

# Ajilon Response to the Natural Disaster Insurance Review Issues Paper

14 July 2011

Ajilon is a leader in the consulting, design and implementation of geo-spatial solutions and has specific interests in the improvement of Australia's natural disaster resilience, insurance coverage and risk mitigation. The recent Natural Disaster Insurance Review (NDRP) Issues Paper has highlighted a number of potential ways forward in improving flood insurance cover. Nonetheless Ajilon contends that without easily accessible and adequate flood and other disaster risk information, making informed decisions to proactively prevent and mitigate risks will remain extremely difficult. So long as this situation continues the availability and affordability of appropriate levels of insurance cover will continue to be a grave issue for the community.

## 1. Background

Ajilon understands the core objective of the NDIR paper to be an exploration of specific issues around the availability and affordability of natural disaster insurance (primarily for flood) as offered by the Australian general insurance market. We believe that the Natural Disaster Review Panel (NDRP) will receive ample feedback on the various pricing solutions outlined in the NDIR paper. However, we contend that there is a significant opportunity to comprehensively address insurance coverage and mitigation for natural disasters, if the NDRP takes into consideration some additional facets as outlined below.

We contend that:

- a) Flood appears to be the primary catalyst and primary focus of the NDRP activity.
- b) Other forms of Natural Disaster (eg Cyclone, Bushfire) are not adequately addressed by the Issues paper or by the insurance industry now and into the future.
- c) Early signals of Insurance dysfunction, such as punitive pricing and/or red zoning of 'high risk' areas across a range of natural disaster risks, are indicative of a possible worsening of the key issues (ie: insurance coverage and affordability).
- d) Risk-based disaster data is increasingly sophisticated and available – with some already leveraged to good effect in other domains (eg: mining, water resources and property). Ajilon expects these trends to continue at a rapid pace and a more holistic information capability would be a natural, even inevitable outcome. The insurance industry, however, has been seen by many as relative late adopters in leveraging geospatial risk data that is already available.

### **Ajilon Opinion:**

We propose that the NDRP explore the development of a nationally consistent and integrated **Natural Disaster Information Portal**, that provides a comprehensive set of aggregated disaster risk data and is capable of drilling down to an individual property level. Having this informational capability at a national level creates a level playing field for raising the risk awareness of **ALL** key stakeholders and increases the likelihood of coordinated mitigation activities. This is central to improving insurance coverage before the event and reducing the effects of disasters after the event.

It is our view that a failure to undertake this, at this time, will represent a significant missed opportunity for this generation of the Australian public.

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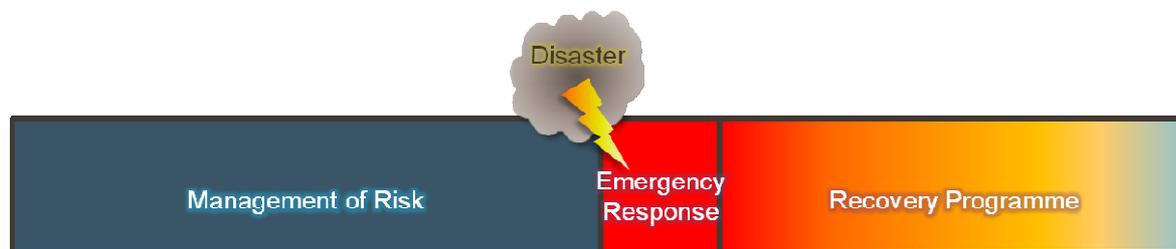
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## 2. Ajilon’s Assessment of the Current State – Australia’s resilience to Natural Disasters is not optimised

Australia’s approach toward Natural Disasters would appear to follow a typically linear approach, as illustrated in the following diagram. Whilst the response of the various stakeholders is commendable and ever-improving – the overall approach, we would assert, is not optimised.



Ajilon observes:

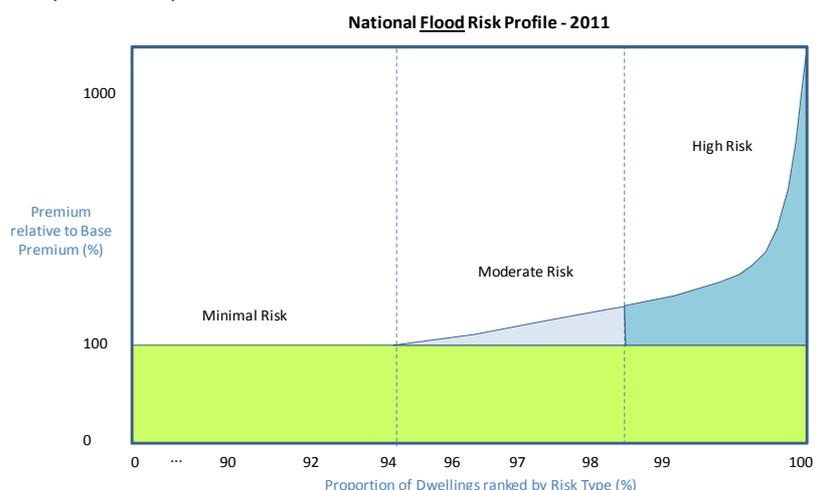
- A lack of coordination across stakeholders in Natural Disasters – both before the disaster, in the initial response and during recovery.
- Underleveraged Natural Disasters data and information – before the disaster and in obtaining learnings during the recovery process.
- Inconsistent capabilities across geographical regions and natural hazard types.

### **Ajilon Opinion – The Gap**

Natural Disaster information is not currently shared or integrated in a way that optimises Management of Risk, Emergency Response and Recovery Programmes.

