

Planning for climate change adaptation: a review of current initiatives in Australia*

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Abstract

Australian urban settlements are particularly vulnerable to climate change impacts including extreme weather events and sea level rise. Regions across Australia have inherited a legacy of past planning decisions that place a significant number of urban settlements at an increased risk of harm from climate change impacts. Planning has a central role in reducing this risk through both climate adaptation and mitigation. This paper contributes to inform planning education for climate change by specifically investigating approaches to public engagement in adaptation initiatives implemented by local authorities in the states of Victoria, New South Wales and Tasmania, Australia. It uses a comparative case study approach to analyse such initiatives and identify critical challenges to public engagement, particularly related to adapting to coastal hazards. The findings indicate that a range of approaches to public engagement have been adopted by planners when implementing climate adaptation initiatives. The paper concludes by proposing a set of strategies that can inform planning practice in the context of public engagement and climate adaptation.

Key words: planning education, public engagement, climate adaptation, local government, planning practice

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Introduction

Australian urban settlements are particularly vulnerable to the impacts of climate change including extreme weather events, drought and sea level rise (CSIRO, 2007; Hennessy et al, 2007; Gurran et al, 2008; Norman, 2010). Professionals across a range of climate change relevant areas are being required to develop and build new skills in order to create and implement innovative solutions in dynamic social and political contexts (Nursey-Bray 2010). Planning practice has a central role in reducing climate change risks through both climate adaptation and mitigation (Wilson, 2006; Blanco et al, 2009). Improving planning practice for climate adaptation requires that planners have the necessary knowledge and skills to enable them to respond to the climate change challenge and adaptation (Norman, 2010). This includes skills related to public engagement which comprises a critical step in fostering adaptation that is anticipatory rather than reactive (Few et al, 2007; Wiseman et al, 2010).

This paper aims to contribute to improved planning practice investigating initiatives implemented by Australian local authorities in the states of Victoria, New South Wales and Tasmania as a response to projected climate change impacts. Specifically, it uses a comparative case study approach to investigate the effectiveness of public engagement approaches implemented by local authorities to address climate change adaptation at the local scale, particularly to sea level rise. Based on these experiences, the paper proposes a set of strategies that can be incorporated in planning education to assist planners to undertake public engagement under the climate change adaptation challenge.

Climate adaptation and public engagement: challenges to the planning profession

The planning profession's attempts to implement climate adaptation build on two decades of change in terms of a shift from government to governance. In the 1990s a series of dilemmas, ranging from economic transformation to changes in personal life and environmental awareness, profoundly altered the way we operate, including our political practice (Giddens, 1998). Such dilemmas prompted a shift in the relationship between the public and the state leading to greater public participation in

the decision-making process (Healey, 1992; Giddens, 1998; Adams & Hess, 2001; Hess & Adams, 2002; Reddel, 2002; Connelly & Richardson, 2004; Lane, 2005; Brackertz & Meredyth, 2009). As a result, governments have tended to assume the role of leadership providers and focused on their strategic function to liaise with civil society and the private sector through collaborative processes largely characterised by consultative exercises (Reddel, 2002).

These changes on the broader political and public administration arena also trickled down to planning practices. As Healey (1992) argues, it gave emergence to alternative approaches in planning which were more conducive to democratic forms. The author identifies one of these approaches as a 'process' route (p. 144) in which communication and collective debate were at the core of decision making processes. This approach was particularly evident in the field of environmental planning where a communicative approach in planning or 'planning through debate' appeared in the early 1990s specifically to achieve a balance of often contradictory aims, i.e. environmental, economic and social outcomes (cf. Healey, 1992, p. 153). Further, such approach also assisted in legitimising the decision making process and enhancing the civil society capacity in being adaptive and able to deal with complex problems (Innes & Booher, 2004; Horlick-Jones et al, 2006), as well as providing the means to achieve resolutions toward intractable public policy arenas (Head & Ryan, 2003).

In the Australian context, the focus on public consultation became a central point in public policy in the late 1990s (Adams & Hess, 2001; Brackertz & Meredyth, 2009; Pini, 2009). Consequently, the planning sector, for example, has become increasingly dialogic with heavy emphasis being placed on consultation, mediation and collaboration (Friedmann, 1993). Nevertheless, given the predominant episodic/tokenistic characteristic of public consultation (Head, 2007) it rarely involves the communicative approach proposed by Healey (1992). Additionally, tokenistic approaches to public engagement are representative of the 'placation' stage of Arnstein's participation ladder and greatly diminish public trust in the process (cf. Hindmarsh & Matthews, 2007 p. 228; Head, 2007). Different levels of public participation in public issues can be also illustrated by the International Association of Public Participation's spectrum of public participation (IAPP, 2007) which have been adopted by many local governments in Australia. Informed and based on

current practices, the IAPP spectrum identifies five participation goals, namely: information, consultation, involvement, collaboration and empowerment. These goals articulate a progressive scale of public participation forms ranging from weaker – linked to information and consultation goals – to stronger – linked to collaboration and empowerment goals. A communicative approach to public participation, as articulated by Healey (1992), would better characterised by stronger participation forms on IAPP's scale: participation tools and processes which go beyond information and consultation and toward involvement, collaboration and empowerment. Such stronger public participation forms would also ensure that ongoing two-way information flows between decision-makers and the public occur before a decision is made and therefore public's values and interests are incorporated in the final decision (Brackertz & Meredyth, 2009).

In attempting to implement effective public engagement initiatives, similar to other sectors across public administration, the planning sector is confronted with key challenges (Head, 2007). First, there is the spatial scale at which such engagement occurs and associated limitations in transferability given the variety of communities' geographical, political and institutional contexts. Second, governments are reluctant to devolve power and control. Third, there is a diversity inherent to policy arenas within existing government agencies which are often conflicting, particularly when dealing with complex issues such as environmental management and climate change. Last, there is great difficulty in improving the capacity and motivation of citizens to participate. For example, while some authors claim that the increase in public participation in decision making was greatly influenced by a wide disenchantment with the state and lack of trust in representative democratic systems (Healey, 1992; Connelly & Richardson, 2004), public engagement can be difficult due to observed public 'apathy' and 'consultation fatigue' (cf. Connelly & Richardson, 2004, p. 11-12) that can emerge not only from participants' lack of interest in the subject but also lack of trust in the process (Eshuis & van Woerkum, 2003; Connelly & Richardson, 2004; Hartz-Karp, 2004).

