

Cross-Scale Barriers to Climate Change Adaptation in Local Government, Australia

Workshop One Report

31 JANUARY 2012

PREPARED FOR:
National Climate Change Adaptation Research Facility (NCCARF)

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The Institute for Sustainable Futures (ISF) was established by the University of Technology, Sydney in 1996 to work with industry, government and the community to develop sustainable futures through research and consultancy. Our mission is to create change toward sustainable futures that protect and enhance the environment, human well-being and social equity. We seek to adopt an inter-disciplinary approach to our work and engage our partner organisations in a collaborative process that emphasises strategic decision-making.

For further information visit:

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1 BACKGROUND

Local Governments across Australia are confronted with an ever increasing exposure to climate change impacts from drought to flooding, sea level rise and heatwaves. However, even with best intentions there are significant barriers that restrict or prevent good adaptation planning and management in the local government context. To build on the good work that is being done, this project aims to identify what these barriers are, based on strong stakeholder informed knowledge, and to suggest ways to enable effective climate change adaptation in local government. The overall objective of this study is to synthesise a set of critical barriers to adaptation planning and implementation by local government in Australia thereby defining the adaptation interventions to move to a climate resilient delivery of local government services.

The research involves the following methods:

- Desktop analysis of regulatory framework around adaptation planning and key adaptation programmes in Australia and a synthesis of common barriers to adaptation experienced in Australia and overseas
- Key informant interviews with national stakeholders involved in adaptation planning
- 5-8 case studies from Local Councils in NSW and other states demonstrating how particular barriers have been overcome
- Three workshops with various stakeholders which include:
 - o Workshop 1 (January 2012): Identify critical barriers and causes with Local Government representatives in NSW
 - o Workshop 2 (April 2012): Re-prioritise barriers and identify methods of overcoming barriers with multi-level stakeholders
 - o Workshop 3 (May 2012): Gain consensus and barriers and causes from national stakeholders.

This independent research project is funded by the National Climate Change Adaptation Research Facility (NCCARF) and being undertaken by The Institute for Sustainable Futures (ISF) at the University of Technology Sydney (UTS). Key advice will be provided to the project by the Australian Centre for Excellence for Local Government based at UTS.

2 WORKSHOP AIMS

The overarching objective of this study is to identify cross-scale barriers that limit planned adaptation to climate change impacts within local government (LG), thereby defining the adaptation capacity interventions to move to a climate resilient delivery of LG services. Specifically, the first workshop aimed to synthesise a set of critical barriers to three key phases of the adaptation process, namely, understanding, planning and implementation. Additionally the workshop aimed to identify the processes that gave rise to these barriers, for example, governance structures, and how actors and the context of the system of concern contribute to these barriers.

3 WORKSHOP PROCESS

Invitations to the workshop was sent to all 152 Councils in New South Wales. The first workshop included 25 participants from mainly local government and those working with local government in adaptation planning (Appendix A). Prior to the workshop participants were sent a short briefing note outlining the activities of the workshop (refer to Appendix B).

The day began with a presentation from Dr Pierre Mukheibir, ISF Project Director who introduced the project team and provided background to the project objectives, methods, timeline and expected research outcomes.

3.1 WORKSHOP PRESENTATIONS

Workshop participants heard presentations from three speakers working in or with local government who were involved actively in adaptation planning and implementation. Each presentation was followed by questions and discussion. Following is a brief discussion about the speakers and their presentations:

Dr Paul Hackney, Senior Project Officer, Environmental Outcomes-Parramatta City Council

Paul Hackney presented an overview of formulating Council's Climate Adaptation Plan. The key barrier to date has been gaining support and approval for adopting the plan by the Councilors. Skepticism around climate change seems to prevail amongst many Councilors. Paul highlighted the significant amount of funding from the Waste and Sustainability grants (WASIP) that will be lost if Council does not adopt the plan. Actions taken to overcome such a barrier included conducting workshops targeting Councilors to highlight the need for adaptation in which adaptation was framed as a risk management strategy, similar in nature to existing risk strategies within Council. An additional barrier that was highlighted included the conflicting priority issues that staff have to deal with; climate change is just another one of those issues. However, it was noted that 70% of other Councils in NSW had started the adaptation planning process which supported Council's efforts.

Dr Jennifer Scott, Sustainability Program Leader, Ku-ring-gai-City Council

Jennifer Scott presented on the process adopted by Council in framing adaptation and developing an adaptation plan through stakeholder engagement. Climate change was framed as a 'wicked' problem which is multi-dimensional, involving multiple actors. The Environmental Levy is supporting Council implement the actions in their adaptation plan which specifically identifies actions for Council and the community. One key barrier that was highlighted included the limited power possessed by local government to deal with climate adaptation issues; the process is largely dependent on the State but currently there is very little leadership from the State level. In overcoming this Council has taken a proactive approach, recognising their statutory responsibility to act under various regulations such as the Coastal Protection Act and Civil Liability Act. A key message was the need to develop an independent fiscal base for local government to achieve autonomy and support for climate change initiatives through policy and regulation. Another constraint was understanding how to analyse climate adaptation given that decisions had to be made under spatially and temporally uncertain conditions. A successful approach that was presented included questioning lessons learnt from past experiences with extreme weather events such as bushfires and the coping mechanisms that were adopted (e.g., the significance of community engagement and education). Under a changing climate the likely consequences of the impacts was seen as the residual between vulnerability and resilience.

Geoff Withycombe, Executive Office, Sydney Coastal Councils Group

Geoff Withycombe provided an overview of the climate adaptation work done in association with the Coastal Councils Group (a conglomerate of 15 Councils). A key message that was emphasised was that many studies in Australia have synthesised barriers to adaptation by local government in specific localities but there is a greater need to identify solutions to barriers and synthesis adaptation barriers across Australia. There seems to be limited action on addressing these barriers. Recent research into understanding barriers within the Coastal Councils Group included: the complexity of the governance arrangements, capacity constraints (e.g., staff turnover, current workloads of staff), limited understanding of what vulnerability is and historical planning decisions (e.g., current planning policies, land zonings and historic practices). Three cross cutting barriers included community, infrastructure and planning. These barriers are top-down and bottom-up; they propagate from the State and Federal policy environment as well as the organisation structures of local government itself.



