

FROM WHITE SHOES TO WADERS:

Climate change adaptation and government on the Gold Coast

Michael Howes, Aysin Dedekorkut-Howes,

*Urban Research Program,
Griffith School of the Environment,
Griffith University,
Gold Coast, QLD
AUSTRALIA*

m.howes@griffith.edu.au
a.dedekorkut@griffith.edu.au

INTRODUCTION

For more than two decades scientists have been warning governments at all levels about the serious risks posed by climate change. For the last few years the issue has been prominently covered by the media and there has been a consistently strong public demand for action. Despite this, successive governments have struggled to develop and implement responses with climate sceptics and powerful industries able to delay action. Two factors are major contributors to the situation. First, climate change is by nature a ‘wicked’ problem and so is not readily amenable to conventional policy or planning solutions. Second, the governing institutions of Australia emerged in a very different context and were simply not designed to deal with such issues. Each of these factors will be dealt with in turn below. The paper then uses a case study of climate adaptation policies and plans that apply to the Gold Coast to illustrate the current situation. The final section looks at the difficult decisions that need to be taken and proposes a set of three strategies that might encourage more timely responses.

THE NATURE OF THE PROBLEM

Although the science of climate change is complex, the underlying principle is relatively simple. The devil, of course, is in the detail. Since the industrial revolution human activity has released large quantities of greenhouse gasses (such as carbon dioxide) that have changed global climate patterns. The environmental consequences include: higher average temperatures; rising sea levels; the loss of snow and ice cover; shifting patterns of precipitation; the accelerated loss of habitats and biodiversity; increased land degradation; and, more frequent and intense extreme weather events (Solomon, et. al. 2007; CSIRO & Bureau of Meteorology 2010; Arndt, Baringer & Johnson 2010; Australian Academy of Science 2010). These changes will, in turn, have significant social, economic and political consequences, including: disruptions to agricultural production; exacerbated freshwater scarcity; increased damage to built assets; higher insurance costs and defensive expenditures; the spread of vector-borne diseases into more populous zones; a rise in the heat-related deaths; a substantial increase in refugee numbers; and, disputes over access to water (Stern 2006; Parry, et. al. 2007; UNEP 2007; DCC 2009; Australian Academy of Science 2010). Several policy and planning responses have been considered by governments and a few have been recently adopted in a piecemeal fashion. These responses can be grouped into two main categories. The first consists of mitigation actions designed to cut net greenhouse gas emissions so as to reduce the speed and scale of climate change. The second consists of adaptation responses designed to manage the impacts that cannot be avoided (DCC 2010; Garnaut 2008; Metz, et. al. 2007; COAG 2007). This paper will focus on the adaptation responses because mitigation policies have been dealt with

extensively elsewhere. It should be noted, however, that mitigation and adaptation are connected (Kane & Shogren 2000). Put simply, the less we mitigate, the more we have to adapt (Stern 2006).

One of the standard texts used in training public sector policymakers is *The Australian Policy Handbook* (Althaus, Bridgman & Davis 2007). It argues that policymaking can be understood as a cycle of eight steps: issue identification; policy analysis; policy instruments; consultation; coordination; decision; implementation; and, evaluation. The authors themselves, however, admit that the process is not always so straight-forward as this ideal model and the whole cycle grinds to a halt when faced with ‘wicked’ policy problems. The concept of ‘wicked’ problems emerged from an article on planning theory by Rittel & Webber (1973) who assigned them ten attributes:

1. They are difficult to define;
2. There is no clear end or boundary to the problem;
3. There is no agreed criteria to judge the correctness of a response;
4. Responses have unforeseen consequences;
5. Responses that go wrong cannot be easily undone;
6. It is not possible to identify all possible options;
7. There is no suitable precedent to guide decision makers;
8. They are interconnected with other problems;
9. There is no agreed explanation of the problem; and,
10. Mistakes in either action or inaction are very costly.