These challenges can be better illustrated through how governments in Australia and elsewhere attempted to tackle key environmental issues that also emerged as part of the 1990s contingency, notably sustainability and climate mitigation. For example, the study undertaken by Keen et al (1994) about how Victorian local authorities were

implementing public engagement in their conservation programmes raises critical considerations associated with the scale of public engagement initiatives. The study identified that the issues to be tackled in those conservation programmes were first set by specialists through steering committees and then submitted for community input. As a result, the authors point out that issues were generalised across different local authorities despite existing variability amongst their communities leading to fuzzy and non-representative definitions and contextualisation of identified issues.

Examples of governments' reluctance to devolve power and control can be found in attempts to implement the Agenda 21 at the local level. For instance, as part of the sustainability discourse, local governments were ascribed the role of promoting better public dialogue to deal with complex environmental issues (Khakee, 2001). At the centre of that rhetoric was the establishment of the Agenda 21 at the local level (Bulkeley, 2000). Khakee (2001) states that the public dialogue advocated with Agenda 21 was a community-wide learning process which could assist in the definition of objectives as well as install institutional capital that would enable the achievement of sustainability. However, a study about the implementation of the Agenda 21 in the Victorian context (Mercer & Jotkowits, 2000) suggests that the fact that local governments' role changed from being one which governs to a more administrative entity did not result in the devolution of power and control; instead, it contributed to impede the implementation of programmes with a more structural changing character such as the one proposed by the Agenda 21. Governments, particularly at the local scale, appear to prefer to embrace less contentious initiatives such as the ICLEI's Cities for Climate Protection Campaign (CCPC) (Bulkeley, 2000). While this campaign has established as one of its objectives the strengthening of local communities, its key outcomes are heavily associated with tangible results. These include targets and timetables and related economic benefits rather than more comprehensive measures which would demand better public engagement (Lindseth, 2004). Thus when faced with the challenge of implementing major structural changes and policies similar to the ones advocated by the Agenda 21, local authorities tend to buy time by implementing easier policies (Whittaker, 1997). Additionally, they also tend to do business-as-usual and repack existing programmes under new banners as observed in the case of adoption of the CCPC by American cities (Betsill, 2000).

Furthermore, the implementation of the Agenda 21 by Victorian local governments involved a tokenistic public engagement process that lack both the provision of robust information to participants as well as stronger support in the form of resources and other legislative instruments (Mercer & Jotkowits, 2000). This emphasises the difficulties involved in reconciling competing policy agendas within government agencies and necessary support to implement effective public engagement initiatives. It also contributes to further aggravate the difficulties in reverting the public's 'apathy' and 'consultation fatigue' involved in engagement initiatives as they accentuate the lack of trust in those processes.

Thus, despite the emergence of public engagement in the 1990s as a core element of governance or the 'third way' (cf. Giddens, 1998), it remains a challenging task for decision makers, including the ones in the planning sector (Fisher, 2006; Horlick-Jones et al 2006). This poses critical challenges to planning practice in the face of climate change and needed adaptation as the complexity of the science, the lack of certainty and the highly technical and dynamic nature of climate change require better relationships and improved trust between government and the public (Bulkeley, 2000; Blowers et al, 2005; Jamieson, 2006; Few et al, 2007, Leitch et al 2010). Further, the planning practice in Australia has continued to endeavour a business-as-usual approach when dealing with climate change (Steele and Gleeson, 2009). In this approach, climate change is considered alongside other pressing challenges from other policy arenas, including transport planning, house affordability and infrastructure provision. A conflicting agenda given that climate change has been identified as an issue that should be mainstreamed across policies and institutions, including land-use planning, to strengthen the integration of adaptation with other initiatives such as sustainability (Adger et al, 2007). This is further compounded by the fact that the integration of climate change policies by the planning sector has occurred mostly at the rhetorical rather than practical level (Bulkeley, 2006).

It is under these challenging circumstances that planners have to operate and exercise their profession. Thus it is important that planning education enables planners to both address those issues and build their capacity to implement the communicative approach proposed by Healey (1992) toward climate change adaptation. We argue that such communicative approach needs to encompass

effective public engagement which advances in the public participation spectrum (IAPP, 2007) toward public involvement, collaboration and empowerment to avoid the shortcomings already observed in previous exercises attempting to achieve sustainability and climate mitigation. We turn now to the planning practice to investigate how public engagement is being implemented by Australian local authorities attempting to adapt to climate change.

Emerging public engagement approaches to climate adaptation

Despite the overall lack of guidance at the national level and, to some extent, also state level (e.g. Preston et al 2011), some local authorities in Australia are taking the lead in addressing the climate change challenge, particularly in terms of adaptation to sea level rise. In this section, we describe the case of three local authorities in different states which are attempting to adapt to climate change by adopting better communicative approaches to public engagement; namely: Wellington Shire Council (Victoria), Gosford City Council (NSW) and Clarence City Council (Tasmania).

Wellington Shire Council

Wellington Shire Council is located in Central Gippsland at approximately 200 kilometres east of Melbourne, the state capital. Broadly, the Wellington Shire Council Planning Scheme acknowledges that there are areas in the Shire which are vulnerable to flooding and inundation (Department of Planning and Community Development, 2007). Spanning an area of 10,924 square kilometres, the Shire has relatively unspoiled coastal and lake areas, including the Ninety Mile Beach area which is of particular interest for this study. This area has been identified by the first pass national assessment as one of the most vulnerable coastal areas in Australia (Department of Climate Change, 2009).

