Climate change adaptation in Ku-ring-gai

‘enhancing disaster resilience using sustainability principles’
Adaptation Objectives

- Create a longer term plan assessing risks against community vision
- Phase in plans over time to pre-empt risks
- Prioritise risk mitigation and Sustainability
- Identify and target vulnerable community sectors
Ku-ring-gai Council Climate Change Adaptation Plan

- Available (2007) adaptation models only went half way i.e. broadly analysed risks, proposed adaptations but did not determine the comparative performance of adaptations;
- Ku-ring-gai Council collaborated with Macquarie and Bond Universities to identify useful tools for comprehensive cost / benefit adaptation modelling;
- Regional climate change models have greater uncertainty than national or international scale models;
- Decision making under spatially and temporally complex and uncertain conditions is very challenging
Decision making under complexity and uncertainty – Bushfire Risk

- Climate modelling indicates more days of extreme bushfire weather (hotter, drier) conditions in Sydney;
- Ku-ring-gai is one of the most vulnerable areas in NSW to bushfire;
- 14,000 houses located in high risk bushfire zone;
- Ridge top development with older brick / tile homes;
- Fire prone vegetation type;
- Surrounded by three National Parks plus 120 bushland reserves within the LGA.
Tools identified by the Council and Macquarie Bond Universities Collaborative Partnership

- Regional climate modelling uncertainties confirmed;
- Poisson Distribution (forecasts future trends in bushfire losses from historical data)
- Bayesian Inference theory (uses expert opinion to supplement data where there is an absence of historical data)
- Borda Count method (for ranking in priority order)
Identifying and prioritising the potential adaptations

- Identification of potential adaptations in expert workshop;
- Ranking according to impact on Triple Bottom Line (environmental, social, financial) and their ability to reduce key risks;
- Ranking by expert staff and then experts in the field in two workshops;
- Options and ranking validated by Ku-ring-gai community (in survey, shopping centers + workshop).
Top ranking adaptations highlighted the benefits of ‘SHARED RESPONSIBILITY’

For example: community bushfire resilience
Engage with residents identified as most at risk and assist them to:
- understand the nature and level of their risk exposure
- investigate how to build resilience using multi-hazard analysis
- connect with others in their area to build neighbourhood resilience
- better understand the roles and capacity of emergency management agencies to assist them in different scale of events
And so Climate Wise Communities project was developed

` to strengthen community resilience to extreme weather events using trans-dimensional, multi-hazard self directed assessment and action`

**Definitions**

**Resilience**

= self reliant, minimising losses, empowering decision making capacity and psychological preparedness

**Trans-dimensional**

= personal, property, neighbourhood dimensions

**Multi-hazard**

= bushfire, storm, heat stress, drought (may vary depending on location and context)
Communities need help to understand disaster vulnerability and resilience building

**Research demonstrates that:**
- Disasters rarely occur in a way anyone anticipates.
- Disaster preparation, survival and recovery plans need to be flexible and adaptive.
- Assessing who is vulnerable involves a multi-agency consultative process reinforced by community evaluation.
- Future land use planning provisions need to reduce the number of people and properties at risk from extreme weather events.
- Recovery is not about ‘bouncing back’ but bouncing forward (be ready to take opportunities to improve through disaster recovery process).
- A ‘shared responsibility’ is the most practical means of dealing with disasters in a shifting climate context.
Climate Wise Communities highlights the benefits of residents connecting to maximise resilience

CWC is designed to promote independence by linking

- personal capacity to respond
- property resilience and
- neighbourhood connectivity when planning for extreme weather events
Recent findings informing CWC methods

RMIT and Bushfire CRC research into Bushfire Survival Plans in Black Saturday and other recent events found:

- An inability to think logically in a crisis is linked to preparedness
- Importance of understanding the reality of your situation and options for backup plans
- Importance of pre-determined triggers for leaving
- Ability to adjust plans for catastrophic conditions
- Importance of written, rehearsed plans vs conceptual

Rather than a simple linear survival plan, people need to:

- Understand the strengths and weaknesses of their home
- Understand their neighbourhood in different disaster contexts
- Be prepared with alternative actions as conditions change
- Build and maintain local communication networks (e.g. Heads Up For Fire – Blue Mountains RFS) to keep informed
## Collaboration

### Across Council departments
- Operations
- Community Services
- Communications
- Strategy & Environment

### With community/business groups
- Hornsby Ku-ring-gai Multicultural Workers Network
- Ku-ring-gai Neighbourhood Centre
- Aged Care providers
- Easy Care Gardening
- AIDER program (RFS)