Dr Pierre Mukheibir



Dr Paul Hackney



Dr Jennifer Scott



Geoff Withycombe

3.2 WORKSHOP ACTIVITIES

The following section outlines the set of group activities undertaken by participants during Workshop 1. The activities were divided into three general sessions. Six groups comprising 4-5 participants were seated in separate tables according to the three themes of the adaptation process (i.e., understanding, planning and implantation). Each theme was analysed by two groups. Instructions for each activity were provided prior to the start of the activity. Participants were initially asked to introduce themselves to members of their group and an ice-breaker question was also included to develop rapport amongst the participants.



3.2.1 ACTIVITY 1: NETWORK MAPPING EXERCISE

The aim of this activity was to identify the existing ‘horizontal’ and ‘vertical’ linkages/relationships between the various stakeholders involved in adaptation planning by local government. Each group was asked to map out the key stakeholders according to their scale (e.g., Federal, State, local, and community) and indicate how these stakeholders are connected or not to local government, using a provided. Guiding questions that were provided for the activity included:

- In relation to local government, who are the primary, secondary and tertiary stakeholders?
- Reflect on the level of decision making around adaptation related to these stakeholders and how do inequalities in power¹ arise between these interactions?

Groups were asked to also include any stakeholders whom they believed should be in this network but currently missing.

¹ Power refers to the capacity to influence outcomes, with or without the legitimacy to do so.



3.2.2 ACTIVITY 2: IDENTIFYING CRITICAL BARRIERS

The aim of this activity was to synthesise three critical barriers related to each phase of the adaptation planning process. Specifically participants were asked to identify barriers that have or could stop, delay or divert the adaptation decision-making process at each phase. The stages involved in this activity were:

- 1) Each participant was asked individually to write down on post-it notes and stick on the paper all the barriers they have experienced during the theme assigned to their group.
- 2) Each group was asked collectively to cluster the barriers according to their similarity (i.e., like barriers with like barriers) and then to assign each cluster a thematic name e.g., regulation, operation, behavioural etc.
- 3) Each group was asked to select the top three cluster groups of barriers.



3.2.3 ACTIVITY 3: IDENTIFYING CAUSES

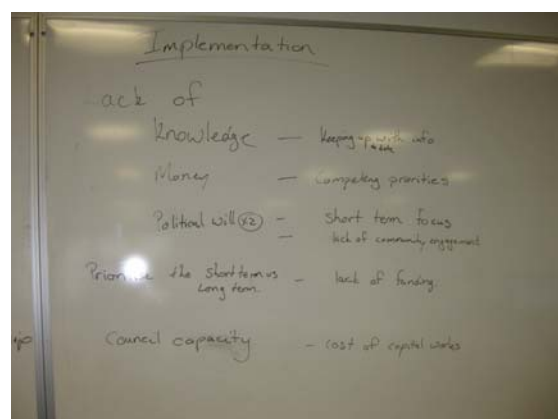
The aim of the final activity was to identify the underlying cross-scale processes that give rise to each of the three critical barriers identified in Activity 2. Working in the groups participants were asked to brainstorm a set of causes for each of the three cluster groups of barriers identified by each group. Finally, participants were asked to circle the primary cause for each barrier.

Some of the guiding questions for this activity included:

- How do the relationships between different stakeholders identified in the mapping exercise affect the processes that give rise to the barriers?
- What cross-scale attributes (financial, regulatory, behavioral, political etc) of the system give rise to the barriers?
- Who controls the barrier?



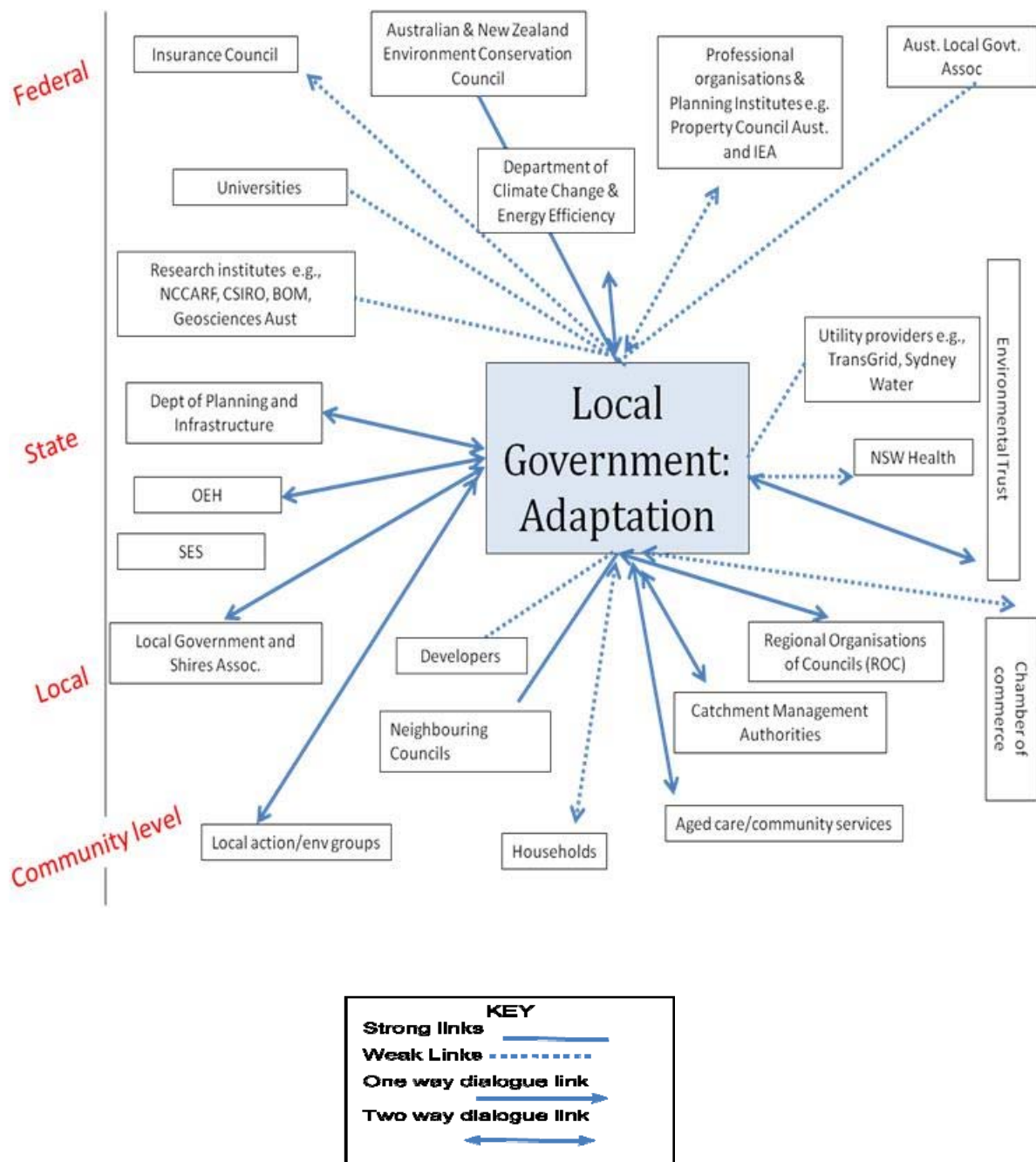
The workshop concluded with each group reporting back to all participants the key findings from activities 2 and 3, which was captured on a whiteboard by the project team. Discussion followed each groups' findings.