In a nutshell, these attributes make understanding a ‘wicked’ problem as well as developing, implementing and evaluating an effective response highly problematic.

As a policy problem climate change has all of these attributes (Head 2008). In terms of climate adaptation, tens of thousands of scientists around the world have been studying the problem for several decades but it has not been possible so far to accurately predict the impacts on a specific city let alone a particular property. The impacts that have been identified are presented as a range of possibilities under several different scenarios (Dessai & Hulme 2004; Parry, et. al. 2007). Climate change is a process that operates over centuries, which is well beyond the normal policymaking horizon and has no clear end or boundary. A range of adaptation responses are possible (e.g. restrictions on new developments, the construction of flood barriers or the abandonment of some areas) but there are no agreed criteria by which the options can be judged. Any attempts to adapt will have long term environmental, economic and social consequences that cannot easily be reversed. There is no easy solution but options may emerge from unforeseen technical innovations or changes to settlement patterns. There is no similar problem from the past to learn from or guide policy makers and planners. Climate change is largely the product of other problems (such as the depletion of fossil fuels and land clearing) and will itself exacerbate existing issues such as the loss of biodiversity, water scarcity, falling food production, increased disease and rising demands on the public purse. The causes, nature and seriousness of the problem are publicly disputed by climate sceptics, making action difficult. Finally a great deal is at risk, failure to act will be costly, but taking the wrong path will also have costs. These attributes have led Ross Garnaut (2008), who led the Australian government’s climate change review, to argue that climate change is not just ‘wicked’ but diabolical.

This ‘wicked’ nature has fed the politics of climate scepticism which encourages official neglect of the problem. The Howard coalition government 1996-2007, for example, was often accused of doing too little (Christoff 2005; Mercer & Marden 2006; Head 2008). Prime Minister Howard himself openly admitted that he was “sceptical about a lot of the more gloomy predictions” of climate change research (Brissenden 2006). Others within the Liberal party were even more forthright. Senator Nick Minchin famously asserted that the issue was actually a conspiracy by the left-wing activists seeking to attack capitalism (Ferguson 2009). Minchin was later instrumental in ousting Malcolm Turnbull from the Liberal leadership because Turnbull supported the Rudd

government's carbon pollution reduction scheme. His replacement, Tony Abbott, is more sceptical and once described climate change as "crap" because he believed the science was uncertain (Grattan 2009). Linked to this scepticism is the entrenched opposition of high emitting industries that dominate the Australian economy and politics. Research by Pearse (2007, 2009), for example, suggests that the resources sector, and the coal industry in particular, exerted undue influence over the Howard government's climate change policies. It has more recently become apparent that this influence did not stop with the change of government at the 2007 federal election. When the Labor government tried to impose a new tax on the resource sector in 2010, for example, the industry response was a major factor in the removal of Rudd as Prime Minister. The new leader, Julia Gillard, moved quickly to appease the sector with major concessions and policy changes (Mitchell 2010). This had led some people to question the limits of Australian democracy (Menadue 2010). All of this indicates that the problem is of such a 'wicked' nature that it is putting the Australian political system under extreme stress.

THE NATURE OF AUSTRALIAN GOVERNMENT

In his seminal work, *The Risk Society*, Ulrich Beck (1992) pointed out that governing institutions designed in the nineteenth century have difficulty responding to complex twentieth century risks. While this observation was derived from his study of European society, it applies equally well to Australian governing institutions facing twenty first century problems like climate change. It must be remembered that this system was developed in a very different technological, economic, social, political and environmental context (Howes 2005). Most of the fossil fuel-based production, transport, housing, entertainment and communication technologies on which we now rely had either not been invented or were not in common use. The economy relied mainly on agricultural production and the large trans-national firms that now dominate most sectors were nowhere to be seen. Socially, the population was much smaller and more dispersed, most of the social safety nets like welfare benefits and Medicare did not exist, and the level of education was lower. The system was developed decades before all but one of the current political parties came into existence (the exception being the Labor party), before the concentration of economic power in the hands of a few business leaders, before the rise of ubiquitous and instantaneous electronic media coverage, and before the rise of new social movements (e.g. environmentalism, human rights groups, etc.). Finally, the system predated much of our scientific knowledge about the environment and the rise of global environmental issues like climate change.