Ninety Mile Beach is a 25 km strip of ocean foreshore where a number of settlements, The Honeysuckles in particular, have been inappropriately developed in the 1950s and 1960s (Wellington Shire Council, n.d.a). Climate change is likely to exacerbate The Honeysuckles' vulnerability to sea level rise and storm events (Wellington Shire Council, n.d.b; Meinhardt Infrastructure & Environment Pty Ltd 2007; ETHOS NRM Pty Ltd and Water Technology, 2008). Since the 1970s

authorities have attempted to address the area's vulnerability to coastal hazards through a number of planning instruments, including the *Wellington Coast Subdivision Strategy* (Wellington Shire Council, n.d.a) and the Coastal Towns Design Framework project (Meinhardt Infrastructure & Environment Pty Ltd, 2007). Community consultation comprised an important part in the development of this Framework (see Appendix 1) – a result of the Council's strong interest in developing public engagement initiatives since the late 1990s (Butler, 2005) and consistent with current Council's efforts toward improving its public engagement process through the release of its first *Draft Community Engagement Strategy 2011-15* (Wellington Shire Council, 2011). To implement the Framework Council started a process to amend its current planning scheme which involved further consultation and hearings conducted by an independent Panel.

While climate change related impacts were clearly identified in the Framework (Meinhardt Infrastructure & Environment Pty Ltd, 2007), the consultation process associated with the amendment of the planning scheme revealed the sensitivity surrounding the issue of climate change (Wimbush et al, 2009). The release of a climate change study on impacts upon the Ninety Mile Beach area, including The Honeysuckles (ETHOS NRM Pty Ltd and Water Technology, 2008), and subsequent Council's intention to impose a ban on development (ABC, 2008) through the implementation of its Coast Subdivision Strategy triggered a strong reaction from the public predominately associated with a decrease in property values in the area (Braithwaite, 2008; Golden Beach Property Rights Action Group, 2008). As a result, a planning regime was installed by the Council to enforce the preparation of a Climate Change Response Plan to be attached to property titles by landowners seeking further development in The Honeysuckles. Landowners appeared to be satisfied with this solution as it allowed them to continue to develop their land (Wimbush et al, 2009), however, a moratorium on further development in The Honeysuckles has been imposed by the State since 2009 (Wellington Shire Council, 2009).

Yet, a reluctance persists to specifically include climate change as an issue in The Honeysuckles. During the planning scheme amendment process, climate change remained a controversial topic in the hearings conducted by the independent Panel and related submissions sent by the public. The Panel, however, recommended that

the amendment should clearly state in its Clause 21.04 that development in The Honeysuckles should be 'consistent with any coastal hazards vulnerability assessment for the town' (Wimbush et al, 2009, p. 65). Nevertheless, while the current amendment submitted for approval by the Minister identifies the issue of climate change, it does not incorporate coastal hazards in that specific clause as recommended by the Panel (Wellington Shire Council, 2010).

Gosford City Council (NSW)

The Gosford City Council area is identified as the third most vulnerable area to sea level rise in NSW (Department of Climate Change, 2009). The city has an area of approximately 1,000 km² and population of over 16,000 people. It is located 77 kilometres north of Sydney and together with Wyong Shire it forms the Central Coast region of NSW. Gosford's coastal zone is relatively extensive with approximately 140 kilometres of foreshore area, including Brisbane Water and Hawkesbury River, four major coastal lagoons and 14 kilometres of beaches from Patonga in the south to Forresters Beach in the north. These beaches are highly dynamic and several have experienced a number of serious erosion events in x years: most significantly x (needs a science ref). Urban areas are also subject to periodic inundation.

The Council began to formally plan for sea level rise impacts in December 2009 when, after one month of public exhibition, it adopted the NSW sea level rise planning benchmarks which suggests an increase in sea levels (above 1990 mean sea level) of 0.4m for 2050 and 0.9m for 2100 (Gosford City Council, 2009). The coastal management planning process used by the Council is outlined in Figure 1. To date two coastal management plans have been developed by Gosford City Council's Coast and Estuary Management Committee. Broadly their aims are to identify coastal hazards, minimise their impacts on existing public and private assets, ensure that future development and activities do not increase vulnerability and ensure that the community is both informed and protected (Gosford City Council, 1995 and 1999). The Council has produced a series of hazard maps which were incorporated in the Development Control Plan (DCP125 – Coastal Frontage). The DCP125 was produced as part of the *Draft Gosford Local Environmental Plan 2009* (or DLEP 2009) required by the NSW government's Standard Instrument Local

Environmental Plan. The DCP125 outlines development standards in coastal areas and was incorporated into the Draft Gosford Development Control Plan 2009 (Chapter 6.2 DDCP 2009). The Council is undertaking a number of planning processes for specific areas including: floodplain management plans for Brisbane Water Foreshore, Erina, and Narara; reassessment of coastal processes and hazards for the Gosford Open Coasts and Broken Bay beaches; estuary management plans for Brisbane Water and Lower Hawkesbury; and management studies for the coastal lagoons.

The Council has committed to involving the community in the planning for sea level rise in current activities and also as new information or state government policy arises (see Appendix 1). Council has provided sea level rise and related planning information through a series of fact sheets, web pages and links on its web site and with acknowledgment that there are key knowledge gaps and high level of scientific uncertainty. The Council has also undertaken community consultation forums such as public meetings, workshops, community surveys related to its sea level rise planning processes. Such forums aim to provide residents with the opportunity to help shape the adaptation management options.

Its duty of care to current and potential property owners means that Gosford City Council was required to advise property owners through publication of property encoding maps and planning certificate notifications that development controls and strategies for sea level rise may arise for some areas. In 2010 Council began to include a notation on planning certificates for land within the 0.9m sea level rise extent as identified on the 1% AEP estuary and ocean storm surge sea level rise maps. This was done through a section 149(5) Planning Certificate message under the provisions of the *Environment Planning and Assessment Act 1979*. Despite trying to engage the community in discussion about the risk and potential strategies for sea level rise the council struggled to gain traction on an issue not yet salient to the community. Prior to the planning certificate notification maps were publicly exhibited and made available through the council website. X forums to discuss the content of the maps were held in locations such as x. However these forums struggled to attract more than a handful of people at each. Once the notification began to appear on the certificates the council received around 200 letters from residents wanting clarification of what it meant or outright rejection of the

anthropogenic sea level rise. A deputation met with then Minister for planning who upheld the Council's decision to include the notification on planning certificates (NSW Department of Planning 2011).