4 OUTPUTS

4.1 LINKAGES

The mapping of key players in the climate change adaptation sector and their relationship to each other is captured below. This is a summary of the mapping undertaken by the six groups.



4.2 BARRIERS

As noted in the workshop process description above, each of the ‘key barriers’ written below was chosen by the group to summarise a range of detailed barriers that has been identified by individuals in that group. A summary of all the barriers identified by the participants is provided in Appendix C.

The key barriers identified through this process are summarised in the table below:

THEME	KEY BARRIERS (What?)
1. Understanding	- Politics / Leadership – no champions or drivers - Evidence / data related to climate science and vulnerability - Scale – the issues are global and multi-level - Timescale / uncertainty / variability
2. Planning	- Lack of guidance frameworks (related to regulation, legislation and methodology) - Defining problems/identifying options - Historical (development, infrastructure, cultural values and education)
3. Implementation	- Prioritising long-term and short-term balance - Low Council funding and staff capacity - Funding - no budgets - Political will and social licence for change - Lack of knowledge of climatic impacts, tools, and monitoring

4.3 CAUSES

The following tables capture the results of the process to identify the main causes for the key barriers identified in the previous activity. The causes below are all the causes listed by the group as they worked together collectively. The critical causes nominated by the groups have been highlighted in bold.

4.3.1 THEME 1: UNDERSTANDING

BARRIERS	CAUSES (WHY?)
Politics / Leadership	- Short election cycle - No obligation to maintain/implement/stick with long term plans No statutory obligations - No accountability, poor performance measuring - Lack of incentives - Conflicting vested interests - Democracy
Evidence / data	Investment in collection of data over the long term - Not long enough data sharing – IP and state agency secrecy. - Inconsistency in data / info scale etc. - Media – misinformation - Resources

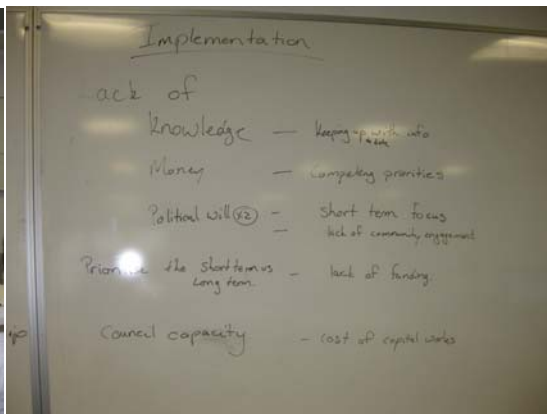
Scale	• Number of stakeholders • All encompassing • Too big – paralysing • Communication strategies not working • National / global / state wide issue being managed locally
Timescale / uncertainty / variability	• Regulation – Political (short) cycles versus Planning Cycle (long, evidence based) • Adversarial versus Consensus Politics (value based) • Defer costs to future – intangible returns

4.3.2 THEME 2: PLANNING

BARRIERS	CAUSES (WHY?)
Lack of guidance frameworks (related to regulation, legislation and methodology)	• Climate change is a recent/new issue(s) so understanding of it is not embedded in people's cognitive maps • Ownership of issue(s) is not determined in planning/legal/statutory frameworks (i.e., motherhood statements versus <u>local</u>, practical, well –resourced implementation frameworks • Lack of communication between local government and both the fed/state • Minority government • Strong industry voice (e.g., mining lobby, farmers federation, Coles and Woolworths)/political will
Defining problems/identifying options	• <u>Timeframes/timescales</u> often outside of: - o Councillors views/election cycles - o management performance accountabilities - o regulatory framework ; ability to change/consults/achieve, legal change - o method of determination –‘hazard’, community engagement
Historical (development, infrastructure, cultural values and education)	• Previous planning decisions/infrastructure/training of professional disciplines determines ‘currency’ • Already exists (and has life of 20 years plus e.g., road, footpaths) • Training areas for engineers/planners/architects don't feature climate change let alone adaptation • Cultural expectations (egocentric) • Religion • Mass media misinformation • Competing interests • Climate change fatigue/apathy • Threat to Australian prosperity (i.e., resource base and Australian cultural identity)

