the "ABI Statement of Principles on the Provision of Flooding Insurance".

Recent developments

While the industry continues to operate under the Statement of Principles insurers have initiated a number of recent changes and insurance related initiatives, including:

- Property built from 1 January 2009 onwards will be explicitly excluded from the Statement of Principles. In theory this should discourage building of high risk properties – new properties in low/medium risk areas will still be able to obtain insurance cover from the industry⁵. This means that there is no onus on insurers to cover such properties.
- The Statement of Principles will have an end date of 20 June 2013. This is intended to remove market distortions.
- The ABI will work with the Royal Institute of Surveyors to introduce a "kite mark" for new homes. The kite mark will only be awarded to homes built to certain standards, and will encourage the building of homes with flood protection.
- The ABI will work with the government to educate and publicise climate risk and research.

⁴ Source: David Creighton, paper titled "Perspectives from the Insurance Industry" delivered to the Third National Conference on Sustainable Drainage, June 2005

⁵ Reference: http://www.abuhrc.org/Publications/perspectives_paper.pdf

- Homeowners will be encouraged to make their properties more flood resilient. The ABI has instigated research into the costs of resilient repairs.
- A strategy is to be developed to encourage the less well off to protect themselves through “insurance with rent” schemes, where an insurance premium is wrapped up within rental payments.

Coverage

As we have seen by looking at the history of flood insurance, unlike many other countries where a publicly-funded compensation scheme is utilised, the UK operates what is fundamentally a private insurance system. However, the system operates within certain state driven policies and guidelines.

Homeowners are required to pay a premium to an insurance company in return for coverage in the event of a flood occurring. The ABI and insurers use the latest flood hazard databases from the Environment Agency, as well as their own historic information to determine the risk profile of individual properties. ABI members have agreed on three categories of insurance provision, based on the annual statistical chance of flooding in a given area and local flood defence investment plans. These three categories are as follows:

- Low - chance of flooding each year is 0.5% (1 in 200 years) or less
- Moderate - chance of flooding each year is between 0.5% (1 in 200 years) and 1.3% (1 in 75 years)
- Significant - chance of flooding each year is greater than 1.3% (1 in 75 years)

In Low and Moderate areas, ABI members automatically offer flood cover in the normal way on both buildings and contents policies for homeowners and small businesses.

In Significant areas, cover will be provided on the condition that flood defences will be in place within two years which will reduce the level of risk to moderate or low.

In cases where no improvements in permanent defences are planned or feasible, insurers will not guarantee to provide cover.

However, where there is a history of flooding, insurers use their best efforts to work with policyholders to establish on a case-by-case basis, what action they, the Environment Agency and the Local Authority can take to enable cover to be continued. This may include, for example, temporary barriers which are deployed prior to flooding, or measures that homeowners can take to reduce damage. Examples of the latter include removable household flood products which homeowners can buy and fit themselves to protect their property, or construction materials to reduce damage if the house is flooded.

More details are in the ABI’s Statement of Principles on Flood Insurance.

Penetration

Penetration of flood coverage in the UK is extremely high. For simple risks penetration is approximately 95% and for industrial risks is almost 100%⁶. This level of penetration is largely due to the coverage system in place.

The UK has been described as a saturated market, with a clear trend towards risk-reflecting premiums and a better differentiation of premium rates. The existence of a natural hazards package, combined with high property values has led to a high level of insurance penetration, even though insurance is not compulsory.

It should be noted however, that the system of flood coverage is built on a “Gentleman’s Agreement” and is often subject to discussion around continuation of coverage. In 2000, insurers warned the UK government that they would not continue to provide cover for property in flood prone areas unless flood defences were improved, and building protection made more efficient and effective. Five years later an ABI review showed that issues still remained. In October 2007 the ABI issued a statement claiming “Government has failed on flood defence spending⁷”.

Should the insurance market decide to discontinue the provision of cover for property in flood prone areas the penetration rates would fall, particularly in areas where flood cover is most needed.

Current issues

There are number of issues currently facing the UK insurance market which could impact on the future of flood insurance. These issues should be considered and understood in assessing whether a similar structure could be operated in the Australian market.

Current issues include:

- Dependence on the “Gentleman’s Agreement” between the ABI and government
- Low flood defence spending
- Upgraded drainage systems required
- Continued development in flood risk areas
 - Pressure on finding land for development
 - Development occurring behind existing defences
 - Flood risk aggregation
- Development of a national database on flood defence has been slow
- Increased frequency and severity of events due to climate change
 - Future claims could be multiples higher than today’s level (for further references refer to Part 2, Section 5.4 of Paper 1)
- Access to the global reinsurance market

⁶ Reference: Swiss Re, paper titled “Floods – an insurable interest”, 1998

⁷ Reference: <http://www.epolitix.com/stakeholder-websites/press-releases/press-release-details/newsarticle/abi-government-has-failed-on-flood-defence-spending///sites/association-of-british-insurers/>

Option C: US scheme applied to Australia

History

The National Flood Insurance Program (NFIP) was set-up in 1968 to be the sole insurer of flood risk in the United States. The NFIP is run by the Federal Emergency Management Agency (FEMA), which reports to the executive branch of the Federal Government. It was set up with three goals in mind:

- 1 Identify those areas within local communities that are most at risk of flooding.
- 2 Reduce the impact of flooding through a combination of mitigation and floodplain management.
- 3 Make flood insurance available to help individuals and small businesses recover following a flood.⁸

Participation in the program is based on an agreement between communities and the Federal Government. Flood insurance is made available within a community when it adopts and enforces a floodplain management ordinance, to reduce the flood risk to new construction. Upon the program's inception, subsidised premiums were used to provide an incentive to communities to participate in the program. Within the first seven years, nearly every community with a flood hazard had joined the program.