## 3. Flood is not the only problem....

The NDIR paper uses the following model as the basis for much of the discussion. In summary it identifies that only a small percentage of Australian Households are exposed to Moderate Flood Risk, and a smaller percentage again are categorised as High Risk. Ajilon offers additional insights on facets of this model that we believe should be explored as part of the NDRP review.



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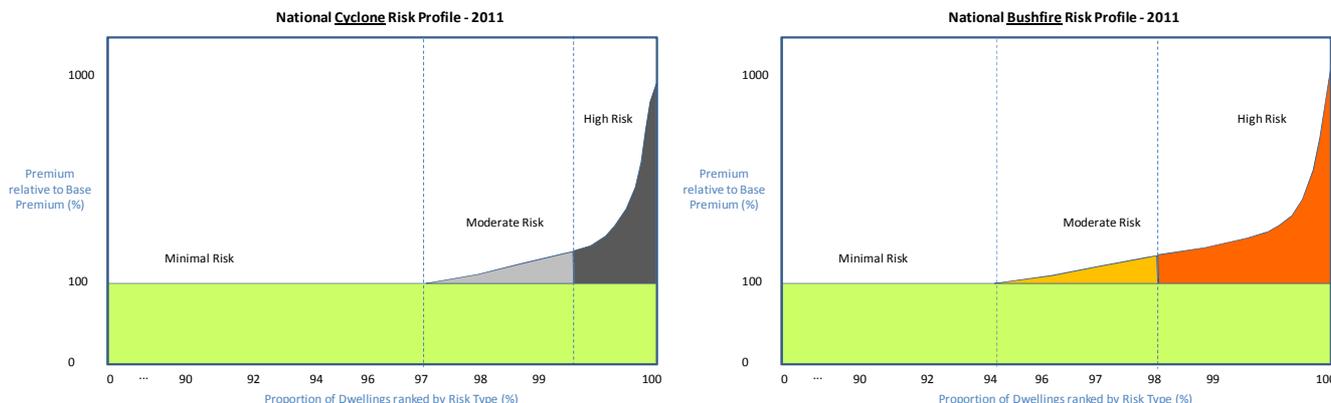
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It is important to note that this same model can be similarly applied to other forms of Natural Disasters such as Cyclone and Bushfire<sup>1</sup>:



The key to note here is that these other forms of Natural Disasters are traditionally considered insurable – despite some properties clearly having a known and high risk. Our observations here are that:

- Insurance companies have had sufficient historical knowledge on Flood to be able to note it as a general policy exclusion.
  - o As noted at the NDIR seminar, this has steadily changed since C2006 with the availability of the NFID database and insurer understanding/acceptance of risk.
  - o The Institute of Actuaries has in various papers noted that Flood is different to Cyclone or Bushfire in that its impact tends to be more at an individual property level vs a broad geographic area.
- Insurance companies have until more recently not had sufficiently granular information to be able to exclude other forms of ‘traditional’ Natural Disasters from cover.
- To date we have commonly seen relatively blunt instruments applied in efforts to control portfolio exposures – such as red-zoning of specific regions (eg declining risks north of the 22° Parallel).
- With more recent evidence of increasingly sophisticated risk selection (eg heavy price loadings for Property backing onto National Park or Bushland). As an indicator, the following table shows a selection of Building Insurance quotes (highest to lowest price) from significant insurers.
  - o In each case the default policy was selected with sums insured as recommended and standard excesses.
  - o In each case the insurer required the specific street address as a prerequisite to quoting
  - o Whilst the price variances on individual properties are not necessarily entirely attributable to the key risk identified – there are sufficiently broad variances to question risk data, and risk appetite across different insurers.

<sup>1</sup> Figures shown are purely illustrative.

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Suburb: Warrimoo, Blue Mountains Building: Single storey 3B/R Brick + Tile Key Risk: Bushfire – backs onto Bushland Quote 1: \$591 Quote 2: \$537 Quote 3: \$429	Suburb: Engadine, Sydney Building: 2 Storey 3B/R Brick + Tile Key Risk: Bushfire – backs onto Bushland Quote 1: \$1,356 Quote 2: \$875 Quote 3: \$686
Suburb: St Ives, Sydney. Building: 2 storey, 5B/R Double Brick + Tile Key Risk: Bushfire - backs onto National Park Quote 1: \$7,876 Quote 2: \$2,008 Quote 3: \$1,051	Suburb: Manoora, Cairns Building: Single storey 3B/R Fibro + Tin Key Risk: Cyclone Quote 1: \$4,097 Quote 2: \$2,966 Quote 3: \$2,126
Suburb: Georges Hall, Sydney Building: Single storey 3BR Brick + Tile Key Risk: Flood – adjacent to Georges River Quote 1: \$1,048 Quote 2: \$700 Quote 3: \$674	Suburb: Bonnet Bay, Sydney Building: Single storey 4BR Brick + Tile Key Risk: Flood (Woronora River) & Bushfire Quote 1: \$1,585 Quote 2: \$1,101 Quote 3: \$934

- It is reasonable to predict that with increasing availability of data, insurers will be able to
  - o Integrate property information known to local councils (for example, bushfire risk, infrastructure proximity, etc).
  - o Discern individual properties with or without mitigation features (for example, cyclone: compliance with cyclone building standard; bushfire: fitting of roof sprinklers and emergency water).
  - o Better identify additional risk factors (for example, flood: elevated house vs. ground level, hail: terracotta vs. colour-bond roof).

**Ajilon Opinion**  
 Continuing improvements in quality and availability of risk data (beyond simply Flood Mapping) will have a flow through effect to insurance availability and affordability across other forms of natural disaster. It is in Australia’s interest to have a consistent and comprehensive Natural Disaster Information Portal.

