Climate Proofing Bribie Island and the Noosa Biosphere, South East Qld: *Moving beyond the 'case study'*

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INTRODUCTION

Climate Proofing combines top-down and bottom-up approaches to climate change adaptation that seek to make areas and assets more resistant and communities and individuals more resilient to extreme weather events, climatic variability and climate change. Since 2006, this internationally accepted approach, endorsed by the Intergovernmental Panel on Climate Change (IPCC, 2007 (a)) and used by the World Bank and the Asian Development Bank, has been applied to regional scale awareness-raising and demonstration projects for coastal communities in the South East Queensland (SEQ) region.

Community-scale climate-proofing projects have been embedded at Bribie Island in Moreton Bay beginning in 2008 and the Noosa Biosphere on the Sunshine Coast since mid-2009. These two distinctly different areas reflect a range of biophysical conditions, exposures to climate induced risks, levels of residential and recreational development, community perceptions, and responses to the challenge of adapting to changing climatic conditions.

The processes have been facilitated by SEQ Catchments (SEQC) and the University of the Sunshine Coast (USC) with support from many partners

Figure 1. Map of South East Queensland showing
the two *Climate Proofing* areas – the Noosa Biosphere & Bribie Island

BACKGROUND

Most people agree that climate change is already taking place, and further changes are inevitable. This position is strongly supported in the Fourth Assessment Report (AR4) of the IPCC (2007(b)) that reported that the demonstrated rise in global mean temperature (GMT) trend due to increased greenhouse gas (GHG) emissions is driving a series of environmental consequences. This finding was one of many from the culmination of twenty years of international scientific reporting and documented by the IPCC since its First Assessment Report in 1991.

The south east corner of Queensland was cited by the IPCC AR4 (2007(a)) as one of two vulnerability hot spots for climate change impacts in Australia due to its coastal location and growth projections for population and urban development. The report projected SEQ to experience increasing vulnerability from sea level rise and increases in the severity and frequency of storms and coastal flooding by 2050 (IPCC, 2007(a)).

To bring this projection into focus, Steffen (2009) reported that CSIRO modeling projections for the Sunshine Coast for 2100 (based on the then latest scientific evidence) that *the rate and magnitude of climate change already being observed is at the high end of the range estimated by the IPCC*. The CSIRO projections for the Sunshine Coast show:

- a temperature increase of up to 6.5°C
- an extra 30 days over 35°C per annum
- 23 per cent reduction in average rainfall
- rainfall events become more intense
- sea level rise up by 0.80 m
- fewer but longer lived cyclones
- and by 2070, 140% increase in number of severe storms

These patterns are similar for other coastal areas of SEQ and have been demonstrated with SimCLIM modeling by SEQC and USC, as documented by White (2006) and Laves et al (2010). Collectively, recognition of the documented realities of changing climatic conditions provides a solid scientific basis for catalysing community action through climate proofing.

CLIMATE POLICY AND PLANNING CONTEXT

Effective adaptation to climate change and climate variability requires a combination of bottom-up and top-down approaches to be able to effectively meld the legislation, funding and expertise with the community support, knowledge and networks.

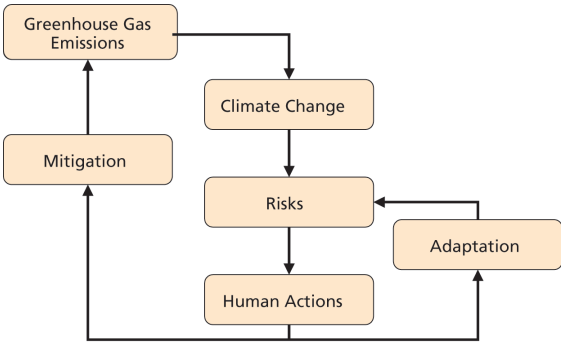
The Australian Government has developed a range of strategies, policies and research opportunities to guide and support adaptation, and is currently developing policies and measures to further reduce its share of greenhouse gas concentrations through development of an emissions trading scheme.

The Queensland Government's Climate Change Centre of Excellence (QCCCE) conducts research in climate science and its Office of Climate Change and other government departments continue to implement and develop mitigation and adaptation policies and programs to assist residences and businesses across the state.