4.3.3 THEME 3: IMPLEMENTATION

BARRIERS	CAUSES (WHY?)
Prioritising long-term and short-term balance	• Lack of long term investment funds for change (@ Federal, State and local levels) • Lack of tools for assessing short vs Long term benefits/costs & risks • Short term nature of politics • Lack of funding leads to short term focus
Low Council funding and staff capacity Funding	• High cost of capital works • Lack of data (providing certainty), designs and solutions • Lack of recognition in the Federal constitution • Rate capping at State level • Competing priorities • Lack of funding for capital works • Lack of funding for innovative research and pilots • Lack of holistic view of expenditure across services and departments
Political will and social licence for change	• Lack of community engagement • Competing vested interests • Lack of legislative strength • Competing priorities • Short term political cycle and short term agendas • Media coverage • Risk averse councils • Noisy minority • Ignorant politicians • Reactive rather than strategic planning • Competing political system • Inconsistency between Federal-State-Local levels of government • Lack of co-operation between councils and levels of government
Lack of knowledge	• Keeping up to date (confusion with too much info) • Credibility of models and researchers in question • Misinformation through social media, radio & newspapers.



4.4 GROUP DISCUSSION

The following is a summary of comments captured from the floor:

Theme 1: Understanding
- Do we have the tools to actually implement adaptation i.e., is the current way Councils are structured and operate the best to facilitate adaptation? E.g., the way we do community engagement, the fact that councillors are not necessarily educated to a particular level. In contrast in WA you need to have a diploma in Local Government to be a Councillor. One idea would be to pay people to be on council – say 4 paid positions. A Council is like a business e.g., Councillors are like Directors and have some accountability. - The sector talks a lot about political versus planning cycles. The challenge at the local government level is to use evidence to take out the politics. Need political leadership. There are examples around the world where the top is not democratic, but democracy is at the local level where decisions have been mandated. Need a commitment to long term planning. Has to be some legislated commitment to long term planning.
Theme 2: Planning
- Australian cultural identity sets parameters around planning. Community engagement is important in planning. Whatever communities come up with is what council will go along with. Community engagement is part of the planning process. Level of engagement is fundamental; it's a barrier if there is a lack of it. However, it needs parameters, set them then go back and ask them what they think. Need them to set expectations realistically. - Language across disciplines within Council is a barrier. Not comfortable talking to each other about climate change e.g., engineers and planners were getting together for the first time around the issue but didn't really understand it as they were coming from different angles – language, disciplines etc.do matter - Why is climate change adaptation specifically an environmental issue? - adaptation never has been or should be an environmental issue – it should be a planning, economic issue (multidimensional). Another restraint has been imposed upon councils. By having a climate change officer, would create the situation that climate change is just someone else's job now rather than everyone's concern. However, because of the need to get some ownership of the issue and the issue to be taken on board across the organisation, a climate change officer in some cases is necessary.
Theme 3: Implementation
- How knowledge is framed is a barrier. There is also a need to gain consistency across different Councils and organisations around adaptation to give the issue more credibility. It is also better to implement adaptation plans as a group of Council who share similar issue across Council boundaries rather than doing own little adaptation projects. - Participants observed that barriers are all very similar. There are challenges faced at every step and things we need to be working on. Similar barriers were identified by each group today. - Do we have the tools to be able to implement adaptation? Are there the right tools? Councils currently use 34 year old tools for development planning. However, are they adequate for us to use under a changing climate? This is a major barrier for Councils.

5 DISCUSSION & NEXT STEP

The workshop process delivered a succinct list of barriers, for each of the key stages of adapting to climate change. These are supported by much more detailed lists of specific examples of barriers which fit beneath each of these general headings. There were significant similarities between the barriers raised for the three stages – suggesting that several barriers are cross cutting, in that they prevent understanding, planning and or implementation efforts.

Preliminary list of critical barriers arising from workshop 1

- Politics / Leadership
- Evidence / data
- Scale
- Timescale / uncertainty / variability
- Lack of guidance frameworks (related to regulation, legislation and methodology)
- Defining problems/identifying options
- Historical (development, infrastructure, cultural values and education)
- Prioritising long-term and short-term balance
- Low Council funding and staff capacity
- Political will and social licence for change
- Lack of knowledge

Participants were engaged actively and interested to learn more about approaches that other organisations were taking. In evaluating the workshop participants were appreciative of the opportunity to take timeout to reflect and also network with peers and other organisations; suggesting that information exchange may be an important mechanism for addressing some of the knowledge gaps in the sector.

Cross-scale connectivity between governments was identified as an issue, with causes including:

- *Inconsistency between Federal-State-Local levels of government*
- *Lack of co-operation between councils and levels of government*
- *Lack of long term investment funds for change (@ Federal, State and local levels)*
- *Lack of recognition (of local government) in the Federal constitution*
- *National / global / state wide issue being managed locally*
- *Strong industry voice (e.g., mining lobby, farmers federation, Coles and Woolworths)/political will*

A challenge for the project is also to meet expectations of local government in relation to having a highly practical focus. Comments from participants suggest a strong interest in practical implementable solutions, rather than just identifying barriers, and that they see state government as being a key stakeholder to help implement guidance and shape more consistent responses across local government. This is consistent with the approach adopted in this project.

The **next workshop** will include a broader range of participants representing the multi-level organisations identified in the network mapping exercise – with a reduced number of local government representatives, to validate and augment the views from workshop 1. The results from workshop 1 will be used to guide the methodology and structure of workshop 2. The aim of workshop 2 will be to understand how the critical barriers identified in workshop 1 may be overcome through adopting cross-scale strategies.

6 WORKSHOP FEEDBACK AND EVALUATION

The workshop concluded with participants completing a workshop evaluation form (see Appendix D). The evaluation form asked participants to rate various elements of the day. Of the 24 responses, 22 thought the workshop was either “very useful” or “useful” for connecting with peers working on similar issues, creating networks, with the remainder with “somewhat useful”. Additional questions and their responses can be found in Appendix E.