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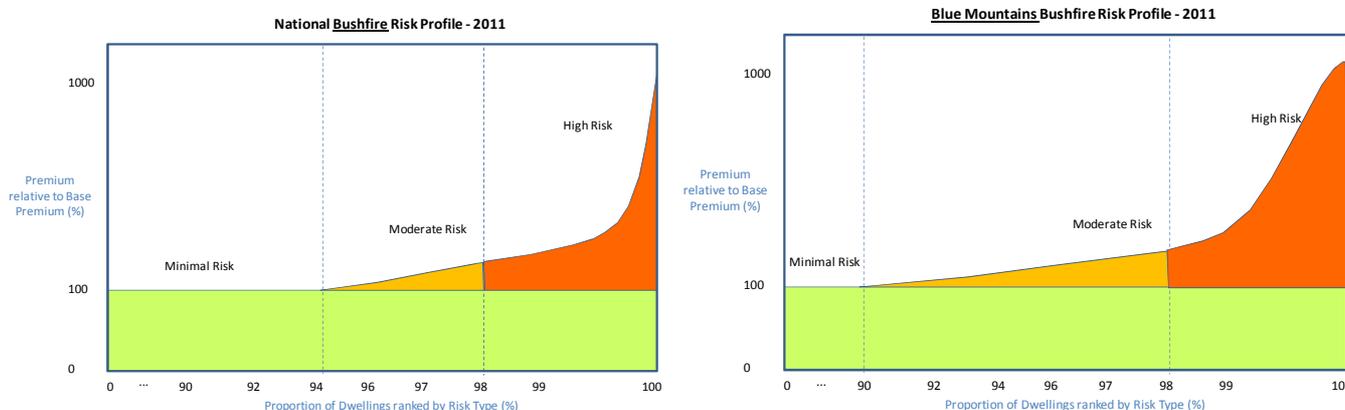
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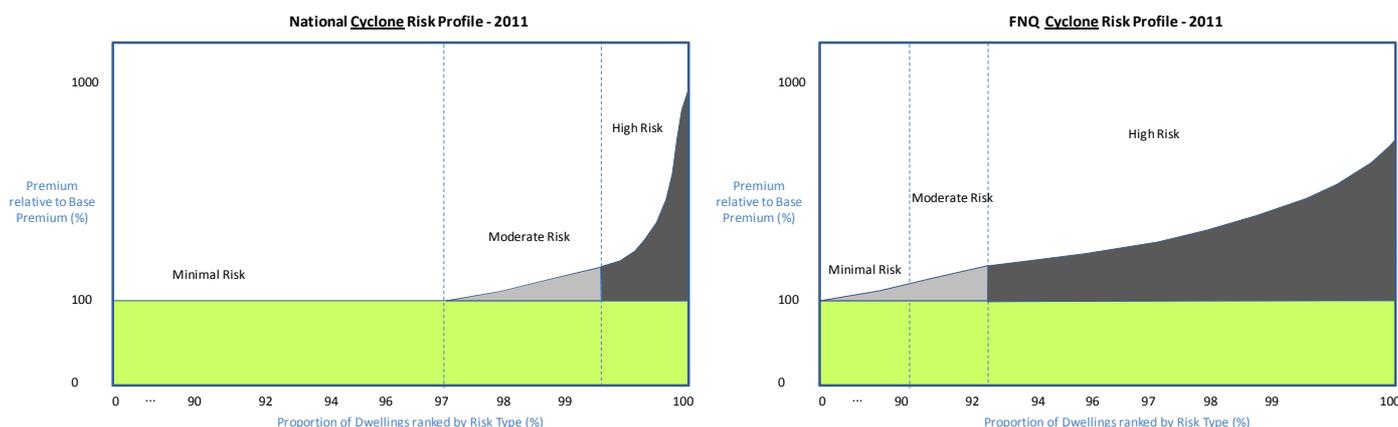
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## 4. The National profile oversimplifies the risks at a local geographic level

The National Risk profile changes shape dramatically when we look at specific geographies with known higher exposure to specific Natural Disasters. In Bushfires, for example, the national profile will be clearly different to what we might see in the NSW Blue Mountains<sup>2</sup>:



In Cyclones, the national profile will be clearly different to that we might see in Far North Queensland<sup>2</sup>:



The implications are that where the National problem might be seen to be an issue for only say 3-7% of households – at the local level this can rapidly rise to become an issue for 10-20% of households. Indeed as we drill down – the problem becomes a key issue for individual streets and then individual residences.

As noted at the NDIR seminar some residences with a high flood risk, may well have a low bushfire risk (or vice versa). It is this understanding of the overall risk that is key in improving availability and affordability of Natural Disaster Insurance.

**Ajilon Opinion**  
 The understanding of Natural Disaster risk across specific local geographies requires an integrated approach across multiple data sources, as opposed to a piecemeal approach for each of the types of Natural Disaster.

