

Climate Change Adaptation and Flooding:

Australia's Statutory and Institutional Arrangements



Floodplain Managers Association National Conference, 23rd May 2014

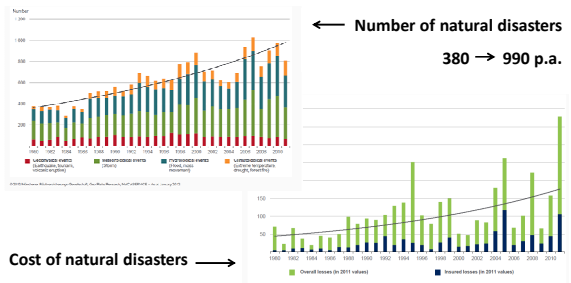
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2010-11 Flood recovery bill
(Qld & Vic, '000,000,000)

Federal (NDRRA):	\$5.8
States (NDRRA):	\$2.0
Insurance:	\$2.5
Uninsured losses:	?
Charity (Qld):	<u>\$0.266</u>
	~\$10.5 billion

Average annual flood cost (1967-2005) : \$377 million (Australia)

Global disaster statistics 1980-2011
(source: Munich Re)



Number of natural disasters
380 → 990 p.a.

Cost of natural disasters
\$US 48 → \$125 billion p.a.

Climate change and floods

- Less predictable
- Changed intensity, frequency, location
 - Flash flood (intense rainfall events, run-off from dry catchments)
 - Cyclones move south; associated rain >20%
 - \$226 billion coastal assets at risk from 1.1m SLR
 - MDB 1:100 ARI → 1:10 ARI possible by late C21
- More severe drought: floods an opportunity?


The Project

A case study examining:

- current policies and institutional arrangements for flood
- reforms to reduce Australia's future vulnerability to flood

Part of the 'Statutory frameworks, institutions and policy processes for climate adaptation' project

Funding:



NCCARF
National Climate Change Adaptation Research Facility
Adaptation Research Network
SOCIAL, ECONOMIC AND INSTITUTIONAL DIMENSIONS

Institutional Mechanisms

Attribute	A. Jurisdictional scope	B. Sector	C. Threat	D. Nature	E. Basis of power
Mechanism					
1. Inter-governmental function	Case study 1 (NWC/NCC)				Case study 1 (NWC/NCC)
2. Intra-governmental function			Case study 5 (Primary industries)		
3. Regulation by prescription	Case study 5 (City of Melbourne)		Case study 7 (Floods)		
4. Planning processes		Case study 2 (Planning regs)			Case study 2 (Planning regs)
5. Funding function					
6. Information and analysis function		Case study 3 (Energy, water)			Case study 3 (Energy, water)
7. Supporting market arrangements		Case study 4 (Finance)			Case study 4 (Finance)

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Information sources and focus

Literature review


- Flood reviews, policy documents, legislation, agreements, funding reports, academic literature

NCCARF 'Living with Floods' project

- analysis of Australian flood reviews; interviews; NL, USA, China case studies

Focus on flood prevention

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1. Non-mandatory consideration of flood risk

- Conflicting policy objectives (short v's long term gains)
- Lack of flood mapping
- Processes to revise key planning instruments

Reform needed:

- Consistent policy, legislation and planning processes
- Nationwide investment in basic flood mapping, eg. QRA maps
- Mandatory inclusion of flood controls in local planning schemes
- Processes for prompt inclusion of new flood information

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2. Inadequate incorporation of future scenarios into planning tools

- Flood modeling does not provide adequate certainty for local decision making

Reform needed:

- Decision making that does not rely on information certainty
- Incorporate climate change risks into building codes
- Assess adequacy of planning tools
- Use of palaeological information in mapping (eg QRA maps)
- Local government alliances that pool resources


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Are our planning tools adequate?

- Climate is no longer stationary
 - 1:100 ARI could become a 1:10 ARI in the MDB late 21st century (Hirayabashi et al 2013)
- Safety standards higher overseas
 - NL 1:1,250 (riparian) to 1:10,000 (sea) year event
 - China >1:200 ARI where population >1.5 million
 - USA reviews: 1:500 ARI better for urban areas
- Buffers other uncertainties (eg future development, short term flood records)
- Australian Rainfall & Runoff Guidelines revision

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3. Inadequate on-the-ground application of development controls

- Conflicting policy priorities
- Insufficient resources for local government eg risk assessment
- Negative financial consequences of responsible decision making eg, when land is down-zoned
- Lack of financial consequence for risky decision making

Reform needed:

- Clear development policy priorities
- Resourcing & technical support for local governments (eg LAPP)
- Incentives/disincentives to support responsible decision making

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4. Insufficient funds for mitigation v's relief and recovery funding

- Short parliamentary terms: mitigation spending is unlikely to receive credit
- Media coverage focuses on disasters and response

Reform needed:

- Increased funding of mitigation
- Strong promotion to the public about the benefits of prevention / mitigation and government action

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5. Rebuilding to pre-existing standards

- Additional upfront recovery costs
- *Immediate* rebuild / repair needed; *lengthy* cost-benefit analysis and approval processes
- Lack of betterment provisions for private owners

Reform needed:

- Flood recovery strategies that merge with prevention
- Agreed processes to pre-approve infrastructure for betterment
- Targeted recovery grants; new mitigation insurance products

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6. Flood risk information is not available

- Inadequate flood mapping
- Financial consequences for local governments if they apply new information
(eg, legal fees, compensation, lower rates income)
- Financial consequences for landowners
(eg ↓land values; ↑insurance premiums)

Reform needed:

- Being addressed eg NFRIP; ANZEMC Roadmap covers vendor disclosure; AR&R revision incorporates climate
- Support and incentives needed for local government
- Nationwide basic flood mapping (eg QRA maps)

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7. Implementation of maladaptive approaches to flooding

- Local implementation of flood control: off-site impacts
- Effective flood mitigation can be counter-intuitive
(eg, 'clear and straighten' increases flood damage)

Reform needed:

- Administrative systems support catchment based approaches
 - collection of flood information
 - assessment & implementation of flood mitigation
(considers cumulative impacts and +/- externalities)
 - market mechanisms, eg payment for ecological services
- Raise awareness of adaptive mitigation options

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Key findings

1. Non-mandatory consideration of flood risk
2. Inadequate incorporation of future scenarios into planning tools
3. Inadequate on-the-ground application of development controls
4. Insufficient funds for mitigation: Generous relief and recovery funding
5. Rebuilding to pre-existing standards
6. Flood risk information is not freely available
7. Implementation of maladaptive approaches to flooding

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