Specific feedback received related to Workshop 1 included:

“What would you most like to see emerge as a result of this project?” with responses including:

- “Engagement with state Government on the results of this report, to encourage clear policy guidance for councils on this issue”
- “That we can move on from identifying barriers and can address action!”
- “Informed legislative review”
- “Tools/Suggestions to overcome the barriers”

Additional feedback in our question asking **“Any suggestions for next time?”** included:

- “Practical/Programmatic options/Ideas issues resolved.”
- “Great engagement methods to capture information.”
- “Thanks for an excellent workshop.”

APPENDIX A: LIST OF ATTENDEES

	Name	Role	Organisation
1	Helen Burnie	Acting Team Leader Environmental Services	Blacktown City Council
2	Peter Maganov	Manager, Sustainability & Strategic Waste	Randwick City Council
3	Philip Booth	Research Associate	UNSW / NCCARF
4	Dr Paul Hackney	Senior Project Officer - Environmental Outcomes	Parramatta City Council
5	Elisa Idris	Sustainability Coordinator	Kogarah City Council
6	Geoff Withycomb	Executive Officer , SCCG	Sydney Coastal Councils Group
7	Andrew Hewson	Sustainability Co-ordinator	Penrith City Council
8	Dr Jennifer Scott	Sustainability Program	Leader Kuring-gai Council
9	Elizabeth Dixon	Senior Environmental Planner	Shoalhaven City Council
10	Lisa Carpenter	GIS Officer	Kogarah City Council
11	Karen Douglas	Sustainability Officer	Wyong Shire Council
12	Cinnamon Dunsford	Senior Strategic Planner/ DA Co-ordinator Member PIA	Shoalhaven City Council
13	Eddie Love	Manager - Integrated Planning	Gosford City Council
14	Louise Pilkington	Project Officer - Climate Change Integrated Planning	Gosford City Council
15	Geoff Evans	Environmental Security Coordinator	Lake Macquarie Council
16	Angela Dunnett	Sustainability Officer	Hunters Hill Council
17	Madeline Hourihan	Environmental Project Officer	Rockdale City Council
18	Geoffrey Smith	Program Leader Natural Environment Strategy, Policy and Science	Blue Mountains City Council
19	Fiona Shadbolt	Sustainability Programs Co-ordinator	North Sydney Council
20	Amber Rodd	Sustainability Officer	AlburyCity
21	Stephen Summerhayes	Senior Coastal Projects Officer	Sydney Coastal Councils Group
22	Debora Martins de Freitas	Postdoctoral Research Fellow	ANCORS, University of Wollongong
23	John Lavarack	EPO - Sustainability	Bankstown City Council
24	Gemma Bennett	Environmental Project Officer	Bankstown City Council
25	Iain Moore	Principal Strategic Planner	Lake Macquarie Council

APPENDIX B: BRIEFING NOTE

Cross-scale barriers to climate adaptation in local government, Australia

Workshop 1 Agenda and Background Document:

This workshop background reading pack is for confirmed participants of the research workshop being held on the 31st January 2012 by the Institute for Sustainable Futures (ISF).

It contains venue and event details, a workshop overview, and more details about each of the workshop activities.

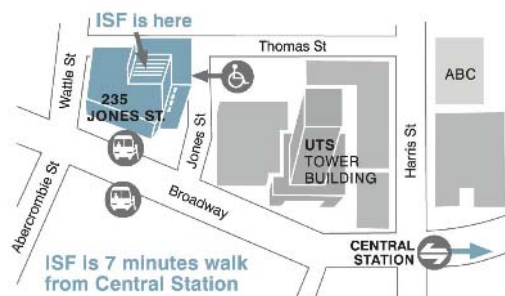
Participants of the workshop will be acknowledged in the final report, which will be sent to all interested participants.

We look forward to seeing you on the day.

Event and venue details

When: Tuesday, 31st January 2011
Registration between 9-9.20 am for 9.30am start, close by 1pm (followed by a light lunch)

Where: UTS: Level 6, Building 10 - HR Training Room 1 (CB10.06.440)
235 Jones St, Ultimo



Getting there: UTS is a 7 minute walk from Central Station. Limited metered street parking is available near to UTS.

Contact details: anna.gero@uts.edu.au or (02) 9514 4605 or 0402 227 662 on the day.

Make your valuable input on the critical barriers to adaptation planning by local government in Australia. Prior to the workshop, we ask you to think about how you can contribute to each of the group activities mentioned below, particularly Figure 2.

Workshop overview

Scope and format

- The day will feature presentations by speakers who have been active in adaptation planning in local government in New South Wales; reflections on the barriers² to adaptation will also be highlighted.
- The workshop will involve participants from local government and research institutions working closely with local government in adaptation planning.
- The workshop will be focused on identifying a set of 8-10 cross-scale barriers critical to adaptation planning and implementation by local government in New South Wales. It will also examine underlying causes of these barriers using a multi-governance framework.

Session 1 – Setting the scene

The session will commence with an introduction and background to the research. We will then hear from three speakers involved in adaptation planning in NSW and discuss their presentations. The session will conclude with an explanation of activities that are to follow.

Session 2 – Group activities

The session will involve working in small groups to undertake the following activities relevant to the research objectives:

1. Network Mapping Exercise – identify the existing horizontal and vertical linkages/relationships between the various stakeholders involved in adaptation planning by local government. In relation to local government, who are the primary, secondary and tertiary stakeholders? Reflect on the level of decision making around adaptation related to these stakeholders and how do inequalities in power³ arise between these interactions?
2. Brainstorming critical barriers to adaptation planning and implementation experienced during the three phases of an adaptation response (see Figure 2)– what can stop, delay or divert the adaptation decision-making process at each phase?
3. Identifying the underlying processes that give rise to each of the barriers - How do the relationships between different stakeholders identified in the mapping exercise affect the processes that give rise to the barriers?
4. Prioritising 8-10 barriers and their causes and reporting back and discussing these with all participants.

² In the context of climate adaptation, barriers are defined as “impediments, that can stop, delay or divert the adaptation process which can be overcome with concerted effort, creative management and related shifts in resources use, institutions etc.,” (Moser & Ekstrom 2010, p.2).