<sup>2</sup> Figures shown are purely illustrative

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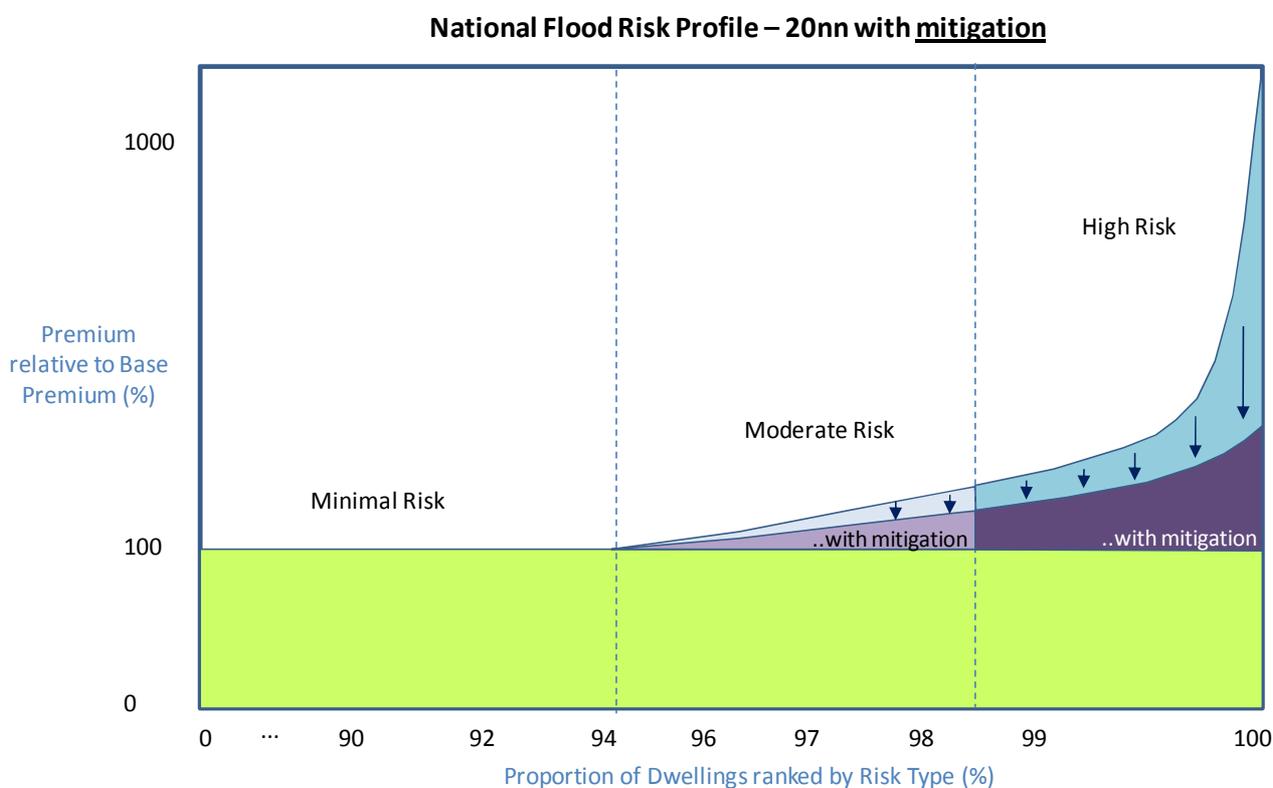
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## 5. Engineering-type mitigation activity can reduce risks over time, but data must remain current

As noted in the NDIR seminar – mitigation activity of an engineering nature, for example improving building construction standards, building flood levees etc can significantly contribute to the reduction of overall risk and lead to improved insurance affordability over time. However, this requires an awareness of the risks and the appropriate mitigation strategy at a community level as well as at the individual property level.

Again this is not an issue isolated to flood.

Engineering mitigation can contribute to overall risk reduction to achieve an impact equal if not better than any associated ‘insurance rebates’ which might be expected to reduce household impact in the short term (without having any long term impact on actual risk exposure). This is as shown in the following illustration:



A very real demonstration of this is the introduction of Cyclone Building Codes after Cyclone Tracy. This will have materially mitigated the risk – although clearly does not of itself prevent cyclones. It is clearly limited by the need to rebuild existing constructions to Cyclone standards (before or after the next cyclone).

Cyclone Tracy would seem to have been the instigator of a significant level of activity around construction standards for cyclones.

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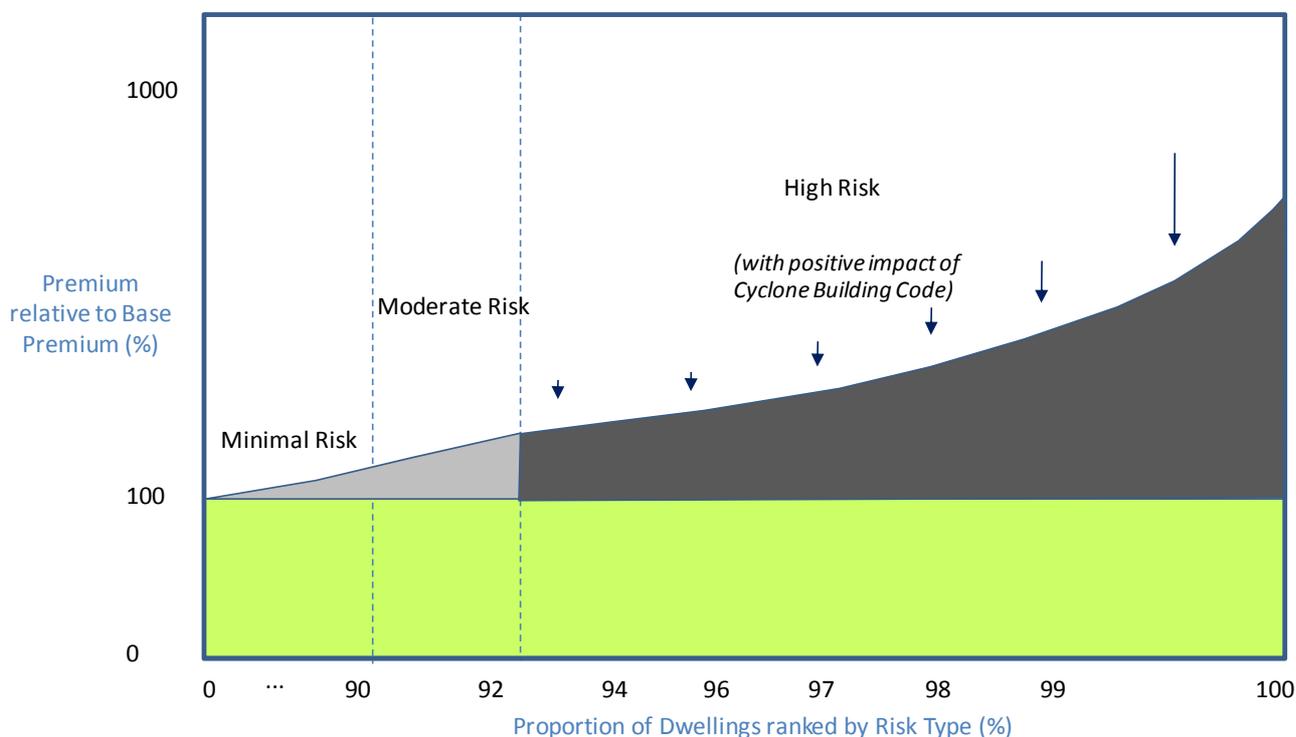
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The following website is indicative of substantial volume of material of this nature.