In essence, the Australian political system is the product of a reluctant nineteenth century compromise between the governments of six colonies. Each had enjoyed considerable autonomy, and their leaders were reluctant to hand over powers to a new national government. The first constitutional convention in 1890 failed and it was another seven years before an agreement was reached at the second convention. The resulting system of government was later to be described as the 'Washminster mutation' because it combined elements from the US government in Washington and the Westminster system in Britain (Jaensch 1997; Thompson 1980). As in Britain, the monarch was kept as the head of state and the executive (Prime Minister and Cabinet) were members of parliament, while the legal and administrative systems were much the same. From Washington came a federal political system (with each colony becoming a state), a written constitution, a high court to interpret and defend the constitution, and a senate with equal representation for the states (Howes 2005).

In terms of the distribution of powers, the constitution specified a restricted set of responsibilities for the new federal government. All other residual powers fell to the states. Since the environmental problems had not been recognised as significant policy issues at the time of federation, the states have subsequently taken the lead role (Toyne 1994). Two territories were established and later given limited self-rule but the federal government retained power to over-ride their decisions. No mention is made in the constitution of local government, so councils exist entirely at the mercy of

the states. Power struggles between all three levels of government have been a central feature of Australian politics ever since.

Over the last century successive federal governments have found ways to adjust their powers using three main strategies: delegation, cooperation, and intervention (Howes 2005). Delegation occurs when the federal government chooses not to be involved in a particular issue and is happy to leave it to the states. Passive delegation occurs when it does not attempt to enter a policy area (e.g. most air pollution laws are left to the states). Active delegation is where it effectively licenses the states to act on its behalf (e.g. this happens with environmental impact assessments under the *Environment Protection and Biodiversity Conservation Act 1999*).

Cooperation, or cooperative federalism as it is often known, is perhaps the most common strategy. Here the federal, state and territory governments (and, sometimes, representatives from local government) establish a joint decision making body to agree on a common set of goals and coordinate enforcement across all jurisdictions. The 1992 *Intergovernmental Agreement on the Environment* is an example that led to the creation of the joint ministerial National Environment Protection Council (NEPC). Complementary legislation was passed around the country so that measures agreed upon by the NEPC automatically become enforceable in all jurisdictions (Howes 2005).

The intervention approach is where the federal government expands its powers to take control of an issue. This can occur in several ways (Toyne 1994; Howes 2005). First, it can use an existing power in a new way. In 1983, for example, the federal government used the external affairs power given to it by the constitution to stop the Franklin Dam in Tasmania. It successfully argued in the High court that the area in which the dam was going to be built was protected under the World Heritage Convention and the constitution gave the federal government the power to enforce treaties. The second strategy is to persuade the states to hand over or refer some of their powers to the national government. This happened during World War II when the states surrendered some of their taxation powers and more recently when they handed over the power to regulate corporations. Finally, the federal government can use its fiscal powers to fund programs that by-pass the states altogether. A good example is *Landcare*, where funding for environmental rehabilitation is provided to community organisations directly (Howes 2008; Howes 2005).

The three strategies of the federal government are mirrored at other levels. In terms of delegation, state governments often leave minor environment and planning issues to local councils. More substantive issues, however, can be handled by cooperative processes. The *South East Queensland Regional Plan 2009-31*, for example, was largely a state government initiative (in which the Department of Infrastructure and Planning (DIP) took the lead role) but the process did include consultation with the affected local councils and they in turn use the plan to guide their decision making (DIP 2009). In terms of intervention, the Queensland government maintains a central control of local development through its direction of funding in the *SEQ Infrastructure Plan and Program 2010-31* (DIP 2010).