³ Power refers to the capacity to influence outcomes, with or without the legitimacy to do so.

Project Background

1) What is this research about?

Local Governments across Australia are confronted with an ever increasing exposure to climate change impacts from drought to flooding, sea level rise and heatwaves. However, even with best intentions there are significant barriers that restrict or prevent good adaptation planning and management in the local government context. To build on the good work that is being done, this project aims to identify what these barriers are based on strong stake-holder informed knowledge and to suggest ways to enable effective climate change adaptation in local government. The overall objective of this study is to synthesise a set of critical barriers to adaptation planning and implementation by local government in Australia thereby defining the adaptation interventions to move to a climate resilient delivery of local government services. Specifically, the study aims to address the following objectives:

- a) Identify the mechanisms to cope with climate variability at the Local Government level which provide a proxy to identify limitations to respond to climate change impacts
- b) Identify the underlying processes and structures that gives rise to these barriers, for example, process and governance structures, and how do actors and the context of the system of concern contribute to the barriers?
- c) Suggest options of how barriers will be overcome through end-user engagement, thereby defining the adaptation capacity interventions to move to a climate resilient delivery of Local Government services

2) Why is this research important

Research to date has identified common barriers to adaptation planning within Local Government in Australia which include leadership, competing priorities, planning process, information constraints and institutional constraints (Measham et al., 2011). Similar insights are drawn from international studies (Dessai S, Lu X, 2005). Although these studies have recognised the cross-scale integration and collaboration needs, many of these studies have focused largely on local government itself and internal barriers, rather than understanding the broader multi-governance system and cross-scale barriers that shape adaptation responses at the Local Government scale.

3) What data collection methods does this research adopt?

The research involves the following methods:

- Desktop analysis of regulatory framework around adaptation planning and key adaptation programmes in Australia, synthesise of common barriers to adaptation experienced in Australia and overseas
- Key informant interviews with national stakeholders involved in adaptation planning
- 5-8 case studies from Local Councils in NSW and other states demonstrating how particular barriers have been overcome
- Three workshops with various stakeholders which include:
 - Workshop 1 (January 2012): Identify critical barriers and causes with Local Government representatives in NSW
 - Workshop 2 (April 2012): Re-prioritise barriers and identify methods of overcoming barriers with multi-level stakeholders
 - Workshop 3 (May 2012): Gain consensus and barriers and causes from national stakeholders.

4) What theories is this research adopting?

The research will be guided by theories related to multi-level governance and Earth Systems Governance. Theories from multi-level governance are used to describe the management of collective issues, the various stakeholders involved and the processes used to influence adaptation actions and outcomes (van de Meene, Brown, & Farrelly, 2011). It emphasises the significance of cross-scale (both horizontal and vertical) interactions among structures and processes across multiple spatial scales. Multi-level governance literature which has its roots in the political sciences was developed to capture the networked and multi-scale jurisdictional nature of policy making and demonstrate that the outcomes at the local level are shaped by institutions at multiple levels (Bisaro, Hinkel, & Kranz, 2010; A. Smith, 2007).

5) What conceptual framework guides the research methodology?

The work by Moser and Ekstrom (2010) provides a useful diagnostic framework for characterising and organising barriers at different phases of the adaptation process across space and time and locates possible points of intervention to overcome a given barrier (see Figures 1 & 2). Moreover, it questions how best to support adaptation at all levels of decision-making; and thereby improve the allocation of resources and strategically design processes to address the barriers.

6) Who is carrying out the research?

This independent research project is funded by the National Climate Change Adaptation Research Facility (NCCARF) and being undertaken by The Institute for Sustainable Futures (ISF) at the University of Technology Sydney (UTS). Key advice will be provided to the project by the Australian Centre for Excellence Local Government based at UTS. ISF was established as a flagship research institute of the University of Technology, Sydney in 1996. Their mission is to create change towards sustainable futures through independent, project-based research. More information about ISF can be found by visiting our website: <http://www.isf.uts.edu.au>

7) What if I require further information? If you would like any further information please feel free to email Dr Pierre Mukheibir at ISF on pierre.mukheibir@uts.edu.au or call him on 9514 4962.

Figure 1: Conceptual framework for examining cross-scale barriers (adapted from Moser & Ekstrom 2010)