<http://www.nt.gov.au/lands/building/regulations/factsheets/documents/cyclonemaintenance.pdf><sup>3</sup>

**FNQ Cyclone Risk Profile - 2011**



Building Codes remain the subject of ongoing analysis as evidenced by activity of organisations such as the Australian Building Codes Board: <http://www.abcb.gov.au/index.cfm?objectId=3965A663-5EB8-11DE-BD31001B2FB900AA>

Another example is the substantial planning and activity that has been undertaken on the Georges River (Sydney) particularly through the 1980’s and 1990’s – to deliver a ‘textbook’ series of initiatives aimed to reduce flood risk on inappropriately approved housing. A couple of extracts are footnoted below<sup>4 5</sup> from [www.georgeriver.org.au](http://www.georgeriver.org.au) (a 2001 report on flood risk and flood mitigation activity)

<sup>3</sup> Sample Extract: “Generally speaking houses and units built since Cyclone Tracy in cyclonic areas of the Northern Territory are designed to withstand a mid-range category 4 cyclone. Category 4 cyclones have wind speeds between (225-279km/hr). Buildings that comply with the Building Code of Australia are generally referred to as being “built to code”.

<sup>4</sup> Sample Extract: “The Moorebank-Milperra area is one of the worst floodways in New South Wales. Flood conditions are so severe, that both Liverpool City Council and Bankstown City Council adopted voluntary purchase programs to acquire and demolish buildings located on the floodway. Some 200 houses were identified for voluntary purchase at an original estimate of \$20M (1983). The schemes commenced in the early 1980’s, with financial assistance provided by the State and Commonwealth Governments. Over half of the houses have since been acquired and Removed”

<sup>5</sup> Sample Extract: “Over 470 houses have been identified for house raising along Lower Prospect Creek. Some 126 of these houses have been successfully raised, or otherwise treated, at a cost of \$5.5M. Many of the remaining houses

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Various stakeholders have been working on specific natural disaster mitigation over a considerable period. An example is the Floodplain Management Association<sup>6</sup> - <http://www.floods.org.au/>

Overall, this activity would appear to be sporadic, with highly commendable initiatives in one jurisdiction not necessarily being replicated or communicated to other jurisdictions.

### **Ajilon Opinion**

Information on mitigation solutions must maintain a level of currency at a community and preferably an individual property or street level. This is also best achieved through a comprehensive and detailed information service such as a searchable web portal.

## 6. Substantial Information is already available - although described as a 'Cottage Industry'

The quality and depth of information available through Local Councils is extensive. Predictably however, duplication of data and inconsistent approaches exist which makes integration somewhat challenging. Complicating the situation are proprietary initiatives undertaken by private industry consortiums, for example the Insurance Council of Australia-sponsored initiative into the development of NFID (National Flood Information Database). Whilst commendable, it is a proprietary database holding proprietary data and designed for use by only insurers for risk-underwriting calculations. It is therefore unlikely to be freely available for the generic public's consumption and some may argue nor would it be suitable.

Many Councils have available public domain maps across a range of Natural Hazards – invariably associated with their town planning and development activity. Whilst at a national level this might be described as a 'cottage industry', many of these initiatives are in fact quite highly sophisticated.

The example over the next page is an extract from Ku-Ring-Gai Council and identifies bushfire prone land (where many properties back onto either National Park or bushland):

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*are brick or brick veneer, which are difficult and costly to raise. Innovative alternatives to the traditional form of house raising have been explored, including the purchase, demolition and resale of vacant land with appropriate covenants. This results in the construction of new, elevated homes at a net cost that is only slightly higher than the cost of raising a timber house"*

<sup>6</sup> Sample Extract: *"The primary objective of the program is the development and implementation of area specific floodplain management plans for the State's floodplains. These aim to address:*

- *existing risk - which is usually structural protection options such as levees to reduce flood risk to existing development.*
- *future risk - which is the determination of strategies for future or upgraded development on floodplains and usually involves modification to Council land use control policies (LEP's etc).*
- *continuing risk - this covers strategies to manage flooding greater (rarer) to levels used for protection and planning purposes (recent examples are Coffs Harbour and Nyngan) and involves flood warning, emergency response and recovery strategies etc"*