The Moreton Bay Regional Council (MBRC) released *Scoping Climate Change Risk for MBRC* in 2009 which analysed the comparative risks of areas in the council jurisdiction, outlining twelve recommendations for successful adaptation. The *Climate Proofing Bribie Action Plan* developed as a product of this process will assist the MBRC in delivering on a number of these recommendations by providing a starting point for concerted and focused adaptation. In 2009, the Sunshine Coast Council endorsed the *Climate Change and Peak Oil Strategy 2009-2020* which clearly supports local adaptation strategies such as the *Noosa Climate Action Project.*

ADAPTATION AND MITIGATION

Whilst mitigation of climate change by reducing GHGs is an imperative to avoid irreversible ecological and resulting human impacts, it is clear that adaptation is also required to address the changes already occurring, and those committed by lack of mitigative action. The IPCC (2007) recommends both approaches are required as a matter of urgency to reduce risk of irreversible global change.



Adaptation aims to reduce climate-related risks (the likelihood and/or consequence components), while mitigation aims to reduce the rate at which climate change occurs.

Source: Warrick 2006

Figure 2: Interaction between adaptation and mitigation components of climate change

The *Climate Proofing Bribie Action Plan* and *Draft Noosa Climate Action Plan 2011* have chosen no-regrets actions which achieve both adaptation and mitigation. . Efforts such as these remove the focus of climate change from one that can be perceived exclusively as one that requires a depreciation of our lifestyles by reducing our carbon emissions. These dual-component actions will not only reduce the risks for the communities in changing climatic conditions and help to remove the cause of global changes, but will also bring multiple benefits such as improved health and well-being, greater community involvement and a more integrated approach to planning.

A RISK REDUCTION PROCESS

Climate proofing refers to a dynamic process of implementation of collectively planned discrete actions - that may involve hard and soft infrastructure - in a staged sequence, moving the community toward resilience and the assets and activities toward resistance to climate change and climatic variability (Warrick 2006). As such, *climate proofing* uses the adaptive management framework demanded by complex systems to achieve continual improvement in iterative cycles, as described leading climatologist Dick Warrick (2006). However, *climate proofing* does not mean fully eliminating climate-based risks as this is, regrettably, an unrealistic goal at this point in time.

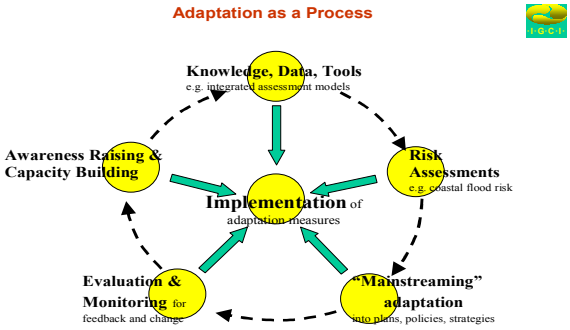


Figure 3 The adaptation process (Source: Warrick, 2006)

The key steps in this continually evolving process are to:

1. Develop a shared understanding of climate change generally, the potential local impacts and the most vulnerable physical and demographic areas;
2. Establish and develop relationships and partnerships between community and its government to plan and implement wisely;
3. Develop a 'no-regrets' integrated action plan to strengthen the resilience in the community and the biophysical environment;
4. Build capacity within the community to monitor, model and implement the plan; and
5. Celebrate the successes (Warrick 2006).

Climate Proofing Bribie began in 2008 with initial meetings of Bribie Island group and business leaders with government to establish an agreed approach. This was initiated by SEQ Catchments Ltd, the regional body for natural resource management in conjunction with the University of the Sunshine Coast. A large public meeting followed.

All issues of concern expressed and actions suggested at the first public meeting were captured and form the basis of this action plan. Community members volunteered on the evening to form a working group that met throughout the year. The issues were divided into five action groups:

1. Infrastructure & Planning (includes waste and transport)
2. Water (surface and groundwater)
3. Emergency Management (sea level rise, storm surge, fire, flood)
4. Shoreline Management
5. Biodiversity (flora and fauna)

Noosa Climate Action Project (NCAP) began in 2009 with two initial meetings of the Noosa Biosphere sector boards, representatives of key stakeholder groups and local and state government to establish an agreed approach. This was initiated by Noosa Biosphere Limited, the UNESCO-designated body to oversee the high-biodiversity area of the Noosa Biosphere Reserve. and facilitated by SEQ Catchments Ltd, the regional body for natural resource management, in conjunction with the University of the Sunshine Coast.

A series of public meetings were subsequently held at Pomona, Noosa Heads and Peregian Beach to introduce the project, present the global situation with a changing climate and discuss how it might impact on the Noosa Biosphere region and its residents. All issues of concern expressed and actions suggested at these public meetings were captured and form the basis of the action plan. After each meeting the issues and actions were amalgamated into seven groups and reviewed by a working group:

1. Health & Lifestyle
2. Economy
3. Emergency Management (sea level rise, storm surge, fire, flood)
4. Biodiversity (flora and fauna)
5. Agriculture
6. Coastal Management
7. Planning &Infrastructure (includes waste and transport).