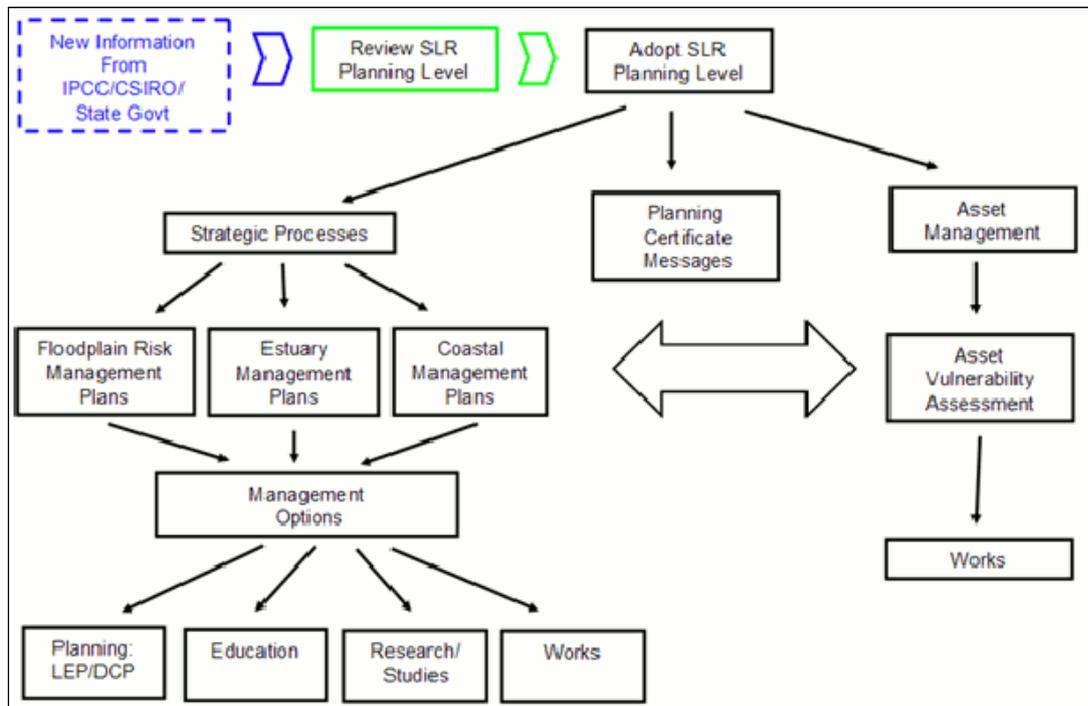


Figure 1 – Gosford City Council's sea level planning process (extracted from x)

Clarence City Council (TAS)

Clarence City is located to the east of Hobart, Tasmania. The Clarence City Council manages 191km of coastline. Much of the coastal topography is low lying and is vulnerable to sea level rise and inundation from coastal storm surge events (Clarence City Council, 2009a). It is important to note that the Clarence region has a history of coastal erosion and flooding which has triggered a number of previous investigations to better understand the underlying causes of erosion and to identify appropriate management responses. More recently however, scientific evidence suggests that rising sea levels may impact on coastal settlements and infrastructure in the Council area. For example, the Australian Government first pass national assessment indicates that between 1,850 and 2,250 residential buildings in the area may be affected by sea level rise and storm tide inundation by 2100 (Department of

Climate Change, 2009, p. 99). Rising sea levels are also expected to impact on coastal infrastructure (Clarence City Council, 2009b). For example, rising sea levels may contribute to sea water entering sewage pipes along the coast (Clarence City Council, 2009c).

In response to community concerns about erosion and flooding events in coastal areas and recognising the potential consequences of future sea level rise and storm surge events, the Clarence City Council initiated a project entitled: *Climate change impacts on Clarence coastal areas*. The purpose of the project was to assess the risk, risk perception and vulnerability of the city to climate change (Clarence City Council, 2009c). While the exploration and identification of adaptation options was central to the project, community consultation and dissemination of information was also a critical component (Clarence City Council, 2009c) (see Appendix 1). A community survey and focus groups were conducted in the early phase of the project to analyse current 'knowledge, sentiments, opinion and attitudes' regarding climate change impacts as well as identify factors for a successful communication strategy (Clarence City Council, 2009c, p. 6).

In total, two focus groups were conducted and a phone survey of 300 Clarence residents in early 2007. Half of the residents surveyed lived in coastal areas and the other half were non-coastal. In addition, interviews were conducted with local businesses, government and community organisations. The findings from the survey indicated that residents were aware and concerned about climate change and sea level rise in particular. However, the responses indicated that many residents had not translated this information into the impacts potentially affecting them (Clarence City Council, 2009c, p. 6), particularly amongst non-coastal residents. While most residents believed that climate change was real there were only a few sceptics who did not believe climate change was occurring. More than 80% of the residents interviewed strongly support the need to mitigate greenhouse gases, disseminate information, and introduce new planning controls to minimise flood risk (Clarence City Council, 2009c). However, it was believed that any measure that was considered to be less favourable by community but necessary on behalf of Council needed to be well justified and communicated to the community to gain acceptance. In general, the survey indicated the community trusts the Council and was supportive of the Council taking a proactive and lead role in the climate change debate.