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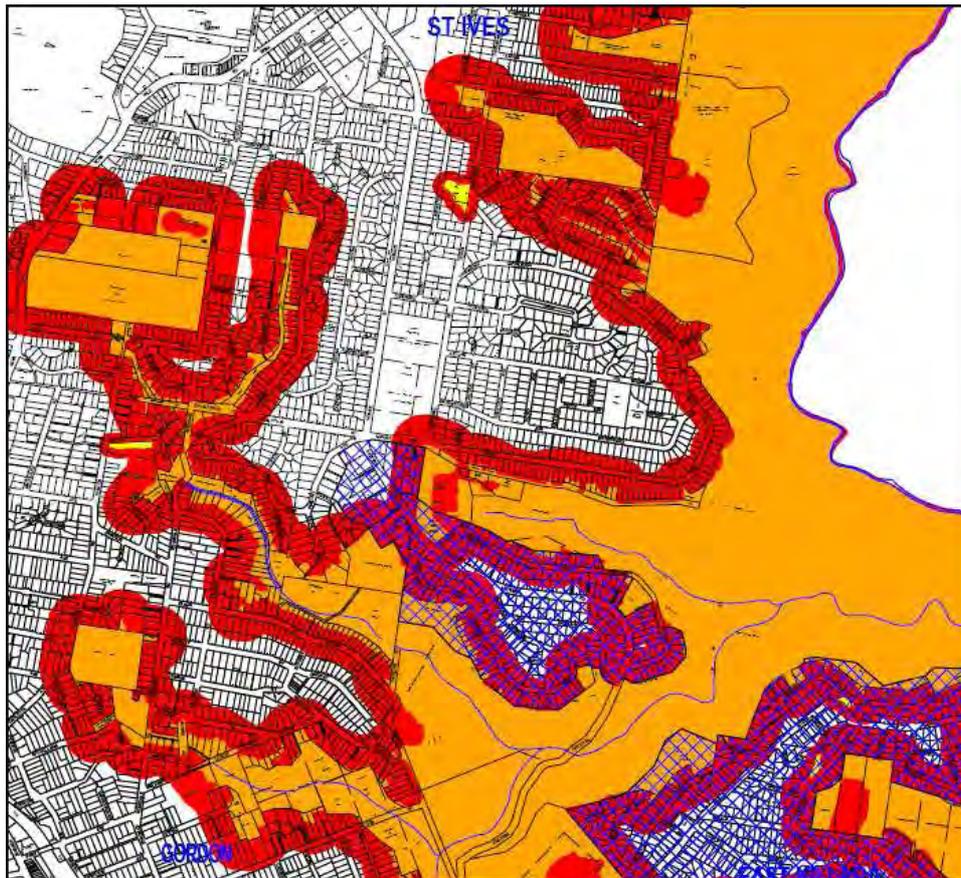
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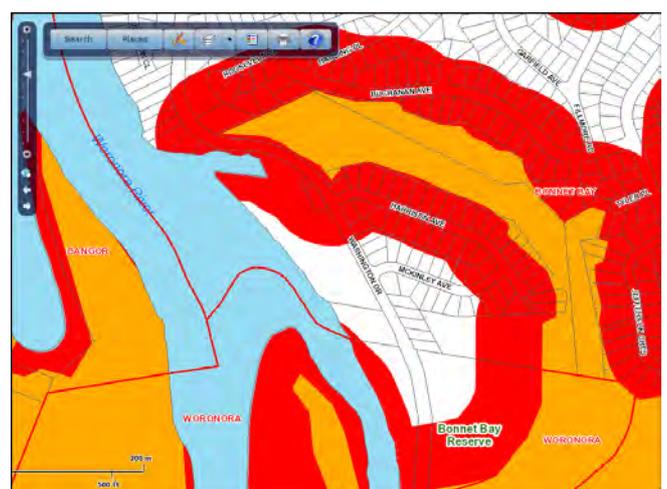
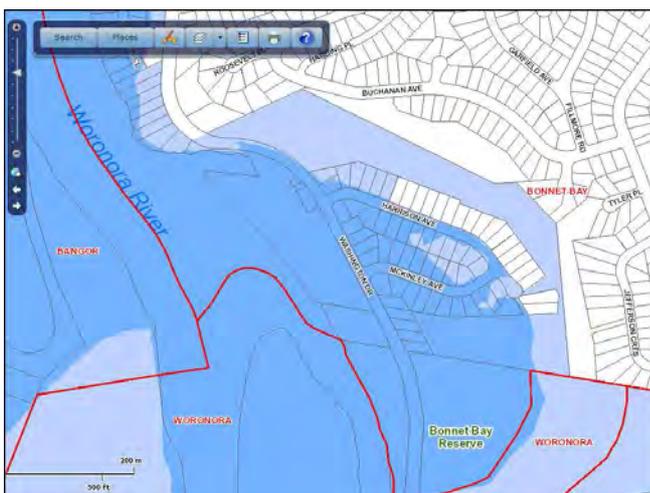
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This is typically utilised to ensure development applications comply with (mitigation) requirements for bushfire sensitive areas: <http://www.kmc.nsw.gov.au/www/html/471-bushfire-prone-areas.asp>

Similar approaches are evident across other Councils – for example Sutherland Shire provides searchable flood Maps for the Sutherland Shire, as well as maps of bushfire prone Land: <https://mapping.ssc.nsw.gov.au/Sutherland/>



