



Nature  
Conservation  
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of NSW

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Submission No:	..... 17
Date Received:	..... 27-5-08
Secretary:	..... [Signature]

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27 May 2008

The Secretary  
Standing Committee on Climate Change, Water, Environment and the Arts  
House of Representatives  
Parliament House  
PO Box 6021  
Canberra ACT 2600  
Email: ccwea.reps@aph.gov.au

Dear Secretary,

**Re: Inquiry into climate change and environmental impacts on coastal communities**

The Nature Conservation Council of NSW (NCC) welcomes the opportunity to comment on the terms of reference regarding climate change and its impacts on coastal communities and coastal zone management. We support a more sustainable approach to the use of coastal community resources and coastal ecosystems and also urge strong national action to reduce Australia's greenhouse gas emissions while taking a leadership role in international initiatives to keep global warming below 2 degrees, thereby minimising impacts on our coastal communities.

**Terms of Reference**

1) *Existing Policies and programs related to coastal zone management, taking in the catchment-coast-ocean continuum*

Nature conservation should continue to be a key concern, especially as Australia experiences the effects of climate change. It is important that Australia adheres to principles outlined in government conservations strategies, such as the *ACT Nature Conservation Strategy* which calls for habitat corridors<sup>1</sup>. To give flora and fauna the best possible chance for survival, ecosystems must be linked, and habitat fragmentation minimized so that species have an adequate habitat to adapt to climate change.

As a first step to achieve this, the Australian government must legislate to end native forest logging across the country and undertake programs to increase overall national forest cover.

<sup>1</sup> The A.C.T. Nature Conservation Strategy , Environment Act 1997 (Section 2.1)

## 2) *The environmental impacts of coastal population growth and mechanisms to promote sustainable use of coastal resources*

Population growth will put continued stress on water resources, especially with increased incidents of prolonged drought predicted by climate change. The rising demand for water must be answered with strategies that have long-term sustainability. Plans for water savings and water recycling, such as those outlined in the 2006 Metropolitan Water Plan (MWP) for NSW, should be put into action immediately. Unsustainable plans such as groundwater borefields must be suspended because they put the future water supply at risk, as well as energy-hungry desalination plants. In order to secure a sustainable future, only sustainable options must be implemented so that Australia does not become dependent on transitory water sources.

The MJA study (2007)<sup>2</sup> has shown that rainwater tanks are an effective water source. There are 1.1 million houses in Sydney with the potential for rainwater tank installation. An additional 10% rainwater tank uptake would mean 8-17 GL per year while a 65% uptake could yield 49-100 GL per year.

Heat stress will be a growing health risk, especially for the aging portion of the population. It must be ensured that there is adequate public shade, such as in recreation centres or parks, to help fight heat stress. There should also be public access to air conditioned facilities.

## 3) *The impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise*

Among developed nations, Australia is one of the most susceptible to the impacts of climate change. As of 1996, 83% of Australia's population was concentrated within 50 km of the coast<sup>3</sup> and the population in these areas has grown steadily since then.

Sea level rise will mean flooding and erosion along the coast, resulting in damage and destruction of coastal infrastructure. The Intergovernmental Panel on Climate Change's Fourth Assessment Report projects a rise of 18-59cm with an additional 10-20cm due to loss of ice from Greenland and Antarctica. Observed changes in sea level provide evidence that the IPCC projections are moderate, with more recent projections suggesting sea level rise of 50-140cm<sup>4</sup> above 1990 levels by the year 2100. Many scientists agree that sea level rise is tracking to be at least 1 metre by 2100<sup>5</sup>.

Some of the likely impacts of global temperature rise on Australia recognised by the IPCC are:<sup>6</sup>

- Southward spread of malaria receptive zones
- Influx of refugees from Pacific Islands
- 97% bleaching of the Great Barrier Reef each year
- 80% loss of Kakadu freshwater wetlands are associated with a 30cm sea level rise

<sup>2</sup> Marsden Jacob Associates (MJA). 2007. *The economics of rainwater tanks and alternative supply options* (prepared for NCC of NSW and Australian Conservation Foundation and Environment Victoria)

<sup>3</sup> Australia State of the Environment Report 2001 (Theme Report)

<sup>4</sup> Rahmstorf S (2007). A semi-empirical approach to projecting further sea-level rise. *Science* **315**, 268-370

<sup>5</sup> Monaghan AJ, Bromwich DH, Fogt RL *et al* (2006). Insignificant change in Antarctic snowfall since the International Geophysical Year. *Science* **315** 827-831.

<sup>6</sup> Preston, B.L. and Jones, R.N. (2006) *Climate Change Impacts on Australia and the Benefits of Early Action to Reduce Global Greenhouse Gas Emissions*, a Consultancy Report for the Australian Business Roundtable on Climate Change.

- 40% decrease in livestock carrying capacity
- 10% increase in forest fire danger
- 20-30% increase in tropical cyclone rainfall
- 5-10% increase in tropical cyclone wind speeds
- 89-123% increase in temperature related mortality of those aged 65 and over in Australian capital cities

A plan for adaptation is not only needed for urban centres along the coast, but also for Aboriginal sites in Northern Australia. Many Aboriginal heritage sites are in low-lying areas along the coast that are very vulnerable to saltwater inundation. There is already evidence of flooding on sites of cultural importance, including burial sites.

In addition to these long term measures, it is important to retrofit existing infrastructure as well as carefully design new infrastructure to be resilient towards the potential impacts of climate change.