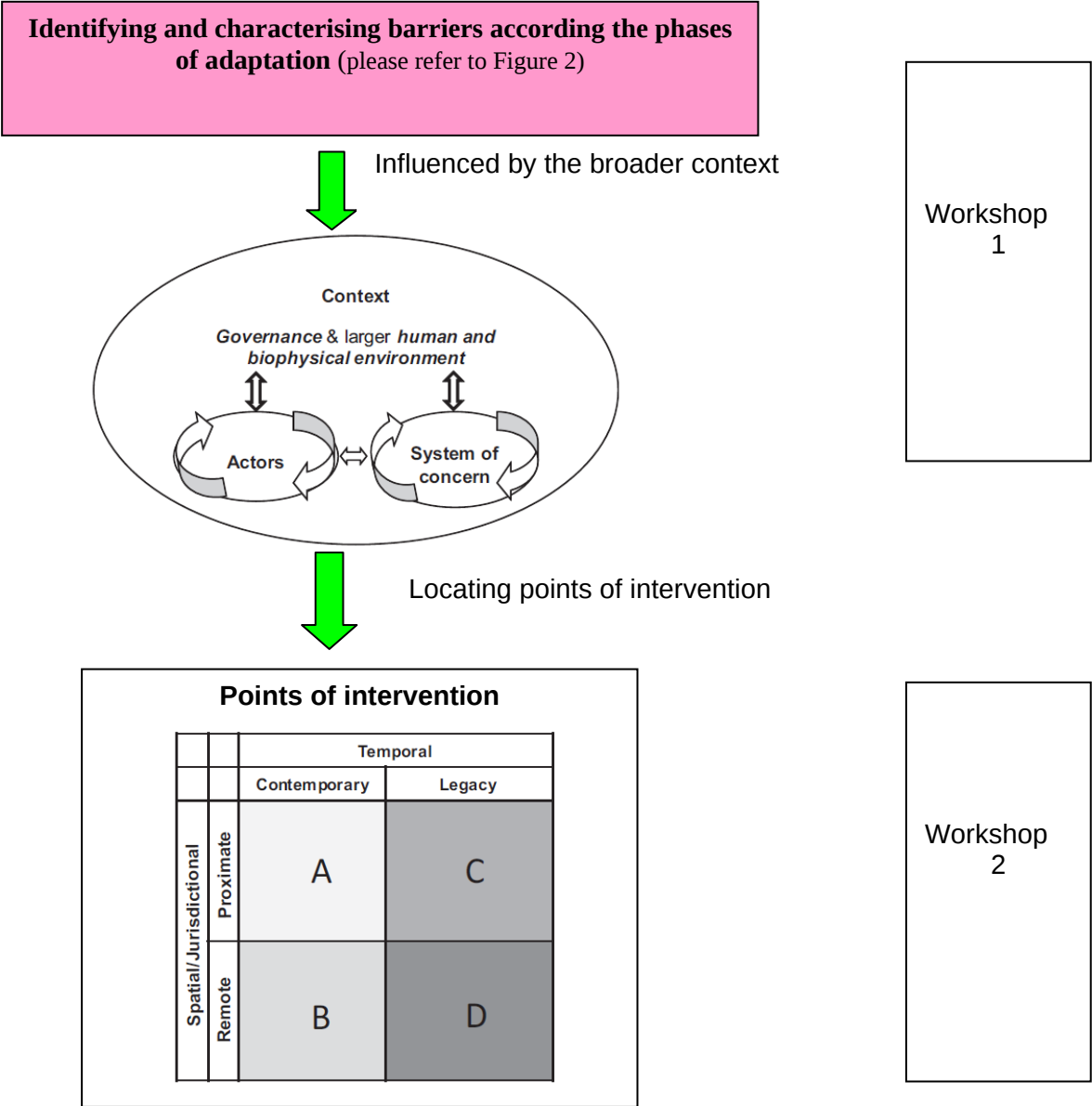
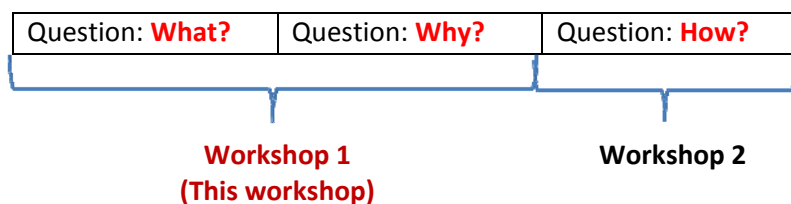


Figure 2: Characterising barriers according to the stages of adaptation planning

Phase of adaptation planning	Barriers	Causes	Overcome
	<i>Identify obstacles to achieving the three phases</i>	<i>What is the underlying problem that creates the barrier</i>	<i>What are the required external and internal interventions?</i>
1) Understanding: Involves problem detection, awareness raising, information gathering and use to deepen understanding of climatic impacts and the need to adapt			Workshop2
2) Planning : Builds on understanding, and includes the development of adaptation responses			Workshop2
3) Implementation and monitoring: Involves implementing selected adaptation responses and monitoring and evaluating outcomes			Workshop2



APPENDIX C: BARRIERS (WHAT?)

Theme 1: Understanding

Table 1	
Politics/Leadership	• Political environment • Election cycle • Leadership (corporate and political) • State Agencies – Lack of champions in some state agencies -> lack of support for L.G. • Urgency of climate change action – Tipping points, methane, etc. • Lack of responsibility/accountability – It's not my job/it's someone else's responsibility
Evidence/Data	• Lack of two-way communication (With LG leaders/senior management) • Lack of data/information specific to local environment • Inconsistency of information/direction • Information/communication – scientific jargon/technical terms • Lack of regular “big” environmental events e.g. big food event in the Shoalhaven river • Disconnected communication about CCA between federal and state
Vested Interest	• Pressure private sector/developers • Proliferation of MIS-Information • The media • Living in “the Nile” – Denial, sceptics, etc. CO2 good.
Scale	• Lack of stakeholder interest • Myriad of stakeholders (no order) • It's too hard/too complex – business as usual • Scale of problem: climate change affects so much ◦ Environment ◦ Information ◦ Social ◦ Cost and consequences, etc
Resourcing	• Funding/resourcing • Poor LCC in Asset management • Lack of proper resourcing (\$) Can't afford to be proactive/pre negative
Legislation	• Legislative structure • Legislation i.e. standard instrument LEP template etc.
Table 2	
Time scale /uncertainty: Direction + Authorities	• The lack of clarity and/or shared understanding of strategic intent of initiatives • The tendency for “sustainability” to be a rag bag where initiatives are bundled rather than ordered • The “juniorness” of roles specifically authorised to develop climate change strategy • Silos with separate people working on the same problem • Who's responsible? – no clear mandate for LG to do it • Need to have a policy adoption giving go ahead for such action
Time scale /uncertainty: Cost funding methods	• Expense of adaptation • Typically short timeline for consideration of future council budgets eg 1 – 5 years
Time scale /uncertainty: Lack of interest – internal and external	• Lack of interest: “not my problem” – community, staff, councillors • Rate bare not applying pressure; minority showing interest • Belief that any climate changes can be managed as business as usual

Time scale /uncertainty: Political Cycle	• Elections: - inability to make a decision before September • Short sighters – looking at short terms issue for elections purposes • The belief that the views of councillors on climate change cannot be challenged
Time scale /uncertainty: Denial	• Denial! • Denial that there is likely to be an issue with climate • Sceptism of climate change by councillors/staff
Time scale /uncertainty: No local info	• Local data on impacts • Lack of regional specific information • No solid regional information showing climate has already changed