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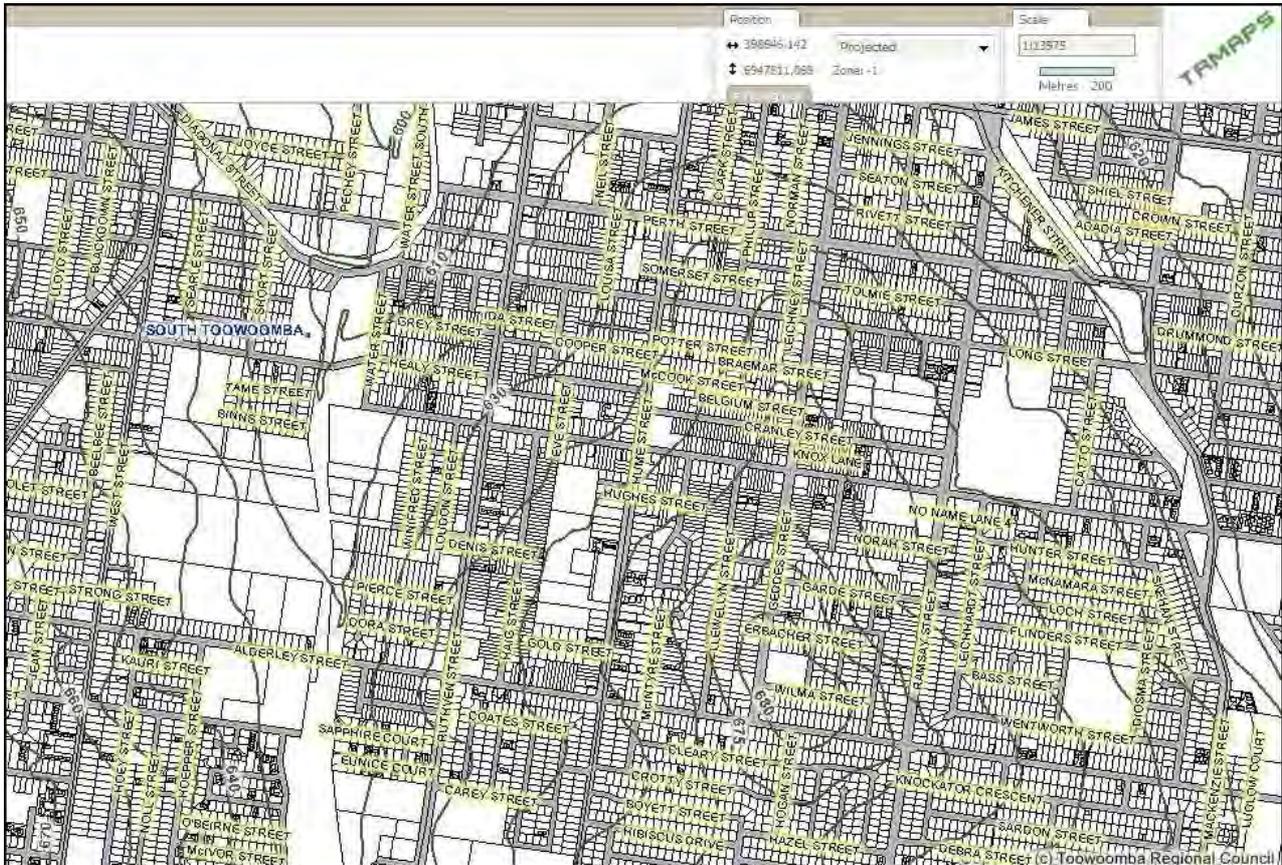
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In Queensland, Toowoomba <http://trceview.toowoomba.qld.gov.au:8082/eview-html/index.html> provides detailed resources on geographic, infrastructure and town planning matters.



In all of the above cases, the quality, layout and integration requirements of the data varies greatly from one source to another – a factor no doubt caused by differences in priority, budget, skill and approach across the different creators.

**Ajilon Opinion**  
 Whilst many efforts in this field are extremely informative and therefore commendable, the investments by Local Governments and private industry in natural disaster risk information services do not appear to be effectively or consistently leveraged as a national asset.

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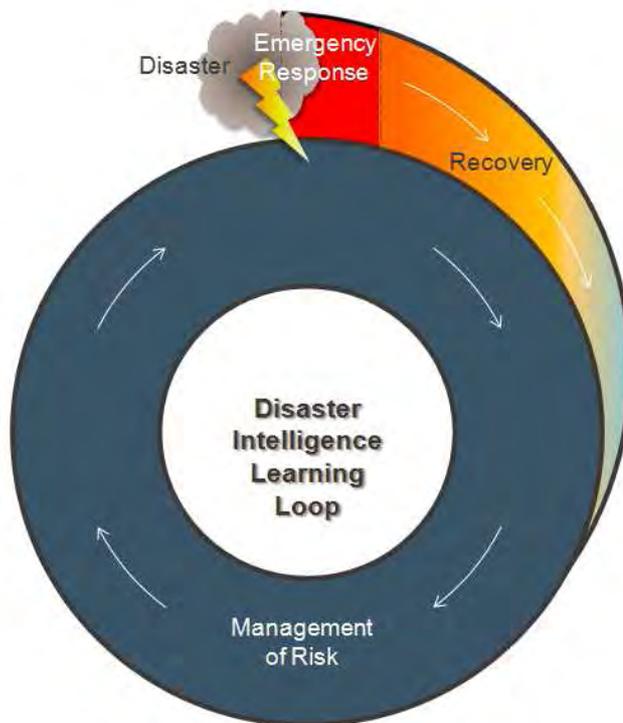
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## 7. The Opportunity - A Holistic Approach to Disaster Intelligence That Improves Long-Term Resilience

An integrated approach has the potential to more clearly leverage available data and learnings from prior events.

We see the following as Key Principles:

1. Achieve step change in risk management, emergency response and recovery from major natural disasters
2. Facilitate the flow of information to stakeholders before, during and after disasters
3. Improve long term resilience to natural disasters
4. Improve the accountability of general insurers and other stakeholders



**Ajilon Opinion – The Opportunity**  
 The ability to learn from prior experience and apply those learnings to future Natural Disasters can only improve Australia’s long term resilience.