In 1981, fourteen years into the program, a series of coverage changes and large rate increases brought the program to a more fiscally sound basis. A 1986 directive established the definition of 'fiscally sound' to mean enough premium to cover expenses and losses relative to what is called the "historical average loss year."

Hurricane Katrina struck the New Orleans area in 2005 causing about 20 billion U.S. dollars of loss to the program⁹, more than doubling the amount of losses paid out by the program to date.

Cross-Subsidisation

The premium structure of the NFIP consists of two distinct approaches, the application of which depends on whether buildings have been constructed after the issuance of a Flood Insurance Rate Map (FIRM). Newer post-FIRM buildings are charged full-risk premiums, that contemplate the full range of loss potential including catastrophic levels. Buildings constructed below the Base Flood Elevation will be charged premiums that can be quite high. In this way the premium structure helps to reinforce wise building decisions by individuals.

For older pre-FIRM buildings in high risk areas, subsidised premiums are used. This was declared by statute for the following reasons:

- 1 Lower premiums for existing construction made it easier to convince communities to join the NFIP.

⁸ Reference: http://www.fema.gov/business/nfip/actuarial_rate.shtm 'In Support of the May 1, 2008, Rate and Rule Changes' page 1

⁹ Reference: http://www.fema.gov/business/nfip/actuarial_rate.shtm 'In Support of the May 1, 2008, Rate and Rule Changes' page 23

- 2 Very high premiums would discourage insurance purchase. Reasonable premiums allow building owners to at least partially fund their own risk.
- 3 It was determined to be undesirable to potentially force, through high flood insurance premiums, the abandonment of otherwise economically viable buildings.¹⁰

The average full-risk premium for these buildings is estimated to be about five times greater than the average full-risk premium for compliant buildings. Even though these older, non-compliant buildings receive highly discounted premiums (estimated to be between 35% and 40% of the full-risk premium), subsidised premiums are still significantly higher than full-risk premium for compliant buildings.

Funding

The program is expected to fund losses from both full-risk premiums and subsidised premiums. Full-risk premiums are priced at actuarially determined rates, contemplating future expected losses. Subsidised premiums impair the program's ability to collect actuarial premium for the entire portfolio. Until 2005, historical losses were always below expected future losses, so FEMA would use "historical average loss year" to determine the amount of total premium the program must collect. Thus the amount of cross-subsidy could be determined for subsidised risks. In 2005, Hurricane Katrina raised the historical average loss year significantly. FEMA decided to give 1% weight to 2005 loss experience in order to allow the cross-subsidy to continue. Early in the program's history, the cross-subsidy was much higher due to the higher volume of pre-FIRM policyholders who needed to be subsidised. Today about 22% of buildings are subsidised, mostly because they are pre-FIRM buildings.

The program has not been capitalized, and pays losses and operating expenses out of policyholder premiums. As a government program, the NFIP has the authority to borrow from the U.S. treasury. During less than average loss years, the program generates surplus, while during higher loss years accumulated surplus is used to help pay the insured flood losses that exceed that year's net premium revenue. For periods when losses exceed the accumulated surplus, the NFIP has borrowing authority with the U.S. Treasury. Prior to Hurricane Katrina in 2005, the borrowing limit had been US\$1.5 billion. It had exercised its borrowing power four times and successfully repaid its borrowing from future premiums. However, due to Katrina, the program is currently US\$17.535 billion in debt. While the borrowing limit has been increased to US\$20.775, it is believed the program will need to increase its borrowing authority further.

Coverage

Covered perils include overflow of inland or tidal waters from unusual or rapid accumulation of surface waters from any source. In addition to riverine flood, this would include flash flood, mudflow and storm surge from cyclones. In order to

¹⁰ Reference: http://www.fema.gov/business/nfip/actuarial_rate.shtm 'In Support of the May 1, 2008, Rate and Rule Changes' page 4

protect from adverse selection, there is typically a 30 day waiting period before flood insurance goes into effect.

Builders of buildings in the course of construction, condominium associations, and owners of condominium units may purchase flood insurance. Commercial buildings and contents may also be insured. Detached structures may be scheduled for an additional premium.

A community typically enters NFIP under the Emergency program which is designed to provide a limited amount of insurance at less than actuarial rates. For example, limits of coverage on a single family dwelling may not exceed \$35,000. For residential contents only \$10,000 is covered. Once the flood map has been developed the community moves to the regular program. Actuarial rates are then charged for post-FIRM buildings. All residential buildings may have a coverage limit of up to \$250,000, with residential contents topping out at \$100,000.

Other benefits are provided in NFIP policies:

- Artwork and other valuable possessions up to \$2,500 in aggregate.
- Basement and enclosed utility connections, not including finished elements such as panelling and carpeting.
- A minimal deductible is charged separately for buildings and contents.
- Replacement cost coverage is provided for buildings as long as the building is insured for at least 80% of value at the time of loss. Contents losses are adjusted at actual cash value.
- Costs of preventative measures taken when a building is in imminent danger are reimbursed up to \$1,000.
- Increased Cost of Compliance coverage is provided up to \$20,000.
- No loss of use coverage is provided however insured property owners may receive federal disaster assistance which typically includes temporary residency.

Distribution

NFIP coverage is predominantly distributed through private insurance companies through the Write Your Own program (WYO). Companies participating in the program write and service the Standard Flood Insurance Policy in their own names.

The companies receive an expense allowance for internal expense, approved agent commission and claims handling. The goals of the WYO programs are:

- 1 Increase the NFIP policy base and geographic distribution of policies.
- 2 Improve service to NFIP policyholders through the infusion of insurance industry knowledge.
- 3 Provide the insurance industry with direct operating experience with flood insurance.

The program also uses a Special Direct Facility which writes buildings which have had repetitive losses. These buildings are not eligible to be written under the WYO program.