In response to the expected increase temperatures, buildings should be designed for heating and cooling with the least amount of energy use possible. For example, natural ventilation systems can be installed to reduce the need for air conditioning. Buildings should be well insulated to avoid temperature extremes. Designs should incorporate shading such as overhangs to reduce the amount of solar heating a building is subjected to. Older buildings should be retrofitted with insulation and more efficient cooling systems should be installed.

Developing new infrastructure in areas of bushfire risk resulting from hotter and drier conditions should be avoided. If this cannot be done, then construction methods that are sensitive to bushfire risk must be employed.

New buildings need to be designed to allow for heave and subsidence of the ground soil firmness changes due to sea level rise and flooding due to the increased frequency and intensity of extreme weather events. Water impermeable surfaces surrounding infrastructure such as pavement should be avoided to prepare for heavy rainfall events.

Infrastructure should be built as flood-proof as technology allows for. Transport routes and roads should be planned in such a way that flooding causes the least amount of disturbance. Also at risk coastal structures such as bridges should be closely monitored for structural stability at all stages of sea level rise or flooding events. Preventative maintenance, such as the clearing of rain gutters and drains, should take place frequently to minimize the impacts of flooding.

#### *4) Mechanisms to promote sustainable coastal communities*

The only sure way to ensure sustainable coastal communities is to enact a strict emissions reduction policy in Australia and promote strong and urgent global action to reduce emissions in the first half of this century. The potential impacts of a 2°C temperature rise to Australia's economy, environment and water resources, means we need to keep global warming as far below 2°C as possible. In lieu of new below-2-degree global emissions pathways by the IPCC, Australia must set targets to peak and begin to decline emissions by 2010, halve our 1990 emissions by 2020 and aim for national carbon neutrality by 2040.

This emission reduction target is achievable and the economic costs will be minimised if we act quickly. The recent McKinsey report, *An Australian Cost Curve for Greenhouse Gas Reduction*, shows that:<sup>7</sup>

- A significant reduction in Australian GHG emissions is achievable - 30% below 1990 levels by 2020 and 60% by 2030 without major technological breakthroughs or lifestyle changes.
- Reducing emissions is affordable - with an average annual gross cost of approximately \$290 per household to reduce emissions in 2020 to 30% below 1990 levels. This compares to an expected increase in annual household income of over \$20,000 in the same period.

We believe that with appropriate government support, lifestyle changes such as replacing private car trips with public transport use (not included in the McKinsey report) are possible, and that the costs of inaction on climate change will far outweigh the increased costs of a 50% target by 2020, as opposed to the 30% reviewed in the McKinsey report.

Measures to achieve these proposed targets should include an immediate moratorium on the construction of new coal-fired power stations to facilitate a rapid transition to a low-carbon electricity supply network – not only saving greenhouse gas emissions, but also protecting coastal communities' already scarce water supplies.

As a developed nation with one of the highest per capita greenhouse pollution rates, Australia needs to become a leader in global climate change measures. Australia must participate in and encourage global initiatives to minimise the impacts of climate change and sea level rise in the short window of opportunity we have to act.

New infrastructure should be designed and old infrastructure retrofitted to maximize energy efficiency in order to reduce greenhouse gas emissions. Changes in rainfall patterns will result in longer periods of drought, so buildings should be equipped with the best water savings technology in order to preserve this valuable resource. In addition to rainwater tanks, the reuse of greywater, blackwater, and stormwater should be implemented as well as effluent water recovery.

The irrigation of water main use should be restricted in some areas, and more efficient irrigation methods must be employed. Landscaping for cities, homes, parks, and recreational facilities should be more water efficient by employing aforementioned techniques.

Dune restoration programs must be put into action to preserve against the threat of the coastal erosion that accompanies in sea level rise and flooding from extreme weather events. Buffer vegetation in shore zones also needs to be preserved to help protect against these impacts.

Resources need to be dedicated to the provision and maintenance of parks, forests, and all other green areas. Conservation incentives should also be developed for the public as well as industry.

##### 5) *Governance and institutional arrangements for the coastal zone*

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<sup>7</sup> McKinsey and Company (2008) *An Australian Cost Curve for Greenhouse Gas Reduction*, 15 February.

Climate change action must be incorporated into all areas of Australia government institutions and offices. For example, climate change provisions should be incorporated into local Catchment Action Plans to ensure the best protection of water resources for the future. A strengthened climate change agenda, closely combined with sustainability, should be realized at all levels of government.

Further funding is also required for climate change research and initiatives. The more research that is undertaken to monitor and predict climate change, the better Australia can prepare for its impacts. The level of coastal erosion that Australia will experience is an important impact of climate change that requires detailed research, including local modelling.

Public education programs should be established to raise awareness about climate change and adaptations that individuals can make in their own homes. Awareness about the risks of heat stress should be raised. With the expected increase in frequency of mosquito-borne and water-borne disease, the public should also be educated about precautions and the associated symptoms.

Immunization programs may also be necessary. Monitoring of vector and water-borne disease and an alert system for outbreaks should be put in place.

The government should review existing emergency plans for flooding and extreme weather conditions and upgrade the preparedness and response systems accordingly.

## **Conclusion**

The Nature Conservation Council of NSW submits that the most effective way to ensure sustainable coastal communities is to actively combat climate change via national and international efforts to reduce greenhouse emissions contributing to global warming. More research into climate change projections and impacts must be supported by Australia's national and state governments and more funding must be put into climate change initiatives. Government policies supporting long-term resource sustainability and energy efficiency must be encouraged and pursued. Finally, steps need to be taken to prepare for the inevitable impacts of climate change such as redesigning infrastructure, updating emergency response plans, and educating the public.

Yours sincerely,



Cate Faehrmann  
Executive Director  
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