A comprehensive communications plan was developed to disseminate the information to relevant stakeholders. The communications plan included 'objectives, principles, target audiences and appropriate media for each, and detailed planning for the release of the report and an evaluation plan' (Clarence City Council, 2009c, p. 106). The plan was submitted and adopted by the Clarence City Council in June 2008. Following the formal acceptance of the report by Council a press conference with local print media and television networks as well as coverage on radio talk back was used to provide broad exposure of the project background and findings. The press coverage was also an opportunity to acknowledge the two public meetings planned shortly after the press release. In conjunction with the media release all residents in the Clarence received a personally addressed newsletter in the mail providing additional background information to the project and details about upcoming public meetings (Clarence City Council, 2009c). Two public forums were held in the two most affected areas of the Clarence (Lauderdale and South Arm). In total, approximately 300 people attended the public forums in which consultants presented detailed findings of the project and a summary of proposed policy options which were up for public discussion. In general, the overall response to the project was perceived to be very positive. The high attendance at the public forums along with extensive mail outs and press coverage indicated a high awareness of the project in affected areas (Clarence City Council, 2009c). Residents also contacted the Council to obtain additional information as opposed to objecting to the proposed approach (Clarence City Council, 2009c). Overall, the findings suggest a high level of public support and agreement. Furthermore, the community were supportive of Council taking a proactive approach to dealing with a complex and multifaceted problem. Future community consultation is expected through advertising changes to the existing planning scheme and discussions with community on specific risk management plans in affected areas (Clarence City Council, 2009c).

Lessons learnt from emerging public engagement initiatives for climate adaptation

Despite the recognition of the important role of public engagement in decision making, examples of effective initiatives are less conspicuous (Dovers, 2003a; Head, 2007). Yet, it is important to draw on past experiences and the lessons they bring

regardless of their successes and/or shortcomings (Dovers, 2003b). There is no doubt that effective public engagement initiatives have to distance themselves from a top-down approach in which the agency leads the process (Boxelaar et al, 2006) in order to achieve participation goals beyond information and consultation and into involvement and collaboration as proposed by the International Association for Public Participation (IAPP) (2007). While local authorities in Australia are well versed in the information and consultation goals, which in the planning context these constitute a statutory requirement, often they are conceived as an item in the 'check off' list which greatly impede their impact and efficacy (Wagenet & Pfeffer, 2007, p. 811). Nevertheless, promoting public engagement as a 'bottom-up' process can raise false expectations amongst stakeholders, therefore it is important to clearly communicate the ultimate goal of engagement initiatives (Few et al, 2007). The three case studies described above provide important insights related to public engagement in climate adaptation planning.

Public engagement initiatives implemented by the local authorities attempted to move beyond information and consultation goals by establishing two-way information flows (McGurk et al, 2006; Videira et al, 2006) through non-passive techniques including deliberation about issues related to coastal hazards, particularly sea level rise, inundation and storm surges affecting and to affect their community. This is more evident in the Clarence City Council case which resulted in significant public turn out at scheduled forums (300 residents) and further public request for additional information. These outcomes demonstrate greater public trust in the process rather than mirroring public 'apathy' and 'consultation fatigue'. The relative success of that initiative could be attributed to the Council's strategy of developing a comprehensive communication plan, early public involvement in the process, followed by improved representativeness in the selection of stakeholders (coastal and non-coastal residents, local business, government agencies and community organisations), and use of more active techniques such as citizens forums (Videira et al, 2006; Hindmarsh & Matthews, 2007). Additionally, the Council has proposed to continue this process in future activities which will result in changes to its planning scheme and development of risk management plans for affected areas, thereby further strengthening their engagement process by involving the public throughout the policy chain (Videira et al, 2006).

In the case of Wellington City Council, it is important to note that their current *Draft Community Engagement Strategy 2011-15* clearly focuses on the public participation goals proposed by IAPP. Specifically, the Council acknowledges that the ultimate goal – empowerment – is not an option due to current regulatory arrangements applied to local governments in Australia. For instance, the Council clearly states that such goal is conflicting with the *Local Government Act 1989* which ultimately conveys the responsibility of decisions to elected members, hence councillors cannot assign full decision to non-elected members, e.g. the public. This confirms that ‘blueprint’ approaches to public engagement initiatives related to challenging issues such as climate change must be seen with caution (Few et al 2007; Leitch et al 2010).

While, in the Australian context, this posits a significant barrier toward the empowerment goal proposed by the IAPP, it augments the need for public engagement initiatives that involve consensus building and deliberation. If local authorities are legally unable to devolve power to the public, consensus building and deliberation become crucial strategies to improving the understanding about how the public see complex issues and how this can then inform the decision making process in terms of policies which are feasible as well as policies which will continue to endure resistance (Connelly & Richardson, 2004). This is an important component of decision making, particularly when it aims at addressing risks associated with future climate change through potentially intractable public policies, including the allocation of significant funds for relocation and/or rehabilitation of critical infrastructure, and legislative and institutional changes to support planned retreat of communities. The establishment of community advisory groups and networks as exemplified by Wellington Shire Council provide important arena where consensus building and deliberation upon critical issues such as climate change adaptation could take place. Further, adopting public transparency in planning for sea level rise by openly disclosing hazards maps depicting potentially affected areas as exemplified by Gosford City Council facilitates two-way information flows in the development of adaptation management options.

Two of the case studies, Wellington Shire Council and Gosford City Council, however, highlighted the challenges in openly disclosing risks to private properties associated climate change. While the generic acknowledgement of climate change

impacts was broadly accepted, in both cases there has been a negative reaction from the public once it was officially recognised that their properties were at risk and subsequent implications for property values. In the Wellington Shire Council, in particular, the availability of further information on climate change risks through scientific studies were interpreted as threat and unsound rather than supportive of planned policies that could minimise the risks. The uncertainty inherent to climate science constitutes a critical barrier to public engagement initiatives (Wiseman et al, 2010). Conversely, splitting the responsibility over the risks by allowing business-as-usual to occur – i.e. development – conditioned to the preparation of climate change management plans applicable to existing and future owners proved to be an acceptable solution to address future climate change risks.