On the whole, local councils tend to be wary of state government policies and plans (Burton & Dredge 2007). The *Council of Mayors SEQ*, for example, is an advocacy group that lobbies state and federal governments for policy changes. In 2008 the Queensland government unilaterally exercised its powers to force many councils to amalgamate against their will. Even when state governments adopt delegation or cooperative approaches, councils are often suspicious of cost shifting where they are given more responsibility to implement policies but the necessary funding is not provided (Liebrecht & Howes 2006). Power struggles, turf wars, and the lack of trust all undermine relations between different levels of government and their agencies. This is one of the

main barriers to effective collaboration and stymies attempts to get well coordinated responses to issues that cut across jurisdictions (Howes 2008; Liebrecht & Howes 2006).

Given this situation it is no surprise that the overall response to climate adaptation has been slow and complex. In terms of delegation, the federal government has left most of the detailed planning work to the state, territory and local governments. In Queensland, for example, the state government released a *Draft SEQ Climate Change Management Plan 2009-31* and the Gold Coast City Council (GCCC) adopted its own *Climate Change Strategy 2009-14*. With regards to cooperation, the Council of Australian Governments (COAG) agreed to a strategy on adaptation that required collaboration between all levels of government (COAG 2007). On the intervention front, the federal government created the Department of Climate Change and directly funded various programs (DCC 2010). Similarly, Queensland Government established the Office of Climate Change in 2007 for “coordination, implementation and review of Queensland’s climate change strategies and whole-of-government policy recommendations for achieving further cuts to the state’s emissions profile” (Queensland Government 2010).

The fact that such a complex range of strategies, policies and plans slowly emerged across various levels of government is the legacy of decisions taken in the late nineteenth century about the design of the Australian political system. Further, the lessons from climate mitigation side of the policy equation do not bode well. By the end of 2007, for example, a greenhouse gas emission trading scheme was being supported by all state and territory governments as well as both major parties at the federal level. By 2010, however, the consensus has been destroyed by short-term politics, political rivalries and a persistent campaign of opposition by sceptics supported by a powerful fossil fuel sector. These forces combined to play on the weaknesses within the existing political system and as a result the legislation was blocked in the senate and eventually deferred. So how well has this system done when it comes to helping one of its most vulnerable cities, the Gold Coast, adapt to the impacts of climate change?

CASE STUDY: THE GOLD COAST

For a wicked policy problem like climate change, the Gold Coast provides a highly sensitive case study due to its inherent physical vulnerability and limited social resilience. In terms of physical vulnerability, the region is dominated by low-lying, flood-prone land surrounded by an exposed coast-line and numerous waterways (GCCC 2009; DCC 2009; Parry, et. al. 2007). Added to this, development has taken place in vulnerable areas, with waterfront property being much sought after. The present population of the region is around 500,000 and this is predicted to rise to 900,000 by 2030 (GCCC 2006). Such rapid population growth puts pressure on existing infrastructure and encourages further development in low-lying coastal areas that will be particularly vulnerable to floods, storm surges and rising sea levels (GCCC 2009).

In terms of social resilience, the Gold Coast has a large retirement community with 20.9% of the population aged 60 or more (GCCC 2006). Older Australians are the most at risk from heat-stress and heat-related deaths from higher temperatures. They will also be more susceptible to vector borne diseases that may spread to the region (Baum, et. al. 2010). Over 24% of the population were born overseas and 3.8% of the total population does not speak English very well (GCCC 2006). This will make any community engagement difficult as many people may not understand the nature of the threat or what they can do to minimise the risks. Finally, although there are a considerable number of very wealthy people living on the coast who can afford to take individual adaptation measures, 17.5% of households are classed as low income (GCCC 2006). The lack of resources reduces their ability to pay for defensive measures or move to less vulnerable dwellings.

There have been numerous policies and plans from all levels of government with significant climate adaptation elements that will affect the Gold Coast directly (see Table 1 for a selection). Obviously

it is not possible to give a detailed analysis of them all, so this paper will focus on some key initiatives that are indicative of the strategies outlined in the previous section. This in turn should signify the capacity of the Australian political system to respond to the challenge of climate change adaptation.