These sectoral action plans are deliberately basic yet broad-ranging. All issues converge at the community level and it is important that the integration of these different impacts and areas of responsibility be addressed. Through group negotiation, the responsible parties, collaborating partners, timeline and priority actions were reviewed, revised and ultimately completed at subsequent public meetings concluding in mid-2011.

Additionally, throughout these periods of plan development, there were a series of public opportunities to hear speakers and participate in workshops on emergency management, risk assessment for businesses and various science presentations. These helped to build capacity and partnerships, and to strengthen the plan.

CORE THEMES

Four core themes have emerged through these planning processes common to all. The need to:

1. strengthen relationships and communication within the community and between community and all levels of government, particularly local government;
2. to continually share information and develop understanding of the objective facts surrounding the areas' vulnerability and opportunities with climate change;

3. to acknowledge and use the vast collective community skills and experience of Bribie and Noosa, many of whom are current or retired leaders in industry, academia and public service;
4. to apply an adaptive management framework, continually improving through planning, implementing, monitoring and reviewing.

Many of these connecting and strengthening actions are currently happening and can be developed further in a myriad of ways. It is important to understand and acknowledge the value of Neighbourhood Watch, Health Care Services, Scouts and Girl Guides, the many local groups, social and service clubs and educational institutions that build resilience and can support emergency response. These social, sporting and professional networks will be paramount to the success of the communities' climate adaptation response by building cohesion and self-reliance.

KEY LEARNINGS

The key learnings from this process are fivefold:

1. Productive relations between the engaged community groups and the local council is of paramount importance in achieving an effective climate adaptation response. The strength of this link differed markedly between the two areas with concomitant effects. Climate change offers a new window through which to view long-standing issues. In the case of Bribie Island, a fresh approach has been made possible as the simple logic of adaptive action is traced and enacted with shared commitment which will hopefully in time deepen the partnership between the committed community and its local government. Conversely, the Sunshine Coast Council understood and strongly supported this community-driven approach and values the current and future of community in achieving effective adaptation.

2. With a vocal component in each community continuing to deny that the rate of climate change is increasing due to human activity, it is beneficial to promote positive actions that have both adaptive and mitigative effects. This maximizes the engagement and uptake of initiatives by appealing to self and community interest, whilst achieving both outcomes. Also, it strengthens the links between community groups and members by not having to support a divisive culture of denial and enforced altruism.

3. Many of the actions and networks required to build and support resilience and minimise vulnerability in communities are already in train in the areas of study, often for other reasons. By identifying and acknowledging these initiatives as wise adaptation strategies and viewing them through the lens of climate change in an integrated way, fresh support and a new sense of collective purpose is afforded whilst validating and reinforcing the efforts of many.

4. Although overall the term *climate proofing* was received positively, it met with varying degrees of negativity in both case study areas, but most significantly in the Noosa Biosphere. The concern was that it conferred false security that the resistance to impacts from climate change could be completely successful. To accommodate these concerns, the project title in Noosa became the *Noosa Climate Action Project.*

5. Above all, the process needs to apply primarily a people-centered approach, strongly underpinned by science. The human dimension requires individual and group validation and an appreciation of the confusion that abounds - firstly with respect to the role humans play in driving global warming and changing climates, and secondly as to how communities and individuals can address the risks and vulnerabilities of their biophysical surrounds, livelihoods, health and welfare. The current political climate in Australia has in many ways enhanced the personal confusion, and it is now more than ever imperative that the multiple benefits afforded by the no-regrets adaptation actions are presented in a positive way.

TAKE HOME MESSAGE

These community-driven processes offer the chance for residents and their government to view their area in a new light that turns threats into opportunities. Historically the issues have usually been considered in isolation. Adapting to climate change demands an integrated and positive approach by a well-informed and cohesive community. Regardless of the cause of climate change, implementing these action plans will cause no regrets and deliver extraordinary and long-lasting benefits to the communities.

ACKNOWLEDGMENTS

The key partners in these processes are:

- SEQ Catchments
- University of the Sunshine Coast
- Noosa Biosphere Limited
- Noosa Residents & Ratepayers
- Noosa Integrated Catchment Association
- Noosa & District Landcare Group
- Bribie Island Environment Protection Assoc,
- Bribie Island Community Assoc.
- Qld Dept Employment, Economic Development
- & Innovation
- Sunshine Coast Council
- Moreton Bay Regional Council

We especially acknowledge USC Associate Professor Peter Waterman.

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