Conclusion (including Strategies for planning education)

Limited professional skills has been identified as a key barrier to implement climate change policy. Planning education thus plays a major role in addressing this issue by ensuring new and practicing planners can gain the necessary knowledge and skills that enable them to respond to the climate change challenge and adaptation in particular. Public participation in decision making, including in the planning practice, has had a trend of being agency-led, tokenistic and predominately focused on public information and consultation. To address the climate adaptation challenge, however, there needs to be a shift toward public engagement initiatives that also set as their goals public involvement and collaboration in decision making. Nevertheless, this comprises a challenging task and it is important to draw on examples provided by the practice to inform planning education in terms of public engagement in the context of climate change adaptation. Thus, based on the three case studies presented here we propose the following strategies to be incorporated into planning education to strengthen its role in addressing the climate adaptation challenge. These include:

- Clear definition of the goals to be achieved through the public participation process related to planning for climate adaptation, particularly when they might lead to the preparation of instruments leading to official recognition of

- climate change risks, e.g. climate change management plans and/or notifications/certificates attached to property titles;
- Addressing the public 'apathy' and 'consultation fatigue' through well designed communication plans;
 - Ensuring ongoing two-way information flows between stakeholders, the public and decision makers to improve public trust in the process;
 - Ensuring a wider, timely and more representative participation of the public in decision making;
 - Establishing community networks and advisory panels as arena for consensus building and deliberation that allow the plurality of views, values and beliefs amongst participants to be exposed in order to identify potential conflicts and differences;
 - improving the understanding about how the public see complex issues and how this can then inform the decision making process in terms of policies which are feasible as well as policies which will continue to endure resistance; and
 - Use of active techniques, including citizens forums, roundtables, inquiry groups, open space technology and deliberative dialogue
 - Recognising (through commitment of resources such as time and funds) that there is likely to be several rounds of engagement processes as the issue becomes more salient to the community

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References

ABC (2008) *Council drops proposed Honeysuckles development ban* (online), Available: <http://www.abc.net.au/news/stories/2008/07/02/2292170.htm> (08 June 2011).

- Adams, D. & Hess, M. (2001) 'Community in Public Policy: Fad or Foundation?', *Australian Journal of Public Administration*, 60: 13-23.
- Adger, W., Agrawala, S., Mirza, M., Conde, C., O'Brien, K., Pulhin, J., Pulwarty, R., Smit, B. & Takahashi, K. (2007) Assessment of adaptation practices, options, constraints and capacity. IN M. Parry, Canziani, O., Palutikof, J., Van Der Linden, P. & Hanson, C. (Eds.) *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, UK.
- Alexander, E. (1984) 'After Rationality, What? A Review of Responses to Paradigm Breakdown', *Journal of the American Planning Association*, 50: 62 - 69.
- Betsill, M. (2000) *Localizing Global Climate Change: Greenhouse Gas Emissions in US Cities*. Discussion Paper 2000-20, Belfer Center for Science & International Affairs (BCSIA), Environment and Natural Resources Program, Kennedy School of Government, Harvard University
- Blanco, H., Alberti, M., Forsyth, A., Krizek, K., Rodriguez, D., Talen, E. & Ellis, C. (2009) 'Hot, congested, crowded and diverse: Emerging research agendas in planning', *Progress in Planning*, 71: 153-205.
- Blowers, A., Boersema, J. & Martin, A. (2005) 'Experts, decision making and deliberative democracy', *Journal of Integrative Environmental Sciences*, 2: 1-3.
- Boxelaar, L., Paine, M. & Beilin, R. (2006) 'Community engagement and public administration: of silos, overlays and technologies of government', *Australian Journal of Public Administration*, 65: 113-126.
- Brackertz, N. & Meredyth, D. (2009) 'Community consultation in Victorian local government: a case of mixing metaphors?', *Australian Journal of Public Administration*, 68: 152-166.
- Braithwaite, D. (2008) *Climate change doubt* (online), Available: <http://sale.yourguide.com.au/news/local/news/general/climate-change-dou...> (08 June 2011).
- Bulkeley, H. (2000) 'Down to Earth: Local government and greenhouse policy in Australia', *Australian Geographer*, 31 289 - 308.
- Butler, G. (2005) Sustainable communities: the important role of local government in building social capital. *2nd Future of Australia's Country Towns Conference*. Bendigo.
- Clarence City Council 2009a, 'Why has Council decided to lead the way?' (online), Available: <http://www.ccc.tas.gov.au/site/page.cfm?u=1557> (10 May 2011).
- Clarence City Council 2009b, 'What kinds of impacts can climate change have?' (online), Available: <http://www.ccc.tas.gov.au/site/page.cfm?u=1548> (10 May 2011).
- Clarence City Council 2009c, 'Climate change impacts in Clarence coastal areas', (online), Available: <http://www.ccc.tas.gov.au/webdata/resources/files/CCICCA-Final-Report-A415375.pdf> (10 May 2011). Coastal Climate Change Advisory Committee (2010) *Issues And Options Paper Main Report*, Department of Planning and Community Development (online), Available: <http://www.dpcd.vic.gov.au/planning/panelsandcommittees/current-planning-panels-and-committees/coastal-climate-change-advisory-committee> (1 February 2011).
- Connelly, S. & Richardson, T. (2004) 'Exclusion: the necessary difference between ideal and practical consensus', *Journal of Environmental Planning and Management*, 47: 3-17.
- CSIRO (2007) *Climate Change in Australia. Technical Report 2007* (online), Available: http://www.climatechangeinaustralia.gov.au/technical_report.php (20 May 2010).