Table 1: Selected policies & plans relevant to climate adaptation on the Gold Coast

Level	Policy or Plan
National	<ol style="list-style-type: none"> 1. <i>National Climate Change Adaptation Framework</i>. April 2007. Council of Australian Governments. 2. <i>Adapting to Climate Change in Australia: An Australian Government Position Paper</i>. 2010. Department of Climate Change. 3. <i>National Climate Change Adaptation Research Plan: Settlements and Infrastructure</i>. December 2009. National Climate Change Adaptation Research Facility.
State: Queensland	<ol style="list-style-type: none"> 4. <i>Toward Q2: Tomorrow's Queensland</i>. 2008. Department of the Premier and Cabinet. 5. <i>Draft Queensland Coastal Plan</i>. 2009. Department of Environment and Resource Management. 6. <i>ClimateQ: Toward a Greener Queensland</i>. 2009. Department of Environment and Resource Management. 7. <i>ClimateSmart2050</i>. 2007. (including <i>ClimateSmart Adaptation 2007-12</i>) Environment Protection Agency (now Department of Environment and Resource Management).
Regional: South-East Queensland	<ol style="list-style-type: none"> 8. <i>South East Queensland Regional Plan 2009-2031</i>. 2009. Department of Infrastructure and Planning. 9. <i>South East Queensland Infrastructure Plan and Program 2009-2026</i>. July 2009. Department of Infrastructure and Planning. 10. <i>South East Queensland Natural Resource Management Plan 2009-2031</i>. 2009. Department of Environment and Resource Management. 11. <i>Rural Futures Strategy for South East Queensland 2009</i>. 2009. Department of Infrastructure and Planning. 12. <i>Connecting SEQ 2031: An Integrated Regional Transport Plan for South East Queensland</i>. Department of Transport and Main Roads. 13. <i>Southeast Queensland Regional Coastal Management Plan</i>. 2006. Environmental Protection Agency (now Department of Environment and Resource Management). 14. <i>Revised Draft South East Queensland Water Strategy</i>. November 2009. Queensland Water Commission. 15. <i>The South East Queensland Healthy Waterways Strategy 2007-2012</i>. SEQ Healthy Waterways Partnership. 16. <i>Draft SEQ Climate Change Management Plan</i>. 2009. Queensland Department of Infrastructure and Planning.
Local: Gold Coast	<ol style="list-style-type: none"> 17. <i>Gold Coast Planning Scheme</i>. Gold Coast City Council. 18. <i>Gold Coast Climate Change Strategy 2009-2014</i>. 2009. Gold Coast City Council.

The *National Climate Change Adaptation Framework* (COAG 2007) is a good example of the cooperative federalism. Like most policies and plans the problem and impacts are reiterated in summary form to stress the importance of the agreement. The goal is stated concisely:

“The long term goal of this Framework is to position Australia to reduce the risks of climate change impacts and realise any opportunities.

In the medium term (5-7 years), targeted strategies in this Framework will build our capacity to deal with climate change impacts and reduce vulnerability in key sectors and regions.” (COAG 2007, 4)

Ministerial councils are mentioned as a key mechanism for coordinating actions and implementing policies and plans. Two areas for action are identified: “building understanding and adaptive capacity” and “reducing vulnerability on key sectors and regions” (COAG 2007, 6). In terms of the first area, the *National Climate Change Adaptation Research Facility* (NCCARF) is meant to play a key role, and the main focus on the agreement is to support research that will inform decision makers with regards to impacts and vulnerability. With regards to the second area, priorities are identified as: water resources; coastal regions; biodiversity; agriculture, fisheries and forestry; human health; tourism; settlements, infrastructure and planning; and, natural disaster management. Each has a section outlining the need for research to provide a basis for future decision making and actions.