Theme 2: Planning

Table 3	
History(s)	• Historical decisions (Zoning development... etc) • Lead/lag times to institute change • (...) of communities • Infrastructure “the big stuff”
Options	• Identifying options • Adoption options: ID/Sell/Fund
Expertise and Culture	• Disciplinary “culture” difference e.g. engineers, planners, management, environmental staff • Expertise – capacity (in council) • Adaptation “language” stifles/distracts ownership, responsibility, commitment to change original direction/culture
Frameworks	• Statutory regulatory requirements e.g. LEP, BCA, Standard Australia • Inconsistencies of nation-wide level in planning laws/models/templates • Identifying process or methodology to do planning • Inflexible/’one size fits all’ state planning templates – no allowance for contextual differences • Lack of local implementation direction (good strategies) • Consistency across scales to boundaries
Legal	• Legal challenges by developers (with deep pockets) to CC scenarios e.g. sea-level rise model • Liability
Funds	• Obtaining funding commitment to resource
Defining pros: acceptance	• When to start • What is the hazard – what is the risk • Defining objectives for study plans • Deciding what is the procedures
Community interest	• Consultation and engagement • Vested interests. Change sceptics • Generating interest – urgency or need for adaptation • Getting enough community engagement • How to engage community
Table 4	
Guidance and Regulation (Political Will)	• Inability to back zone • Lack of political will to implement environment protection overlays • Standard template restricts zonings e.g. no flood zones, no local clauses • State government DoP doesn’t have a clear enough guidelines in LEP to include climate change info • LEP/DCP Lack of council input into guidelines • Biodiversity + water clauses are useless – set up to fail. Impossible for

	assessing officers to retain vegetation using these clauses • Council worried about back lash from land owners if they flag at risk' properties – lack of protection from State + Feds • Can't put building hazard lines in the LEP – only the DCP (Which can be overturned). WEAK • Fear of litigation in realising SLR information • Standard LEP is Sydney based – doesn't cater for regional issues
Values/Education	• Manager of infrastructure assets doesn't believe in Climate Change and doesn't attend meetings • Perceived need to grow business in LGA, therefore weaker planning control
Operation	• Lack of LIDAR info to inform mapping for planning • No effective engagement with community as to needs • Lack of funding to do studies to inform planning • SES is situated in a flood zone • Emergency service data can't be utilised in our GIS system – wrong format (technical)
Behavioural	• CCA planning often conflicts with individual interests • Planning department not interested in environment issues, especially not sea level rise • Absence of unifies direction/needs • General sense that GC is too political and our data shouldn't be related to public • Myriad of competing pressures: population, economic, environmental... etc. • Strategic planners and assessment teams lack of communication (assessment under time pressure, therefore little thought for the future)

Theme 3: Implementation

Table 5	
Community engagement	• Finding act. Climate proof, residential land • Confusion in general population regarding climate change and long term risks
Mandating	• Legislative restrictions (council can only do so much) • Lack of directory guidance from a state level • Seen as global, national, or state issue – not local
Prioritising/ short term with long term	• Higher short term priorities • Competing priorities (budgetary) • Time lag in being implemental through management plans • Financial cost beyond capacity • Lack of cost-benefit/financial analysis tools • Sunk investments; too much invested in the status quo • The 'future' nature of problem for people not as processing as 'now' problems • Temptation to place implementation in too-hand booklet
Funding/Council capacity/ Strategy resources	• Funding availability • Funding limits • Lack of capital • Social vs. environmental benefits e.g. seawalls • Staffing limits • Insufficient staff to deal with it • Inertia of staff with little interest • Lack of council capacity e.g. to gather relevant data

	• Lack of engagement with/of our strategic planners • Silos within council can reduce implementation capacity • Fear of change/decision paralysis • Uncertainty as best way to proceed • Certainty of projections? (design/capacity)
Political will/Social license	• Political resistance by vested interests • Willingness to act (Politically) • Politicization of climate change • Day to day political pressures • Planning pressures • Community disinterest • Lack if engagement of key stakeholders • Community antagonism (e.g. urban retreat) • Lack of community and councillor knowledge
Floating barriers	• Climate change scepticism • Media support of climate change scepticism • Scepticism about capacity to change • Uncertainty/scepticism about science • Lack of political will • Difficulty of communicating connections between what we do now and the consequences • Lack of information e.g. on impacts • Who pays
Table 6	
Leadership	• Local governments aren't the lead agency -> not their jurisdiction • Lack of leadership internal • Uncertainty of need to act vs. certainty (seawall rising vs. fixing a road)
Land zoning	• Barriers imposed by an anti-sustainability land use planning system
Knowledge	• Lack of accurate info on risks • Climate scepticism • Permitting poor reporting of climate science e.g. Lord Monkton • What are we monitoring? • Monitoring: Establishing a baseline • Monitoring: Quantifying CCA actions -> reduce risks? • Lock of methods to prioritise options (where do we start)
Systems	• Internal system change • Dominance of council finance department in decision making • Silos demarcation
Resources	• Competing need for resources • Lack of resources for implementation both financial and human
Money	• Lack of allocated funding • Financial budget • Weak power of LCI in terms of fundraising and autonomy to legislate for local conditions
Priorities	• Competing priorities • Time competing activities workload
Political	• Political agendas • Lack of potential will (implementation projects get rejected at budget time) • Influence of party politics on the local level of decision making • Councillors with vested interest in status quo

APPENDIX D: EVALUATION FORM

**NCCARF Local Government Workshop:
Cross scale barriers to climate change adaptation
Tuesday 31st January 2012
Evaluation Form**

1. Overall, how would you rate today's workshop in terms of: (Please Circle)

Connecting with peers working on similar issues, creating networks etc.

Very Useful *Useful* *Somewhat useful* *Not useful*

Hearing about new resources and research that might help with your work

Very Useful *Useful* *Somewhat useful* *Not useful*

Discussion, reflection and learning

Very Useful *Useful* *Somewhat useful* *Not useful*

2. What would you most like to see emerge as a result of this project?

3. Any suggestions for next time?

APPENDIX E: RESPONSES TO EVALUATION FORM

Q1. Overall, how would you rate today’s workshop in terms of:

