

Sustainable coastal planning for urban growth and climate change

1. Introduction

Two recent important Australian Parliamentary Inquiries, *Sustainable Cities 2005* and the *Climate change and environmental impacts on coastal communities 2009*, raise critical issues in relation to urban growth, coasts and climate change. Both reports recommend new policy and institutional frameworks for a more integrated and sustainable approach to urban settlement including an Australian Sustainability Commission and a National Coastal Council. There are continuing conversations on these critical issues involving institutional and regulatory reform (Thom 2010). In this presentation it is argued that a tripartite intergovernmental agreement on sustainable coastal planning supported by investment in 'regional planning' provides the most effective mechanism for implementation.

2. Coastal urban growth and climate change

Australia is one of the most urbanised nations in the world and the location of urban growth is predominantly in the coastal zone. The Australian coast has experienced significant urban growth changing both the demographic profile and the coastal environment. The State of the Environment Report estimates that over eighty-six per cent of the Australian population live on the Australian coast and predicts continued internal migration to the coast for the period 2001–2011 (Environment Australia 2001). The significant trend is population growth on the east coast between Sydney and Brisbane, the urban periphery of Melbourne and south of Perth in Western Australia. Smith & Doherty (2006) further explore the 'sea change' concept by discussing the 'pressures' on the coast — population growth, tourism, climate change and variability, governance arrangements. Any policy response will need to recognise the interrelated nature of these pressures. The regional level provides the best opportunity to tackle these complex or 'wicked' problems being larger than one municipality and still closer to the community than higher levels of government.

Local government on the coast has responded to the pressures of urban growth and climate change through a myriad of actions from mainstreaming climate policy into corporate plans to

working with neighbouring councils to share knowledge and experience to develop leading practice. One major initiative was establishing the National Sea Change Taskforce. This commenced during 2004 and comprises sixty-eight local coastal councils representing more than four million coastal residents (National Sea Change Taskforce 2009). The taskforce is the culmination of a groundswell of concern by local governments who voluntarily came together to discuss issues of coastal urban growth and to provide a voice to government for funds and policy actions to alleviate the pressures of rapid urban growth (Norman 2009). However, it is important to recognise that coastal communities can differ significantly particularly when examining some of the social economic considerations of the impacts of climate change (Gurran *et al* 2008). The implication for coastal planning is that there will be regional variations and differences in the drivers of change that need to be considered in any approach to coastal planning and management.

In relation coastal climate change, the most recent projections for sea level rise are found to be in the upper range of the IPCC fourth report (Steffen 2009, p1). The *Climate Change Risks to Australia's Coast* states that 'there is a growing consensus that sea-level rise at the upper end of the IPCC estimates is plausible by the end of the century, and that a rise of more than 1.0 metre and as high as 1.5 metres cannot be ruled out (DCC, 2009, p26). The impact on coastal environments will be exacerbated by the potential frequency of events as outlined below:

Changes in the frequency and magnitude of extreme sea level events, such as storm surges combined with higher mean sea level, will lead to the escalating risks of coastal inundation. Under the highest sea-level rise scenario by mid-century, inundations that previously occurred once every hundred years could happen several times a year' (DCC 2009, 21)

Coastal urbanisation has been, is and will continue to be a major pressure on the Australian coastal environment. The intersection of increased coastal urban growth and the projected impacts of coastal climate change will require a coordinated response by coastal planning and emergency management to minimise the level of risk for coastal communities.

3. Planning for coastal climate change

Planning for coastal climate change is a rapidly developing policy area at the national and state and local government level. Key issues for the coastal communities and the coastal

environment include managing urban growth, potential risks and liabilities in response to climate change, financing and governing the transition and a significant gap in skills for implementing a low carbon and more resilient built environment (Norman 2010).

The establishment of the National Coastal and Climate Change Council is national recognition of the critical issues involved in sustainable coastal planning. It is hoped that the newly elected Federal Government sees the strategic value of a national advisory body providing timely and informed advice to the responsible Minister on a continuing basis. As a leading example, the United States has recently established a new National Oceans Council for oceans, coasts and lakes in response to the Mexico Gulf oil spill which provides ‘for adaptive management to enhance our understanding of and capacity to respond to climate change and ocean acidification’ (Obama, 2010). A particular focus of this agenda is a regional approach to coastal management — ‘these *regional plans* will enable a more integrated, comprehensive, ecosystem-based, flexible, and proactive approach to planning and managing sustainable multiple uses across sectors and improve the conservation of the ocean, our coasts, and the Great Lakes’ (Obama July 19, 2010, p1).

During February 2010, the National Coastal Council provided initial advice to the federal Minister for Climate Change and Energy and Efficiency:

- National action is needed urgently and on a continuing basis to equip Australia to cope with the serious threats to the coast posed by climate change. The response effort should recognize the diversity of circumstances.
- Governments, businesses, professional bodies and communities all have key roles in forming and delivering an effective national response. Government leadership will be vital.
- Early key actions need to focus on building national awareness of the issue, improving understanding of what may be the most effective actions and clarifying the roles of different entities (Preliminary advice to the Minister for Climate Change and Energy Efficiency, Feb 2010).

Since then the Council’s deliberations have been further informed by a ‘National Climate Change Forum’ (Adelaide 18-19 February). This brought together a wide range of stakeholders including local government and provided essential feedback to the Council and the Minister on these critical issues.

Within Australia, several state governments now have a planning provision for sea level rise projected from climate change. An example is the State of Victoria which now plans for a 'sea level rise of not less than 0.8 metres by 2100'. The most recent is the New South Wales policy on sea level rise. There is also an increasing number of legal cases concerning development applications and the application of sea level rise planning policies (NSW, Victoria and South Australia). A recent example is Lakes Entrance Victoria, where a multi unit development was refused on the grounds of projected sea level rise from climate change:

The decision to grant a permit for this proposal would be to ignore these imperatives and fail to address the level of long term impact and poor planning outcomes that will arise from its vulnerability to the sea level rise and climate change impacts' (Clause 118, VCAT 1222, 28 July, 2010).

In addition to the national policy directions and state planning legislation, there is considerable action at the regional and local levels of government. Increasingly groups of coastal councils are forming regional alliances to plan for climate change linking regional planning and climate since e.g. Sydney Coastal Councils, the Geelong regional alliance and most recently, the five coastal councils on the south coast of WA. These voluntary groupings of local coastal councils have recognized that a more regional approach to urban growth and climate change is necessary to find more sustainable solutions. There is also an increasing appreciation that leading research is vital to underpin regional decision- making. A very recent example is Canberra Urban and Regional Futures (CURF) that seeks to link research activity with urban and regional futures and the regional community—a joint initiative by Barbara Norman (UC) & Will Steffen (ANU) to be launched November 2010.

The award winning Mornington Peninsula Shire Council 'conversations in climate change' provides an excellent example of increasing community understanding of the climate risks and the possible options for planning coastal development in the future. The Gold Coast City Council demonstrates leading practice in taking a whole of Council approach with its *Climate Change Strategy 2009-14*. The Gold Coast faces considerable risks from coastal inundation and has taken the approach that an integrated response requires action right across the Council including the Chief Financial Officer to estimate the cost of the climate risks and the deferred costs of taking 'no action'.

The *Risks from Climate Change to Indigenous Communities in the Tropical North of Australia* report tackles a further dimension stating that ‘sea level rise will have the most significant impact in the short to medium term when it is combined with extreme events such as king tides and storm surges’ (DCCEE 2010, p144). There is a need for considerable research to be undertaken in northern Australia on coastal climate change with its own specific regional and local needs.

These above examples illustrate the current strengths and gaps in bringing the wide range of interests involved in planning for coastal climate change. These initiatives together with the new regional focus at the national level, provides a strong platform for working together. The new funding stream recently announced by the Federal Minister for Regional Australia, the Hon Simon Crean, to be run through the Regional Development Australia committees provides a timely opportunity for regional coastal councils to respond (Crean, 2010).

5. A more sustainable approach to coastal planning

Sustainable coastal planning: an integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone. The core elements are integration, adaptation, systems, long term, outcome oriented, communities and a broadly defined inclusive coastal zone (Norman 2009)

A more adaptive and systems approach to coastal planning will be required together with community engagement to respond to increased coastal risks and uncertainty. A national framework for sustainable cities and regions will be necessary to underpin a long- term approach to a more sustainable and resilient coastal future. The challenge is to find a mechanism to bring this altogether in meaningful way that can be implemented at the local level. Investment in regional planning is an effective approach that provides a framework for coordination, integration and implementation.

Planning for coastal climate change can encompass several adaptive models: adaptive management, adaptive capacity and adaptive planning. In undertaking research involving local focus groups in three coastal case studies in Victoria, I developed a framework for incorporating a more adaptive approach to coastal planning – from ‘integrated coastal management’ to ‘sustainable coastal planning’. This comprises six principles outlined below including:

1. Agreed and shared outcomes for the coastal environment (intergovernmental agreement; vertical integration);
2. An adaptive and systems approach to plan for climate change (integrating the science and the planning);
3. Incorporating shared outcomes and an adaptive systems approach into urban and regional planning systems to implement coastal planning policy;
4. Regional governance arrangements for integration and community involvement (more than local and still accessible to the community; horizontal integration);
5. Capacity building for sustainable coastal planning including interdisciplinary research, training and community education to support implementation over the long term and
6. Long term monitoring and evaluation of the outcomes of the policy measures implemented in coastal planning and management (Norman 2009, p165).

This research highlighted that while often policy debates concern institutional arrangements and jurisdictional boundaries, the coastal decision makers and community leaders placed greater weight on the value of a set of ‘agreed and shared outcomes’ that could underpin strategies and actions, that is, as one focus group participant remarked ‘it’s the shared objectives and the goodwill that makes it happen’ (Norman, 2009 p176). Planning for risk and uncertainty will involve increasing complexity and a shared understanding of the issues and options could provide a more effective and sustainable coastal planning response. It is suggested that the above six principles could provide the foundation for an intergovernmental agreement (involving all three levels of government) on sustainable coastal planning in Australia.

6. Conclusion

The critical issues for coastal communities and the coastal environment include managing urban growth, potential risks and liabilities in response to climate change, financing and governing the transition to a low carbon and more resilient built environment (Norman 2010). The risks from climate change are real- the sea level has been rising, is rising and will continue to rise. As Flannery states

With no warning, a gargantuan ice sheet will begin to collapse. It will mark the beginning of an irreversible process and, even if the initial rise in sea level it causes is just a few centimetres, it will herald the abandonment of our coasts, for the ice must continue to melt and collapse, albeit erratically, until there is no more. It will be impossible to put a time scale on the flooding but Shanghai, London, New York

and most other coastal cities must suffer partial or total abandonment, over weeks or decades or centuries (Flannery, 2010, p273)

While there has been an increasing groundswell of support for national engagement in coastal planning and management, it has been a continuing battle for local coastal councils and coastal communities to have their concerns heard. This has to change. I suggest that the best mechanism to achieve this is to invest in regional coastal planning that links urban and regional planning, infrastructure development, climate change considerations and budget. The last being the most critical if anything is to happen. Regional Australia and the Department of Climate Change and Energy Efficiency can facilitate this, achieve joint national objectives and in working with local councils, make a real difference on the ground for a more sustainable coastal future.

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