At the national level, the federal government recently released *Adapting to Climate Change in Australia: An Australian Government Position Paper* (DCC 2010). The paper restates the nature of the problem and summarises some of the key impacts that are unavoidable. It acknowledges that the federal government does not have the capacity to solve the problem alone and argues that responsibility for adaptation is shared by all levels of government, business and the community. Government in general is cast as a capacity builder and reformer that will help business and the community adapt by providing information and setting the right conditions through policies and plans. The government also commits to changing the way it manages programs and assets. While the federal government plans to play a leadership role, state and territory governments are seen as having the primary task of taking direct adaptation action because they are the main provider of public goods and services (e.g. hospitals, schools, parks, roads, water, sewerage, garbage collection, etc.). Priority areas for action are identified as coastal management, water supply, infrastructure protection, maintaining natural systems, disaster management and assisting agriculture. The paper advocates the embedding of climate change adaptation considerations in the policy making process. It points out that \$12.9 billion has been allocated to the *Water for the Future* program and reminds us that NCCARF was created in to improve information for governments, business and the community. Here we can see all three strategies of the federal government at work. In terms of intervention, it funds its own programs and protects environmental assets of national importance. In terms of cooperation, there is a focus on working through COAG on various schemes. Finally, in terms of delegation, there is an acknowledgement that much of the heavy lifting will be left to other levels of government, as well as the business and community sectors.

ClimateQ: Toward a Greener Queensland (DERM 2009) is Queensland’s policy framework for transitioning to a more sustainable and climate friendly economy. The strategy summarizes climate change impacts on Queensland’s regions, previews the economic and social costs, and presents eight sectoral strategies on: energy; business; planning and building; community; primary industries; transport; ecosystems and government. Three of the key themes identified have adaptation elements: investing in the productive future of key industries, conserving significant ecosystems and adapting to the impacts of climate change. *ClimateQ* includes investments and policies totalling \$196 million including \$87 million in new initiatives. In terms of specific adaptation actions *ClimateQ* focuses on the areas of disaster management, water use and biodiversity protection. The strategy identifies the role of the state government as providing information to assist communities and businesses in preparing for the risks of climate change. Most of the initiatives in the strategy focus on research and capacity building. The CSIRO climate flagship research project is conducting a comprehensive assessment of climate change risks in SEQ and the data is informing regional planning efforts. There is \$8 million to be invested in developing

a Digital Elevation Model of the state to better understand the impacts of sea level rise, storm surge and coastal erosion. The resulting interactive maps will be available to local governments and other stakeholders for future land use planning. The state government also provides funding for various programs (e.g. the Water Smart Buildings Program, Rural Water Use Efficiency Initiative, climate change corridors for biodiversity, disaster management education programs) and prepares the general guidelines local governments operate under. The government will also ensure that infrastructure grants to local governments and communities take account of both greenhouse gas reductions and climate change adaptation considerations.

The *SEQ Draft Climate Change Management Plan (CCMP)* contains thirty two proposed actions for state and local government to support the implementation of the climate change policies of the *South East Queensland Regional Plan 2009-2031* (DIP, 2009). Thirteen of these actions are concerned with natural hazards and climate change adaptation, the rest are mitigation. Seven of the thirteen adaptive actions propose to review and revise existing plans, policies and guidelines, develop new guidelines and strategies or implement state policies through lower level planning. The remaining six adaptive actions focus on data collection, synthesis and communication. Although the CCMP does not provide detail of how these actions will be implemented it suggests that finding practical and cost-effective ways to make a real difference is possible by working collaboratively with other levels of government, the development industry, councils and the residents of South East Queensland. Like the *SEQ Regional Plan*, the draft CCMP was prepared by the state DIP in consultation with the affected local councils.