- Department of Climate Change (2009) *Climate Change Risks to Australia's Coast. A first pass national assessment*. Commonwealth Government of Australia.
- Department of Environment, Climate Change and Water NSW (2010) *NSW Climate Impact Profile. The impacts of climate change on the biophysical environment of New South Wales*, Sydney, State of NSW.
- Department of Planning and Community Development (2007) *Wellington Planning Scheme, The State of Victoria* (online), Available: <http://www.dse.vic.gov.au/planningschemes/wellington/home.html> (31 January 2011).
- Dovers, S. (2003a) 'Reflecting on three decades: a synthesis', in S. Dovers & River, S. (eds.) *Managing Australia's Environment* Sydney: Federation Press.
- Dovers, S. (2003b) 'Discrete, consultative policy processes: lessons from the National Conservation Strategy for Australia and National Strategy for Ecologically Sustainable Development', in S. Dovers & River, S. (eds.) *Managing Australia's Environment* Sydney: Federation Press.
- Eshuis, J. & Van Woerkum, C. (2003) 'Trust and monitoring in governance processes: lessons from landscape management by farmers in a Dutch municipality', *Journal of Environmental Policy & Planning*, 5: 379-396.
- ETHOS NRM Pty Ltd and Water Technology (2008) *Climate Change And Sea Level Rise Implications: Ninety Mile Beach and Lake Reeve – Honeysuckles to Paradise Beach*, Final Report, prepared for the Wellington Shire Council (online), Available: http://www.wellington.vic.gov.au/Page/page.asp?Page_Id=1498&h=1 (31 January 2011).
- Fischer, F. (2006) 'Participatory governance as deliberative empowerment. The cultural politics of discursive space', *American Review of Public Administration*, 36: 19-40.
- Friedmann, J. (2008) 'The uses of planning theory: a bibliographic essay', *Journal of Planning Education and Research*, 28: 247-257.
- Giddens, A. (1998) *The third way. The renewal of social democracy*, Cambridge: Polity Press.
- Golden Beach Property Rights Action Group (2008) *Fighting for Property Rights on Golden Beach "INAPPROPRIATE SUBDIVISION" under the Victorian Coastal Strategy* (online), Available: <http://90mile.blogspot.com/> (08 June 2011).
- Gurran, N., Hamin, E. & Noman, B. (2008) *Planning for climate change: leading practice principles and models for sea change communities in coastal Australia*. Prepared for the National Sea Change Taskforce. The University of Sydney.
- Hartz-Karp, J. (2004) 'Harmonising divergent voices: sharing the challenge of decision-making', *Public Administration Today*, 2: 14-19.
- Head, B. & Ryan, N. (2003) 'Working with non-government organisations: a sustainable development perspective', *Asia Journal of Public Administration* 25: 31-56.
- Head, B.W. (2007) 'Community Engagement: Participation on Whose Terms?', *Australian Journal of Political Science*, 42: 441 - 454.
- Healey, P. (1992) 'The Communicative Turn in Planning Theory', *Town Planning Review*, 63: 143-162.
- Hennessy, K., Fitzharris, B., Bates, B.C., Harvey, N., Howden, M., Hughes, L., Salinger, J. & Warrick, R. (2007) 'Australia and New Zealand', in M.L. Parry, Canziani, O.F., Palutikof, J.P., Van Der Linden, P.J. & Hanson, C.E. (eds.) *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth*

Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

- Hindmarsh, R. & Matthews, C. (2008) 'Deliberative Speak at the Turbine Face: Community Engagement, Wind Farms, and Renewable Energy Transitions, in Australia', *Journal of Environmental Policy & Planning*, 10 217 - 232.
- Horlick-Jones, T., Walls, J., Rowe, G., Pidgeon, N., Poortinga, W. & O'riordan, T. (2006) 'On evaluating the GM Nation? Public debate about the commercialisation of transgenic crops in Britain', *New Genetics and Society*, 25: 265 - 288.
- Innes, J. & Booher, D. (2004) 'Reframing Public Participation: Strategies for the 21st Century', *Planning Theory & Practice*, 5: 419-436.
- International Association for Public Participation (IAPP) (2007) *IAP2 Public Participation Spectrum* (online), Available: http://www.iap2.org/associations/4748/files/IAP2%20Spectrum_vertical.pdf (30 May 2011).
- Keen, M., Mercer, D. & Woodfull, J. (1994) 'Approaches to environmental management at the Australian local government level: Initiatives and limitations', *Environmental Politics*, 3: 43-67.
- Khakee, A. (2001) 'Assessing Institutional Capital Building in a Local Agenda 21 Process in Go'teborg', *Planning Theory & Practice*, 3: 53 - 68.
- Lane, M.B. (2005) 'Public Participation in Planning: an intellectual history', *Australian Geographer*, 36: 283 - 299.
- McGurk, B., Sinclair, A. & Diduck, A. (2006) 'An Assessment of Stakeholder Advisory Committees in Forest Management: Case Studies from Manitoba, Canada', *Society & Natural Resources*, 19: 809 - 826.
- Meinhardt Infrastructure & Environment Pty Ltd (2007) *The Honeysuckles Urban Design Framework*, Coastal Towns Design Framework Volume 3, prepared for the the Wellington Shire Council.
- Mercer, D. & Jotkowitz, B. (2000) 'Local Agenda 21 and Barriers to Sustainability at the Local Government Level in Victoria, Australia', *Australian Geographer*, 31: 163-181.
- Norman, B. (2010) *A low carbon and resilient urban future. An integrated approach to planning for climate change*. Commonwealth of Australia, Department of Climate Change and Energy Efficiency.
- NSW Department of Planning (2011). Amendments to s149 planning certificates related to coastal matters. PS 11-001.
- Parsons, W. (2002) 'From Muddling Through to Muddling Up - Evidence Based Policy Making and the Modernisation of British Government', *Public Policy and Administration*, 17: 43-60.
- Pini, B. (2009) 'Australian Rural Local Governments and Environmental Sustainability: An Evaluation of Progress', *Australian Journal of Public Administration*, 68: 182-192.
- Planning Institute of Australia (2007) *Climate Change*, National Position Statement, Statement 8 (online), Available: <http://www.planning.org.au/documents/item/178> (8 February 2011).
- Preston, B. L., C. Danese, et al. (2011). Embedding climate change risk assessment within a governance context. Linking research to practice: knowledge, measurement and policymaking. 2011 Colorado Conference on Earth System Governance: Crossing Boundaries and Building Bridges 17–20 May, 2011.