Rate-Making

Actuarial rates are determined for ten different categories of flood risk. Premiums range from about \$300 to over \$2,000. The program writes very few policies without significant flood risk, so there is little opportunity for cross-subsidy of flood-exposed areas other than the pre-FIRM standards FEMA has implemented.

Premium discounts can be received by policyholders in communities which have undertaken loss mitigation strategies. Nearly two-thirds of policyholders are in participating communities with discounts ranging from 5% to 45%.

Some post-FIRM rates are subsidised in cases where structural remedies have not been completed or are scheduled for repair. Rates are charged as if these measures are already in place.

All policies incur a \$35 Federal Policy Fee. The proceeds are used to fund the expense of flood insurance studies, floodplain management and FEMA administrative costs. Legislation states that the fee is not subject to commissions, company expenses, or state and local taxes.

Penetration

Areas of land with a 1% chance of flood or greater (100-year flood) are designated as Special Flood Hazard Areas (SFHA), thus flood insurance is mandatory in SFHAs in order for the government to secure loans on acquisition or construction. Also, without flood insurance federal disaster funds are not distributed to properties in SFHAs which have not purchased and maintained flood insurance. Due to the risk in SFHAs, lenders typically review FEMA's flood maps when underwriting a loan so home buyers typically must purchase flood insurance in these areas.

The program writes about 5 million risks for a total premium of over \$2 billion. Even though SFHA risks are effectively mandatory, there are many uninsured risks outside SFHAs. As a result, the total penetration is only about 25% of flood-exposed risks. Although FEMA has made efforts in recent years to increase awareness of flood danger, they continue to experience a high lapse rate. During Hurricane Katrina, lack of awareness of the program left many uninsured. The insurance industry was criticized by policyholders and consumer groups for denying flood claims perceived to be covered under a House policy.

Over time, the program has added a significant amount of value. NFIP's standards for new construction are now saving an estimated \$1.2 billion annually in flood damage avoided. From 1986 through 2004, the NFIP paid out, from policyholder funding, about \$12.1 billion in insurance claims which otherwise would have greatly increased taxpayer-funded disaster relief.

Option D: The Australian Reinsurance Pool Applied to Flood

History

The Australian Reinsurance Pool Corporation (APRC) was established under the Terrorism Act of 2003. Following the terrorism attacks on September 11, 2001 in the United States, insurers in Australia began excluding terrorism coverage on the basis that it was considered uninsurable. The new threat of terrorism led insureds and lenders to require terrorism insurance on commercial buildings in order to allow them to continue business operation. The government determined that intervention in the insurance industry was necessary and should be consistent with the following principles:

- The need to maintain, to the greatest extent possible, private sector provision of insurance.
- The need to ensure that the risk transferred to the Commonwealth is appropriately priced to minimise the impact on the Commonwealth's financial position, and to ensure that the Commonwealth is being compensated by those benefiting from the assistance.
- The need to allow the commercial insurance and reinsurance markets to step back in when they are able (that is, ensuring an appropriate exit strategy for government).
- The need to be compatible with global solutions¹¹.

In theory, the APRC, or a body like it, could be established to support flood coverage.

Funding

The program was set up so that it would establish a layer of reinsurance protection in excess of the primary insured layer. The terrorism insurance scheme provides a six-layer model that will operate to spread the cost of any claims.

First Layer: Policyholder's liability for some risk through a possible excess or deductible.

Second Layer: Retention of some risk by insurers. As of 1 July 2009, the maximum industry limit will be \$100 million.

Third Layer: Pool of premiums paid to the ARPC for reinsurance, initially targeted to be \$300 million.

Fourth Layer: Commercial line of credit for up to \$1 billion funded by the pool of premiums.

Fifth Layer: Commonwealth Government indemnity for up to \$9 billion.

Sixth Layer: Possible liability for some risk by policyholders, through the operation of the reduction percentage or policy limits.

For losses over \$10.3 billion, the program expects the policyholders to bear the loss on a pro-rata basis. Given that the World Trade Center losses totalled US\$40 billion, it is not inconceivable for losses exceeding \$10.3 billion to occur.

¹¹ Reference: http://www.treasury.gov.au/documents/1162/PDF/TIA_review.pdf 'Terrorism Insurance Act Review: 2006' page 9

Since no events have occurred since the inception of the program, the pool has already exceeded its \$300 million goal. The APRC will continue to collect premium in order to promote fair risk transfer as well as allow private reinsurers to compete with it.

Coverage

The program covers loss to eligible property, business interruption, and liability of the owner or occupier of an eligible building. The terrorism program focuses on Commercial risks, and therefore excludes residential buildings unless they are in the course of construction.

Coverage follows the language of the underlying insurance coverage with the exception that policy language officially excludes terrorism cover. By statute, policies with this exclusion automatically receive coverage from the primary insurer, which in-turn may purchase reinsurance from the program. By contrast, insurers who have not excluded cover have retained the risk themselves.

The program provides 'all-risk' cover including nuclear, biological and chemical attacks as well as conventional attacks.

Rate-Making

The pool uses a three-tiered schedule of rates. Depending on the location of the risk, policyholders pay a fixed percentage of their underlying premium to the insurer who then passes it on to the fund.

High Risk: 12% for Central Business District areas of Sydney, Melbourne, Adelaide, Brisbane and Perth.

Medium Risk: 4% for urban areas of cities with a population over 100,000 including the suburbs of the major cities listed above.

Low Risk: 2% for all other areas.

The amount an insurer charges policyholders for terrorism cover is a matter for each to determine on its own.

Global Terrorism Solutions

In setting up the program, the government considered several programs. Two programs with similarities include Pool Reinsurance Company Limited in the U.K. and Terrorism Risk Insurance Act in the U.S.A.