Finally, at the local level, there is the *Gold Coast City Council Climate Change Strategy 2009-14* which again deals with both mitigation and adaptation (GCCC 2009). As with all the policies and plans considered, it starts with a summary of the problem based on the research to date, then moves on to acknowledge the vulnerability of the Gold Coast region. Further research, raising public awareness and making infrastructure resilient all appear in the seven strategic outcomes. There are also calls for coordinated actions within the council and between the different levels of government. In terms of implementation, most of the specific actions listed consist of reviewing and auditing current operations or further research. While much of the strategy could be internally funded there is a call for more external funding.

The overall effect of all these policies and plans for the Gold Coast is that the first tentative steps towards adaptation have been taken, but a lot more needs to be done. With regards to water supply and flooding, for example, a series of studies were commissioned by DCC, the GCCC and Queensland government. A desalination plant has been built to supplement water supplies during droughts and both the local council and state government have run effective water conservation campaigns. The local Hinze dam has been connected to a grid that allows water to be transferred between the major reservoirs within the wider region during dry spells. The dam wall has been raised to increase storage capacity during dry periods and reduce the risk of flooding from overflows during wet periods. More detailed flood maps were released to the public in 2009 and sea level rises are now being taken into account in planning decisions for new developments. There is still, however, the problem of what to do with existing built assets that are at risk and how to stand up to politically powerful developers that still want to build on vulnerable land.

WHERE TO FROM HERE?

The first thing to acknowledge is that some tough decisions need to be made. Given that the public purse is limited, who should be given financial assistance to adapt and who should miss out? Which properties are going to be defended and which will be abandoned? How much money should be allocated to adaptation and who will pay? Where does the legal liability lie when properties lose their value or lucrative developments are stopped? (England 2007) (In the case of the Gold Coast, the section 704 of the Queensland Sustainable Planning Act 2009 requires local councils to

compensate owners when a planning decision reduces their property's value.) These decisions are all the more difficult given the limited public resources, competing demands from other policy areas, and the power struggles between different levels of government.

The second point is that the current economic and political context is going to discourage any individual government from taking steps that might be unpopular. At the national level, political opponents could block measures in the senate then use the issue to hound people from office. We have already seen this happen with the failed carbon pollution reduction scheme and the watered down mining tax. Further, any action by one level of government might be resisted and undermined by the other levels. State recalcitrance on reforms for the management of the Murray-Darling system and the funding of public hospitals are prime examples. Finally, although local governments like the Gold Coast City Council have made a start, they do not have the resources or powers to implement all the necessary changes and are wary of state governments trying to shift costs on to them without appropriate funding.

The problem will not get any easier to address as time goes on and it is unlikely that we will see a major restructuring of the political and economic system any time soon, so what can be done? Most of the climate change policy research to date has focussed on the mitigation side of the equation (Bulkeley & Betsill 2005; Christoff 2005; Mercer & Marden 2006; Pearce 2007; Head 2008; Bulkeley & Newell 2010), although this is starting to change (Byrne, et. al. 2009; Head 2009). We suggest that there is a set of three complementary strategies that together might accelerate the implementation of adaptation policies and plans:

1. Using the established NEPC processes and institutions;
2. Creating a new climate program modelled on *Landcare*; and,
3. Establishing a new national statutory authority.

This set of strategies gives the federal government a key role because it has already indicated a desire to take the lead, it is best placed to withstand local resistance to individual decisions, and it commands the largest pool of useful resources. Each strategy has been compared in table 2 below.

Table 2: Strategies for accelerating adaptation actions

	Risk of an individual government becoming the target for public or business anger	Risk of being blocked by the senate	Risk of state government resistance
1) New NEPC measure on climate adaptation	Low, responsibility diffused between all levels of government	Low, requiring either a creative interpretation of the existing act or a minor amendment	Low, a collective decision
2) New climate program within <i>Caring for Our Country</i>	Low, onus put back on community & business	Minimal, <i>Landcare</i> style programs are popular	Low, funding flows from national to local levels
3) New climate change adaptation statutory authority	Low, blame deflected to new authority	Medium, major parties disagree on federal intervention but Greens hold balance of power	Medium, states balance dislike of federal intervention against wish to avoid blame