### With other agencies
- NSW Rural Fire Service
- NSW State Emergency Service
- Fire & Rescue NSW
- Australian Red Cross
- NSW Health
- NSW Police & Emergency Services
- Local Emergency Management Committee
- Hornsby Ku-ring-gai Bushfire Management Committee
Understanding their *Personal Capacity* to Respond to an Extreme Event

Residents need to honestly acknowledge their:

- own physical and psychological health;
- health of other household members;
- support network and what assistance is available at short notice;
- capacity to offer assistance, to whom and what type of assistance might be required;
- the nature of the physical environment, for example evacuation route alternatives and restrictions, where to go if they do evacuate, what items they need to take
Property scale - identifying vulnerabilities and strengths
Neighbourhood scale - communication networks, planning collective effort for stay and defend
Neighbourhoods & What if? exercise
## Self-directed resilience action plan

<table>
<thead>
<tr>
<th>Actions</th>
<th>Resources Needed</th>
<th>Benefit for: Bushfire, Storm, Heat stress, Drought Or multiple benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make an emergency plan</td>
<td>Plan template</td>
<td></td>
</tr>
<tr>
<td>Discuss plan with family and friends</td>
<td>Time, and my son to pay attention...</td>
<td></td>
</tr>
<tr>
<td><strong>Property</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Install gutter guard</td>
<td>Advice on best guards for our guttering, $$</td>
<td></td>
</tr>
<tr>
<td>Trim trees overhanging roof</td>
<td>Advice of arborist, check permission needed, $$</td>
<td></td>
</tr>
<tr>
<td>Clear the leaf litter around house and garden</td>
<td>Time</td>
<td></td>
</tr>
<tr>
<td><strong>Neighbourhood</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organise a street meeting with RFS</td>
<td>Contact RFS for support</td>
<td></td>
</tr>
<tr>
<td>Can we maintain the land behind our block?</td>
<td>Contact person in council? Bushcare?</td>
<td></td>
</tr>
</tbody>
</table>
Climate Wise Communities Innovations

- Tailoring and developing participant activity based learning rather than delivering standardised messages
- Communication – utilising local community networks to improve disaster preparation and recovery capacity (interest groups, sports and recreational groups, churches, P&Cs etc)
- Knowledge – a better understanding of the value of a ‘shared responsibility’ approach to climate adaptation
- Motivation – support for continuing community action through ongoing education and engagement.
- Identifying common and unique elements to disaster types
- Lived local experience invaluable to identifying better disaster response alternatives
Some adaptations have Multi-hazard benefits (that is for fire, storm, drought and heat) e.g.

- Fire rated storm shutters
- Rainwater/storm water retention tanks
- Landscape design and plant selection
- Back up power supply
- Underground power lines
- Local communication links
- Access to a refuge area (with facilities and shelter)
- Fire retardant home insulation
Strengths and Weaknesses of a Multi-Hazard Approach

**Strengths**

- Existing community networks are fertile ground for capacity building and knowledge reservoirs in times of disaster.
- Community networks have the capacity to be integrated into local disaster management system that link to emergency services and government.
- Highlighting personal resilience and independent decision making reduces the pressure on stretched emergency services during major events.

**Weaknesses**

- Simplifying complex methods without compromising rigor is difficult.
- Engaging the community in disaster resilience can be limited by irrational optimism, misinformation and short term memory.
Progress so far

Workshops included:

- Residents living on interface classified ‘extreme’ bushfire risk (3 w’shops)
- General climate risk (1 w’shop)
- Carers network for aged and disabled at home (1 w’shop)
- CALD network (1 w’shop)
- Seniors (2 w’shops)
- Aged care businesses disaster preparedness (1 w’shop)
- Resident action group living in an area with restricted evacuation (1 w’shop)

Total workshops = 10
Total attendees = 190
CWC Workshops Planned for 2014

- 3 residents living on bushland interface as ‘extreme risk’ of bushfire
- 1 childcare centre managers
- 2 SME business continuity and resilience
- 1 aging resident independently living at home
Where to from here?

- Developing program and methods to meet emerging community needs and concerns
- RMIT Bushfire CRC – models to engage and behaviour change
- Future funding sources – Environmental Levy 2 and external grants and partnerships
- Continue assisting others to build climate change adaptation capacity – to date this includes the United Nations Asia Pacific program, the governments of Korea, China and France and other local Councils Australia
- Currently reviewing Council’s capacity to assist an Australian aid organisation working with the poor in Vietnam on climate risk and adaptation plans.