- Quay, R. (2010) 'Anticipatory Governance', *Journal of the American Planning Association*, First published on: 25 August 2010.
- Reddel, T. (2002) 'Beyond participation, hierarchies, management and markets: 'new' governance and place policies', *Australian Journal of Public Administration*, 61: 50-63.
- Steele, W. & Gleeson, B. (2009) *Planning in climate change. Towards a relational framework for action*, Brisbane: Griffith University, Urban Research Program, Research Paper 26 (online), Available: http://www.griffith.edu.au/__data/assets/pdf_file/0007/166381/urp-rp26-steele-gleeson-2009.pdf (27 January 2011).
- Videira, N., Antunes, P., Santos, R. & Lobo, G. (2006) 'Public and Stakeholder Participation in European Water Policy: a Critical Review of Project Evaluation Processes', *European Environment*, 16: 19-31.
- Wagenet, L. & Pfeffer, M. (2007) 'Organizing Citizen Engagement for Democratic Environmental Planning', *Society & Natural Resources*, 20 801 - 813.
- Wellington Shire Council (n.d.a) *Wellington Coast Subdivision Strategy* (online), Available: http://www.wellington.vic.gov.au/Page/PagePrint.asp?Page_Id=562 (31 January 2011).
- Wellington Shire Council (n.d.b) *Guidelines for Preparation of a Climate Change (Sea Level Rise) Response Plan* (online), Available: http://www.wellington.vic.gov.au/Page/page.asp?Page_Id=1586&h=1 (31 January 2011).
- Wellington Shire Council (2009) *Ninety Mile Beach Development And Subdivision Controls The Honeysuckles to Paradise Beach*, Wellington Planning Scheme, Incorporated Document.
- Wellington Shire Council (2010) *Wellington Planning Scheme Amendment C50, Municipal Strategic Statement - Clause 21.04* (online), Available: [http://planningschemes.dpcd.vic.gov.au/Shared/ats.nsf/%28attachmentopen%29/BAF63CBCE218A4DECA2574CD00075C08/\\$File/exh+C50+Clause+21.04.pdf?OpenElement](http://planningschemes.dpcd.vic.gov.au/Shared/ats.nsf/%28attachmentopen%29/BAF63CBCE218A4DECA2574CD00075C08/$File/exh+C50+Clause+21.04.pdf?OpenElement) (08 June 2011).
- Wellington Shire Council (2011) *Draft Community Engagement Strategy 2011-15*, Wellington Shire Council.
- Whittaker, S. (1997) 'Are Australian councils 'willing and able' to implement local agenda 21?', *Local Environment*, 2: 319-328.
- Wimbush, N., Holdsworth, J. & Gowans, R. (2009) *Wellington Planning Scheme amendment C50 Coastal Towns Urban Design Frameworks*. Panel Report.
- Wiseman, J., Williamson, L. & Fritze, J. (2010) 'Community engagement and climate change: learning from recent Australian experience', *International Journal of Climate Change Strategies and Management*, 2: 134-147.

Appendix 1. Comparative analysis of local authorities' public engagement initiatives

Local Authority	Public Participation Goals*				
	Inform – Balanced and objective information about climate change is provided to the public to assist them to understand the problem, alternatives, opportunities and/or solutions.	Consult - Public feedback is sought on analysis, alternatives and/or decisions related to climate change.	Involve – Public concerns and aspirations related to climate change are consistently understood and considered throughout the process.	Collaborate – Partnerships with the public are established to develop alternatives and identify preferred solutions in the decisions related to climate change.	Empower – Final decision to address climate change challenges is undertaken by the public.
Wellington Shire Council (VIC)	<ul style="list-style-type: none"> • Newsletters provided information on the project (Urban Design Framework - UDF) scope and program as well as project progress (Dec 2004-Nov 2006). • Public display of draft report (Dec 2005-Jan 2006) • Draft UDF made available for comments (Oct-Nov 2006). • Newsletters and other documents were available through Council's website, direct mail and press publicity also used. • Public display of planning scheme amendment to implement UDF, although not to specifically address climate change issues those issues could not be ignored by the independent Panel (Sep-Oct 2008). 	<ul style="list-style-type: none"> • Public meeting is held to collect information on community values and key issues; around 100 people attended consultation session (Jan 2005). • Community invited to provide feedback on draft report (Dec 2005-Jan 2006). • Community invited to comment on Draft UDF (Oct-Nov 2006). 	<ul style="list-style-type: none"> • Community members invited to complete feedback forms (Jan 2005); nine submissions received; results were collated and analysed. These were used to draft the Vision for the town and shape UDF Objectives and Strategies. • 12 submissions received on draft report; initial UDF Vision, Objectives and Strategies revised accordingly. • Submission (including 100+ signature petition and 16 page report) received on Draft UDF which was amended accordingly (Nov 2006). • Submissions received on amendments to planning scheme often referred to old inappropriate subdivisions and vulnerability to SLR (late 2008). • Other matters related to UDF's Master Plan, additional planning scheme amendments (Jul 2008) addressed during implementation process, including hearings by independent Panel as required by the <i>Planning and Environment Act 1987</i> (Jun-Jul 2009). • Planning scheme amendment adopted by Council (Feb 2010). 		
Gosford City Council	<ul style="list-style-type: none"> • Public display of sea level rise (SLR) maps indicating areas that may be potentially impacted by increases in sea level (Aug-Sep 	<ul style="list-style-type: none"> • Following public exhibition of SLR maps Council considers submissions on maps (Sep-Nov 2011). 	<ul style="list-style-type: none"> • Feedback on SLR maps considered at Council meeting (Dec 2009). • Council participates in forums 		

(NSW)	<p>2009).</p> <ul style="list-style-type: none"> • A series of fact sheets and web pages are developed to provide general information on SLR and GCC's response. • SLR-relevant notation is placed on planning certificates Section 149(5) of the <i>Environment Planning and Assessment Act 1979</i>. 	<ul style="list-style-type: none"> • A series of community consultation forums are organised - these are advertised in local media and on Council's website. • New information is shared with community at Council meetings. Residents urged to read, share and discuss information with other residents. 	organised by existing community groups.		
Clarence City Council (TAS)	<ul style="list-style-type: none"> • Comprehensive communications plan (June 2008) • Press conference to provide background to project and report findings • Two public meetings / forums announced / mail out to all residents 	<ul style="list-style-type: none"> • Two public meetings / forums held in the two most affected areas of Clarence (Lauderdale and South Arm). Consultants presented detailed findings of the report / project and a summary of proposed policy options which were up for public discussion • Future community consultation through changes in planning schemes and risk management plans is expected 	<ul style="list-style-type: none"> • Phone survey as data gathering • Focus groups as data gathering • Interviews as data gathering 		

*Based on IAP2 Spectrum of Public Participation (2007).