The first strategy would be to use the existing NEPC structure to create a new *National Environment Protection Measure on Climate Adaptation*. Such a measure would be enforceable in every jurisdiction under existing state and federal legislation, although it would require either a

creative interpretation of the areas defined for action in section 14(1) of the Commonwealth NEPC Act 1994¹ or a minor amendment. It would, however, reduce the risk of any one government becoming a target for blame as the decision is taken collectively. The second strategy is use the *Landcare* approach where the federal government offers funds for climate adaptation projects proposed by various combinations of community groups, businesses and government agencies at any level. *Climatecare* could be added to the current *Caring for Our Country* suite of programs that generally have support from all sides of politics. While the majority of *Landcare* projects have traditionally been rural, some have been undertaken in more urban areas, such as the Gold Coast. Such a move would diffuse blame by putting the onus back onto the local community and business, which would have to identify the major problems in their area and implement solutions. The third strategy is to create a new arms-length *National Climate Change Adaptation Statutory Authority* and delegate the power to make unpopular decisions. This approach has been used successfully in the past. The power to set interest rates was handed over to the Reserve Bank, for example, in a move supported by both sides of politics. Raising rates is always going to be unpopular with business and the community because it imposes significant costs, but good monetary policy requires this action during times of high inflation. While the new authority is obviously not going to be in the same league as the Reserve Bank, the same principle could be applied but the legal basis would have to rely on either a referral of powers from the states or the use of the external affairs in enforcing the 1992 UN *Framework Convention on Climate Change*.

These three strategies would work together to support each other and would require substantial funding from the federal government to avoid the problem of cost shifting. Perhaps some currently allocated resources could be redirected from closely related programs like *Infrastructure Australia*. It must be conceded that all three strategies proposed are band-aid measures, but they would at least speed up the deployment of tangible actions on climate adaptation happening. A more substantive change would involve a major restructuring of the government, business and community sectors, which is well beyond the scope of this paper. There is a long history of literature in this area, see for example Dryzek (1987) or Eckersley (2004).

So what would these three strategies mean for the Gold Coast? The *National Environment Protection Measure on Climate Adaptation* would be legally enforceable by the Queensland government and would require the cooperation of the Gold Coast City Council (GCCC) in a similar fashion to the *SEQ Regional Plan*. In order to avoid cost shifting the *Climatecare* program would enable the GCCC to apply for federal government funds to undertake the necessary capital works. Local firms and/or community organisations might also apply for funding, either in partnership with the GCCC or independently. Finally, both the Queensland government and the GCCC could refer the hardest decisions to the *National Climate Change Adaptation Statutory Authority* to deflect potentially damaging local political conflicts towards a more removed arm of government.

CONCLUSIONS

Climate change poses a ‘wicked’ problem for the Australian political system and has led to fierce power struggles inside, between and outside governments. These have already contributed to the

¹ Currently the act defines seven areas where an NEPM can be made: “(a) ambient air quality; (b) ambient marine, estuarine and fresh water quality; (c) the protection of amenity in relation to noise (but only if differences in environmental requirements relating to noise would have an adverse effect on national markets for goods and services); (d) general guidelines for the assessment of site contamination; (e) environmental impacts associated with hazardous wastes; (f) the re-use and recycling of used materials; (g) except as provided in subsection (2), motor vehicle noise and emissions” (NEPC Act 1994, section 14(1)). A creative interpretation of (a), (b), (e) (if greenhouse gasses were defined as hazardous waste) or (g) might be used to support action on climate change.

removal of both a Prime Minister and a leader of the opposition, hobbled major climate change policies, and exposed the political power of resource industry leaders. Meanwhile, the public debate has effectively been hijacked by the sceptics. A system of government designed as a political compromise in the nineteenth century is struggling to deal with this situation and the difficulty of future adaptation decisions that have to be taken will discourage action at all levels of government. In the short term there are some strategies that would help, but in the longer term the systematic and institutional weaknesses exposed by the issue of climate change need to be addressed.

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