Unlike most other funds, Pool Re has been in existence since 1993 due to the more frequent nature of bomb attacks within the U.K. As such, there is no "exit strategy" for Pool Re but industry retention levels have increased to £200 million as of 2006. A government back-stop also exists should the pool's funds become exhausted.

Coverage is very similar to Australia in that it covers "all-risks" terrorism for commercial buildings. U.K. law makes coverage mandatory to customers who request it but allows primary insurers to determine rates.

In the USA, TRIA was originally passed in 2002. TRIA provides free reinsurance cover subject to a high insurer deductible. As of 2007 this deductible was 20% of insurer premium. With such a high deductible, insurers actively buy reinsurance from the private market to protect their surplus. Insurers must also provide "all-risks" cover to customers requesting it. Rates are made by insurers subject to regulatory approval.

Global solutions to terrorism coverage have typically been created with the idea of allowing the private market to absorb this risk over time. To date, there has not been a lot of success in implementing government exit strategies. Since terrorism is a difficult peril to insure, federal governments find themselves continuing to provide a backstop in order to allow the insurance market to function with terrorism coverage.

Modifications for Flood

In order for a government reinsurance scheme to work for flood the following is recommended:

- There would be no 'exit strategy' since flood is a continuous peril.
- Coverage would be offered for private property risk as well as commercial property.
- It is unlikely that the government would want to charge actuarial rates for all customers so cross-subsidies would exist in the program.
- In order for cross-subsidies to work successfully for flood, some level of coverage would need to be mandatory for all insureds.
- Government back-stop implies that the government would want to be heavily involved in setting standards for construction as well as implementing flood defences.

Section IV – Evaluation of Options

In this section we evaluate the options that are set out above.

A summary of our findings are as follows: -

Criteria	Possible Solutions				Definition / Comments	
	A Market Forces	B UK Approach	C US Approach	D Pool		
i	Equity of Price	3	4	4	2	Price payable reasonable taking into account the underlying risk
ii	Affordability	3	4	2	3	Average premium for flood is reasonable
iii	Penetration	2	4	2	4	Ability and willingness of risks (regardless of risk profile) to get cover
iv	Accessibility	3	3	4	5	Consideration of overall insurability
v	Practicality	5	3	3	4	Ease of dealing with issues from insurers perspective
vi	Commerciality	3	2	4	3	Attractiveness of proposal to commercial insurers
vii	Cost Reduction / Mitigation	1	4	5	4	Reduction of overall flood costs and mitigation of flood risks
viii	Government	4	2	2	3	Likelihood of government adopting such scheme
ix	Public	2	3	2	3	Public reaction to and/or acceptance of proposal
x	Long Term Sustainability	2	3	4	4	Ability of proposal to remain in place in the long term
xi	Adequacy of Funding	2	3	4	2	Ability of scheme to generate adequate revenue to pay for flood losses
xii	Claims Handling	3	4	4	3	Scheme's ability to deal with claims in a practical and logistical sense
xiii	Ease and Cost of Start Up	5	2	2	3	The ability and set up cost involved for migrating to the proposed solution

Key	Rating Definition
5	very positive
4	positive
3	Neutral (n/a)
2	risky
1	very risky

Option A: Let the market proceed along current lines

Equity of Price - Neutral. There would be a tiered approach which would involve some cross-subsidy.

Affordability - Neutral. Depending on how the program is priced, higher risk insureds would likely find that premiums are high. Market operations advantageously allow customers to select cover and prices by selecting their insurer (for example choosing a particular insurer with flood cover over another insurer excluding flood cover).

Penetration - Risky. A market solution will always mean that those who are at high risk are unlikely to be able to get cover. These people are precisely those who will be affected the most if there is a major riverine flood event.

Accessibility - Neutral. A market solution will ultimately ensure equity of actuarial price, and in any risk being able to obtain cover (but some at a prohibitive price only).

Practicality – Very Positive. If there is no co-ordinated effort, this solution is what will happen. Also this solution is practical from an insurer's perspective as it allows it to select course of action, time of implementation as well as underwriting criteria.

Commerciality – Neutral/Risky. The key risk from a commercial solution is the

under-funding of flood cover, leading to a major loss to insurers and/or reinsurers if a loss occurs, and the possibility of a subsequent withdrawal or lessening of the cover available in the market. Another risk revolves around reinsurance recoverability, as the reinsurance market could conceivably refuse to pay flood claims paid on an ex-gratia basis.

Cost Reduction / Risk Mitigation – Very Risky. The experience of the past three to four decades is that development is continuing apace in areas that are flood-prone¹² – it seems unlikely that a continuation of the current approach will lead to anything different.

Government Acceptability – Positive. Government is likely to acquiesce in this approach unless the insurance industry suffers a severe catastrophic flood event, in which case other solutions are likely to be put on the agenda.

Public Acceptability – Risky. It's debatable whether many members of the public are aware of the current position. The industry could be seen in a very bad position after an event as described in Section III.

Long Term Sustainability – Risky. An event as described in Section III could put a lot of pressure on this solution.

Adequacy of Funding - Risky. Commercial enterprises are driven by shareholders expectation of returns rather than policyholder's desire for adequacy of funding. This trade-off between stakeholders requires regulatory input to mitigate this risk.

Claims Handling - Neutral. Depending on the severity and source of the flood, insurer's ability to respond timely and effectively are likely to be restricted by the availability of resources, such as claims managers, surveyors and builders. However, this is arguably no different from what happens in relation to a lot of natural disaster claims currently.

Ease and Cost of Start Up – Very Positive. A free market facilitates ease of set up and operations for an insurer, if only because insurers can start offering flood cover when they are ready.

Option B: UK scheme applied to Australia

Equity of Price - Positive. Cover is not mandatory for risks classified with a greater than 1 in 75 year chance of flooding. However under the "Gentleman's Agreement" which forms the basis of the Statement of Principles, cover is included on property insurance policies for all other risks and the use of sophisticated pricing tools ensures that actuarial prices are being charged successfully in the marketplace. However, there is still significant government contribution in the form of implementation of flood prevention and mitigation strategies.

¹² Reference: Bureau of Transport and Regional Economics, report titled "Benefits of Flood Mitigation in Australia", pg 1, <http://www.bitre.gov.au/publications/04/Files/r106.pdf> Page 1

Affordability - Positive. Strong market competition and the operation of the Statement of Principles ensures premiums charged are generally affordable.

Penetration - Positive. Even though insurers do not guarantee to provide cover, for all risks the penetration level is high.

Accessibility - Neutral. This solution, due to government spending initiative aimed at managing or mitigating risks, enables many risks to obtain cover.

Practicality - Neutral. The evolution of the current system over the last fifty years, combined with the government's general willingness to introduce risk-mitigating initiatives ensures issues can be easily dealt with from the insurer's perspective. In an environment where this solution was introduced from scratch, its relative informality would potentially create issues.

Commerciality - Risky. The Guarantee arrangement has been in operation for 50 years, but due to its start as a Gentleman's Agreement, there is no legal agreement between the ABI, its members and the government. If the ABI is not satisfied with government spending on flood defence and mitigation initiatives insurers could consider withdraw flood cover from the market. In a hypothetical Australian context where such a solution was attempted, those insurers with a higher than average weighting to flood-affected areas could have great difficulty accepting this.

Cost Reduction / Risk Mitigation – Positive. ABI initiatives such as working with the Royal Institute of Surveyors to develop improved building standards, encouraging homeowners to make their properties more flood resilient and excluding properties built from 1 January 2009 onwards from the Statement of Principles are examples of risk mitigation strategies.

Government Acceptability – Risky. This program requires significant capital and infrastructure investment on part of the government.

Public Acceptability – Neutral. It's debatable whether many members of the public are aware of the current position or would see significant rate changes if this style of solution was adopted.

Long Term Sustainability - Neutral. Commercial insurers are able to and have implemented various market initiatives, as discussed in Section III, to ensure the long term sustainability of flood cover.

Adequacy of Funding - Neutral. There have been no significant funding issues to date and insurers have been able to offer flood cover for a period of almost 50 years.

Claims Handling - Neutral. As per Option A.

Ease and Cost of Start Up - Risky. The ability and willingness of insurers to operate under such a proposal requires significant government involvement in mitigating flood risk.

Option C: US scheme applied to Australia

Equity of Price - Positive. Even forty years into the program, there is a fair percentage of subsidised buildings. In most cases, however, actuarial prices are being charged successfully in the marketplace.

Affordability - Risky. For 98% of customers, average premium is about \$1,000 or less. The others 2% can pay over \$2,000 for coverage. These properties typically lie along the coast with a greater than 1% chance of flood. Being coastal properties, these risks may suffer additional losses from wave action. Property owners in these areas would also be paying high premium for property insurance due to hurricane risk so their combined premium would be extremely high.

Penetration - Risky. Just about every community with flood risk participates in the program. Unfortunately, less than 25% of flood-exposed risks have purchased flood cover. FEMA is attempting to increase penetration with campaigns to inform the public.

Accessibility - Positive. All risks with significant flood insurance must insure through FEMA. Insureds do so directly through their insurance carrier. All customers may buy insurance through FEMA.

Practicality - Neutral. There is a lot of advantage from the insurance company's perspective to interact with their customers and FEMA on all flood-related matters as they do not take on any active role in underwriting or cover the claims resulting from these risks.

Commerciality - Positive. The system reimburses insurers for their expenses which would theoretically provide an incentive for insurers to provide cover. In practice, however, too many customers are unaware that their primary insurers do not cover flood. The low penetration rate implies that companies do not believe there is enough incentive to promote flood cover to their customers.

Cost Reduction / Risk Mitigation - Strongly Positive. Being a government program and writing at actuarial rates, FEMA has the advantage that it can work with local governments to avoid risk building in flood-prone areas and set-up flood defences where they are needed.

Government Acceptability – Risky. One advantage of this program is that it has existed for 40 years without a capital infusion of any sort. In order to provide subsidised rates without over-charging others, it would have been expected that the program would eventually accumulate a deficit. Also, being a government program means that the Government is in a position of blame if the public feels the program has experienced failures.

Public Acceptability - Risky. Hurricane Katrina spotlighted the program's vulnerability. Even 40 years into the program, many consumers, media outlets and consumer groups showed that they were uninformed as to how the program works. Many consumers had assumed flood was covered by their primary insurance policy.

Upon learning otherwise, most blamed both the insurance industry and the government for the hardships they were facing.

Long Term Sustainability - Positive. Hurricane Katrina stress tested the program's vulnerability and its long term sustainability. Even three and half years on, no proposal for change is evidence of the scheme's long-term sustainability.

Adequacy of Funding - Positive. The program has operated for 40 years without a capital infusion. Due to Katrina, the program is now in a significant amount of debt. If necessary, the government can step-in with a capital infusion.

Claims Handling - Positive. Claims are handled by the primary insurer so there is a seamless experience to the customer. Some issues would exist for claims adjusters to become familiar with FEMA policies.

Ease and Cost of Start-up - Risky. The government must be willing to invest in a managing body to set-up and maintain the program. The government must then be willing to take-on the risk. Initially, many risks paid less than actuarial rates in order for the program to establish itself.

Option D: The Australian Reinsurance Pool applied to Flood

Equity of Price - Neutral. There would be a tiered approach which would involve some cross-subsidy.

Affordability - Neutral. Depending on how the program is priced, higher risk insureds would likely find that premiums are high (though less so than under a number of other solutions).

Penetration - Highly Positive. If the program is mandatory, virtually all property owners could be insured.

Practicality - Positive. Primary insurers are handling the customer interactions so a seamless experience is maintained for the customer.

Commerciality - Neutral. The program has to be structured so that the industry sees it as a win. They would be concerned if good risks must subsidise poor risks, thus reducing their incentive to purchase insurance.

Cost Reduction / Risk Mitigation - Positive. We assume the government will have involvement in managing construction in flood-prone areas and in setting up flood defences. It would have incentive to do so as it would take on a significant share of risk. Since some risks would be subsidised, the insured's incentive to purchase and build property in flood-prone areas has only been partially reduced.

Government Acceptability - Neutral. Assuming the government sets-up a financially sound program, it would not expect to incur losses in the long run. It also avoids reputational risk since reinsurance transactions would occur out of public view.

However, the government would need to set up and maintain a program as well as incur risk that losses will exceed long-run expectations.

Public Acceptability - Positive. So long as flood claims are being paid for, the public would generally accept this initiative. Some may be unhappy that they pay additional premium despite having no flood risk.

Long Term Sustainability – Risky. There would be a chance that the scheme would be reviewed, wholesale, once the government financial assistance was invoked the first time.

Claims Handling – Neutral. Agreement would need to be reached between government and the insurers about the way in which claims ought to be handled.

Ease and Cost of Start Up – Neutral. It's been done for the ARPC (admittedly, perhaps, a simpler implementation).

Section V – Our Preferred Approach

As mentioned earlier in the paper, this paper attempts to set out a position for the contingency that the current system “fails”. Without being too prescriptive about an uncertain future, failure in this context would mean one or both of the following:

- A flood event occurs in which many claims are not paid, and the basis for payment or non-payment is sufficiently unclear as to cause major damage to the insurance industry
- Flood cover becomes unavailable (or impractical on the grounds of high price) for a significant proportion of those dwellings that are most at risk.

In the event that this occurs we would argue that Solution A – a market-driven solution - will have been superseded.

Moreover, Solution B (a UK-style solution), whatever its conceptual attractions, is unlikely to be politically feasible in such an environment. A more formal solution is likely to be needed. It is telling that the UK market is currently in the process of phasing out this “Gentleman’s Agreement”.

In such an environment government financial support of some kind is likely to be required. Moreover Solution C (a US or FEMA-style solution), with its very high prices for precisely the people who are most at risk, is unlikely to be acceptable in the context of a market failure.

Other solutions, such as the French flood system (described in Appendix C), are likely to entail government spending commitments of too high an order to be palatable in Australia (which is a low taxing country by Western standards).

We believe that a solution akin to the ARPC has some merit as a solution in a hypothetical future scenario involving the market for flood insurance breaking down. In broad terms this would work as follows:

- The cover would work as a standard exclusion, with flood cover being provided by the pool on condition that the standard exclusion is in the policy. Flood coverage would be mandatory for all Householders policies
- Premiums would be levied on policyholders as a percentage of premium, in a tiered approach
- The cover from the pool would be provided on an excess of loss basis, the excess of loss retention being applied at an industry level. Other than the overall industry retention limit, there would be no limit to the retention for any one underwriter for an event. (The logic for this is that there seems to be readily available catastrophe reinsurance cover available, encompassing flood-type risks – in the event of market failure, this assumption would need to be tested).
- The Federal Government would “declare” a certain event to be covered (akin to the current regime for terrorism events).

This proposal has imperfections, but it has the following advantages:

- Some loading of premiums for riskiness
- Cross-subsidisation of the most risky locations, as required
- Collects premiums from those at nil or negligible risk – arguably an essential element of any affordable solution
- Provides government, by virtue of its exposure to major events, with a major incentive to mitigate and/or reduce risk - an essential element of any long-term plan with aspirations to reducing the exposure of the Australian community to flood events
- Provides government with cash up front – premiums would flow into the pool from Day 1, but would only be needed if and when there was an event. By way of illustration, at its latest balance date of 30 June 2008, the ARPC had received over \$450m in the five years since its inception¹³
- Allows very large flood events to be post-funded. Assuming that flood is not able to be funded by the application of conventional insurance principles, this is arguably the best way to fund riverine flood.

Perhaps a better solution, in theoretical terms, would be one in which everybody had to purchase flood cover from a central authority, even if they were otherwise uninsured. Such a solution would pose some difficult questions (eg, how is the sum insured determined for those who do not otherwise have property insurance). However it would meet the highly desirable goal of ensuring that all losses were funded in an orderly way, as opposed to what happens currently after a natural disaster, when the interests of the uninsured and underinsured sometimes seem to take precedence over the interests of those who are fully insured.

It will be interesting to see what emerges from the Royal Commission into the February 2009 Victorian bush fires.

¹³ Source:

http://www.arpc.gov.au/content/publications/annual_reports/2007_08/downloads/Combined_Annual_Report_2007-08%20.pdf

Appendices

Appendix A: The Insurance Council of Australia

The Insurance Council of Australia (ICA) has had a long-held aim of improving community understanding of flood cover, and (perhaps) facilitating some kind of collective solution involving insurers taking a common position on flood.

A recent manifestation of this was seen in March 2008, the ICA applied unsuccessfully to the Australian Competition & Consumer Commission (ACCC) reasoning “...*The diversity of flood events has led to confusion within the community in the aftermath of a flood as to the true extent of their insurance coverage*”¹⁴ to adopt the following proposed definition: -

- “Inland Flood is the covering of land that is not normally under water by:*
- water that overflows or escapes from a naturally occurring or man made inland watercourse (such as a river, creek, canal or storm water channel) or a water pool (such as a lake, pond or dam), whether it is in its original state or it has been modified; or*
 - water released from a dam whether it be accidentally released or intentionally released to control, mitigate, regulate, or otherwise respond to excess water, or*
 - water that cannot drain or run off as a result of water that is overflowing or escaping from an inland watercourse or water pool preventing the escape of water.”*¹⁵

The ACCC determination rejected this proposal due to the following: -

- raised concerns of the effectiveness of ICA’s proposed communication campaign,
- may restrict competition,
- raised concerns of proposed definition diminishes the doctrine of proximate cause,
- may reduce the current level of product differentiation,
- raised concerns that without industry co-operation the proposal would add little value, and
- the Net Public Benefit Test¹⁶ could not find conclusive evidence of the proposed benefits exceeding the detriments.

¹⁴ www.accc.gov.au

¹⁵ www.accc.gov.au

¹⁶ Section 90(6) of the Trade Practices Act states that a contract cannot be approved by ACCC unless it satisfies the Net Public Benefit test, whereby the proposed public benefit outweighs its likely public determinant.

Appendix B: Overseas Flood Insurance Regimes

Argentina

Private insurers offer flood cover as a supplement to fire policies. Given the low levels of insurance penetration, most of the loss from floods are absorbed by the government or landowners.

Belgium

As of March 2006, flood, earthquake, and landslide became compulsory for standard homeowners and small commercial fire policies¹⁷. Since the move to compulsory arrangement, no proper market penetration data exists. Premium rates vary from 0.10 to 0.15 per thousand for storm coverage. Rates vary far more for flood and earthquake, although the additional premium charged stays minimal.

Canada

In Canada, flood insurance is not considered an insurable risk, as insurers believe most areas prone to flood will eventually experience a flood event¹⁸. Also due to a lack of detailed flood-prone maps, insurers are unable to assess risk opportunities and provide cover.

Commercial insurance often include cover against flood damage, however flood losses to residential properties is generally not covered, even as additional policy extra. In 2005, the Ontario Loss resulted from extreme rainfall and demonstrated the challenges for the insurance industry as a majority of policyholders were found unaware that overland flooding is generally excluded under most policies.

New Zealand

The Earthquake Commission Act 1993 and the Earthquake Commission Regulations 1993 set up the EQCover¹⁹, a government natural disaster insurance scheme that provides cover for land damage resulting from flood and is automatically provided in every home and/or contents policy. This cover insures homes for their replacement value, up to \$100,000 (before GST). Insurers can provide additional cover exceeding this limit and also for items not covered by EQC. Nevertheless, underinsurance appears to be an issue for New Zealand.

Germany

Flood cover in Germany is provided mainly by the private market, offered through extended elemental perils coverage on standard personal and commercial policies for an additional premium. However, the government has provided ad hoc ex post relief for large scale floods in the country in the past, such as the 2002 Elbe floods which caused an economic loss of EUR11.7 billion.

¹⁷ Reference: <http://www.gccapitalideas.com/2008/12/24/belgium-catastrophe-reinsurance-market-2008/#more-1022>

¹⁸ Reference: http://home-property-insurance.suite101.com/article.cfm/flood_insurance_in_canada

¹⁹ Reference: <http://www.eqc.govt.nz/Natural-Disaster-Damage.aspx>

Market penetration is low overall, although it appears to be increasing. Some states have higher market penetration due to continuing trends from when former monopoly companies in these states offered coverage for elemental perils on a compulsory basis. There is also proposal for making elemental perils insurance compulsory to address adverse selection issues.

Appendix C: French Flood Insurance Solution

History

The French government in 1973 entrusted the Caisse Centrale de Réassurance (CCR) with the responsibility of providing the French market with a powerful reinsurance body. The CCR is guaranteed by the state and a result of this strong guarantee Standard's and Poor assessment rated it AAA/Stable/A-1+²⁰. In 1979 the CCR was began writing traditional reinsurance business, however this segment remain disappointing, with a stable net combined ratio of 104%.

Exposure/Coverage

The CCR provides cover for all extraordinary natural disasters and also provides unlimited coverage for terrorism risks beyond the €2.2 billion maximum covered by the Gareat ("Gestion de l'Assurance et de la Réassurance contre les Attentats") pool. Even though the CCR is optional for French insurers, it is very attractive as cover is unlimited, highly rated and at an affordable cost. The natural disaster cover premium is fixed by the government and coverage is only available if the disaster is decreed by interministerial decree

Penetration

Penetration of flood coverage in France is high as property, motor and business insurance which cover damages automatically include natural disasters such as flooding.

Current Issues

Reinsurance with the CCR is optional, which leads to private insurers attempting to profit by pressuring the government to increase natural disaster premiums while retaining the majority of the risks themselves. This could lead to adverse selection for the CCR and contribute to its high loss ratio. In addressing this issue, the CCR has tied together the risk-share and stop-loss covers and also attempts to attract insurers through incentives such as unlimited cover.

²⁰ Reference: <http://www.ccr.fr/fr/pdf/SandP2005.pdf>

Appendix D: ABI Statement of Principles



Association of British Insurers

ABI STATEMENT OF PRINCIPLES ON THE PROVISION OF FLOOD INSURANCE

Updated Version, November 2005

General policy

It is the intention of ABI members that flood insurance for existing domestic properties and small businesses should continue to be available for as many customers as possible. The premiums charged and other terms - such as excesses - will reflect the risk of flooding but will be offered in a competitive market. There is separate ABI guidance on flood risk and new development.

This revised Statement of Principles will apply from 1 January 2006 but is subject to review in the event of significant external shocks such as withdrawal of flood reinsurance. Successful operation of the Statement is dependent on action by the Government to manage flood risk effectively.

Current position

The majority of the 2.2 million properties in flood risk areas are already protected to a minimum standard of 1.3% annual probability (1 in 75 years) or better. However, around 15% of properties in the floodplain have a significant chance of flooding (greater than 1.3% annual probability). In some of these areas there are planned improvements to flood defences to reduce the risk, but there are other areas where there are no plans for improvement.

Despite these risks, insurers have continued to provide flood cover for the vast majority of customers in the UK.

Insurers' renewed commitment

1. Areas where flood risk is 1.3% annual probability (or 1 in 75 years) or less

Flood cover will be available as a standard feature of household and small business policies. The level to which properties are defended above this standard will vary considerably and premiums will reflect different degrees of risk. Highly populated coastal areas, in particular, should be protected to a higher standard because of the potential consequences should a flood occur.

2. Areas of significant flood risk (greater than 1.3% annual probability or 1 in 75 years) where improved defences are planned

Insurers will maintain flood cover for domestic properties and small businesses that they already insure where improvements in flood protection

schemes sufficient to reduce the likelihood of flooding to 1.3% annual probability or less are scheduled for completion within the next five years. This will operate as a rolling five-year commitment provided the Statement of Principles remains in force. Delays or disruptions could take a scheme beyond the five-year commitment. The premiums charged and other policy terms - such as excesses - will reflect the risk.

If a domestic property in this category is sold the current insurer will continue to provide cover, subject to satisfactory information about the new owners of the property, especially their previous claims record. Where a small business is sold the current insurer will consider whether to continue to provide cover; this will depend heavily on the proposed new use of the premises and the previous claims record of the new owner.

3. Areas of significant flood risk (greater than 1.3% annual probability or 1 in 75 years) where no improvements in defences are planned

In these areas, insurers cannot guarantee to maintain cover, but will examine the risks on a case-by-case basis. Insurers will use their best efforts to continue to provide cover and will work with the owners of domestic properties and small businesses which they currently insure to see what action could be taken by the property owner, the Environment Agency and the local authority to make the property insurable in some form. This action might include the use of accredited products, flood resilient materials and temporary defences to defend the property.

Action from Government

Continued operation of this Statement will depend on Government progress on the five key actions set out below, with an annual review of progress against specific performance targets, and a more comprehensive assessment after three years:

1. Reducing the annual probability of flooding each year for a substantial number of properties in the UK, a proportion of which currently have a significant chance of flooding (greater than 1.3% annual probability).
2. At least maintaining investment in flood management each year, so that outputs can be sustained in real terms, with a commitment to evidence-based discussions on future funding needs, taking account of climate change and other factors affecting risk.
3. Implementing reforms to the land-use planning system to ensure that new developments do not lead to an increase in national or local flood risk.
4. Communicating flood risk effectively, including providing higher quality and more detailed information on flood risk, and on existing, new and upcoming flood protection schemes.
5. Developing an integrated approach to urban drainage that alleviates the risks of sewer flooding and flash-flooding.



Association of British Insurers

ABI STATEMENT OF PRINCIPLES ON THE PROVISION OF FLOODING INSURANCE

General policy

It is the intention of ABI members that flood insurance for domestic properties and small businesses should continue to be available for as many customers as possible. The premiums charged and other terms - such as excesses - will reflect the risk of flooding but will be offered in a competitive market.

This statement of principles will apply from 1 January 2003 but is subject to review in the event of significant external shocks such as withdrawal of flood reinsurance. Successful operation of the principles is dependent on planned information on risk levels and investment being available from the relevant flood defence authorities.

Areas currently defended to DEFRA standards

The majority of properties in flood risk areas are already protected to the Department of Environment, Food and Rural Affairs' indicative minimum standard of 1 in 75 years for urban areas, or better. The level to which properties are defended above this will vary considerably and premiums will reflect different degrees of risk; but flood cover will be available as a standard feature of household and small business policies.

High risk areas where improved defences are planned by 2007

In a number of locations the risk of flooding is unacceptably high. Existing flood defences provide less protection than the Department of Environment, Food and Rural Affairs' indicative minimum standard of 1 in 75 years for urban areas. Where improvements in flood defences sufficient to meet these standards are scheduled for completion within the next 5 years, insurers will maintain flood cover for domestic properties and small businesses which they already insure. The premiums charged and other policy terms - such as excesses - will reflect the risk.

If a domestic property in this category is sold the current insurer will continue to provide cover, subject to satisfactory information about the new owners of the property, especially their previous claims record.

Where a small business is sold the current insurer will consider whether to continue to provide cover; this will depend heavily on the proposed new use of the premises and the previous claims record of the new owner.

High risk areas where no improvements in defences are planned

There are other locations where the risk of flooding is unacceptably high - and in some cases they have been shown to flood frequently - and no improvements in flood defences are planned. Here insurers cannot guarantee to maintain cover, but will examine the risks on a case by case basis, use their best efforts to continue to provide cover and will work with the owners of domestic properties and small businesses which they currently insure to see what action could be taken by the property owner, the Environment Agency and the local authority, which might make the property insurable in some form. This action might include the use of accredited products, flood resilient materials and temporary defences to defend the property.

Action from Government

The implementation of these principles will depend on action from Government as detailed below with an annual review of progress:

- actual expenditure on flood defences to meet or exceed that set out in the 2002 Spending Review;
- implementation of the improvements in the system of flood defence planning set out in DEFRA's consultation "Flood and coastal defence funding review";
- full implementation of PPG25 (Planning Policy Guidance on Development Planning and Flood Risk), with full reporting of the level of compliance by local authorities and consideration of administrative processes in the planned review of PPG25 in 2004;
- the Environment Agency's flood asset database to be available to insurers by the beginning of 2003, and publicly available as soon as possible;
- early improvements in the flood warning system, and implementation of the Cabinet Office's recent emergency planning review;
- full and detailed consideration, including a benefit/cost analysis, to be given to integrated drainage management for England and Wales, similar to that in operation in Scotland;
- implementation of realistic solutions to sewer flooding including increased investment in improvement programmes and adoption of water companies and sewerage undertakers as statutory consultees in the development planning process.