## 8. A National Disaster Information Portal will likely improve the quality of disaster-related decision making across Public Bodies, Private Industries and Individuals

The availability of a national information service, for example a public web portal that is capable of identifying individual property risks across a range of Natural Disasters, could serve a number of purposes:

- a) **Creating Awareness.**
  - Awareness at an individual level, with associated influence on decisions to purchase one property over another.
  - Awareness through the Insurance Industry who provide a level of protection for those properties.
  - Awareness for lenders who would want to know the level of risk and relevant insurance cover for a given property before they fund its purchase.
  - Most importantly: Creating awareness across various local, state and other governing bodies that are responsible for planning and maintaining building codes, in order to ensure that the stockpile of

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these high-risk properties are decreasing through mitigation, rather than increasing due to ill-informed planning.

**b) Driving Additional Mitigation Activity**

- Mitigation at a community level (eg: levees banks for a suburb).
- Mitigation at an individual household level (eg: sprinkler system for bushfires; elevated housing for floods; higher quality building standards for most disasters).
- Mitigation of the cost to individuals through market based solutions such as insurance and refinements to lending criteria.

**9. Stakeholder Benefits**

The NDRP has already identified a multitude of stakeholders spanning the general Community, authorities across all levels of Government, engineers and analysts and of course Insurers. The key benefits of a location-based national disaster intelligence portal that could be leveraged across stakeholders are:

- Greater awareness of natural disaster risk and mitigation activity.
- More holistic information – with more cost effective production and maintenance.
- Improved incentives to proceed with (engineering) mitigation activity.
- Better informed market based solutions (such as Insurance).

From a stakeholder perspective – there seem to be common interest in creating long term resilience, as suggested by the following table and consistent with the National Strategy for Disaster Resilience:

Appropriate Management of Risk	Suitable Emergency Response	Effective Recovery Programme	Outcome
✓	✓	✗	ANGST: long term disruption to community & business
✓	✗	✓	CHAOS: life threatening issues, uncoordinated activity
✗	✓	✓	WASTE: no learnings, no mitigation
✓	✓	✓	RESILIENCE: Improved disaster handling

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## 10. Publicly Available Location-Based Information Portals for Reference

There are a range of existing Portals of the nature we describe that provide evidence of the possibilities.

- a) Historical Land Records. The State's oldest and most important land records, dating back to the founding of the colony of NSW, are now available for free public viewing made possible through an initiative between the Land and Property Management Authority (LPMA), State Records Authority of NSW and State Library of NSW.

*"Now, not only has technology changed the way land is surveyed and mapped, it is helping to open up historical land records to the public. Records like maps and titles can provide a wealth of information about local history and the family history of the occupation of a house or property, and today this information is now accessible with a few clicks of a mouse button."*

[http://www.lpma.nsw.gov.au/\\_data/assets/pdf\\_file/0009/138744/101103\\_Lands\\_Free\\_public\\_access\\_to\\_historical\\_records\\_WEB.pdf](http://www.lpma.nsw.gov.au/_data/assets/pdf_file/0009/138744/101103_Lands_Free_public_access_to_historical_records_WEB.pdf)

- b) ATLAS – NSW Land and Property Information: Statistical; census information available for the general public for a range of purposes. An initiative of Land and Property Information with the following objectives :
- To support open and transparent government initiatives
  - To establish a comprehensive digital educational resource
  - To offer new and emerging technology to the community

Web address: <http://atlas.nsw.gov.au/public/nsw/home/map/base.html>

- c) SIX Viewer – NSW Department of Lands: provision of location-based information offering servicing government, commercial and consumer sectors who commissioned development of a web-based system to deliver services across the NSW Government. The result is the Spatial Information eXchange (SIX) Viewer which is a cross government shared service initiative that provides access to Location Intelligence solutions to tackle specific business issues faced by Government authorities.

Since its high profile launch, SIX has received unprecedented praise and won the 2008 NSW Premiers Public sector Gold award The SIX Viewer demonstrates how information provided by State, Federal and Local Government agencies can be integrated and exploited to support informed decision making.

### **Ajilon Opinion:**

Each of the above examples has the potential to be integrated with additional data layers or sources (such as risk propensity, past disaster studies or models, emergency response data, community demographics and local council planning codes, etc) in order to create a single repository of national disaster intelligence.

Based on our experience, with the initiatives listed above, we know this is technically very feasible. Politically and economically however there will need to be sufficient willingness and determination to drive through such a national initiative across disaster categories. Only then will such an information service reach its greatest potential usefulness and value to the community.

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**Ajilon Response**

## About us

Ajilon is a leading consulting company with committed and talented professionals, providing end-to-end information technology and business consulting services across the Asia Pacific region. Globally, Ajilon is an industry leader in managed services, consulting and specialised provisioning with offices in North America, Europe, the United Kingdom and Asia Pacific. Our approach is simple – we make sure we understand your business then work alongside you as an extension of your team, using our expertise and proven methodologies. Here in Australia, we have offices in most major capitals, operating with an experienced team of consultants who actively deliver solutions that support and improve our clients' initiatives every day.



## What this means for you

- Guidance on how to cost effectively extract the value of Location Intelligence
- Differentiated services to your customers
- Optimised and customer/asset focused delivery of services
- Better understanding of who your clients are, where they are located and what they want
- Business aligned strategy and implementation
- Business focused solutions
- Integrated IT/Location Intelligence solutions
- Integration of data silos
- Services provided by highly experienced consultants with a proven record in delivering Location Intelligence solutions

## Choose us

Ajilon identifies and delivers measurable benefits from Location Intelligence solutions development and implementation. Our wide range of Location Intelligence, IT and business services mean that Ajilon can independently provide the full suite of services required to build or implement every Location Intelligence solution. Whatever your location-based requirements, our partnership approach can strengthen the way you operate and interact with your customers.



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