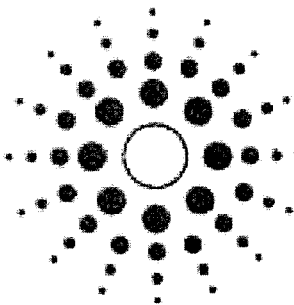


Natural Resources Advisory Council  
NEW SOUTH WALES



Mrs Karyn Paluzzano, MP  
Chair  
Standing Committee on Natural Resource Management (Climate Change)  
Parliament House  
Macquarie Street  
SYDNEY NSW 2000

Dear Mrs Paluzzano

I write regarding your letter dated 6 November 2007 advising the NSW Natural Resources Advisory Council (NRAC) about the Terms of Reference for the Legislative Assembly Standing Committee on Natural Resource Management (Climate Change) and inviting a submission. I am pleased to be able to forward the enclosed a submission from the Council.

The Natural Resources Advisory Council (NRAC) is an independent forum established by the NSW Government in 2004 as a single source of high-level advice from key stakeholders on natural resource management (NRM) in NSW. The groups represented on the Council include regional and local NRM authorities, the rural community, farmers, irrigators, miners, the timber industry, unions, Aboriginal communities, conservationists, scientists and the NSW Government departments administering NRM legislation and programs.

The Council is keen to provide ongoing assistance to the Legislative Assembly Standing Committee on NRM (Climate Change) and would welcome an opportunity for further input to the matters under consideration. The Council's can be contacted through the NRAC Secretariat (a unit of the Department of Environment and Climate Change) on 9228 6417.

Yours sincerely

[signed]

Phyllis Miller OAM  
Convenor  
12<sup>th</sup> February, 2008

# **Natural Resources Advisory Council**

## **Submission to the Legislative Assembly Standing Committee on Natural Resource Management (Climate Change) Inquiry**

12<sup>th</sup> December, 2007

### **Introduction**

The Natural Resources Advisory Council (NRAC) is an independent high-level forum established by the NSW Government in early 2004 as a single source of coordinated advice on future directions for natural resource management (NRM).

The groups represented on NRAC include regional and local NRM authorities, the rural community, farmers, irrigators, miners, the timber industry, unions, Aboriginal communities, conservationists, scientists and NSW Government departments.

The Council's deliberations focus on common ground and seek to identify the areas of agreement within the diverse perspectives of its member organisations. For this reason, the Council's advice does not always reflect the full and detailed range of views of its individual member organisations. It is desirable that the Council's member organisations also make their own submissions to the Inquiry.

This submission addresses NRM aspects of climate change, however the Council recognises that a single focus on NRM solutions, although important, will not adequately manage the climate change risks that face NSW now and in the coming decades. A whole of society approach to energy efficiency, the development of renewable sources of energy and materials, the recycling of materials and the stewardship of natural resources, is essential.

### **Part One**

#### **Natural Resources Advisory Council Initial Appraisal**

Climate change already affects all natural resource managers in NSW. This is not because of higher temperatures, less rainfall, more extreme weather events, rising sea levels or changes to ecosystems, even though these things may happen within management timeframes. It is because there is increased uncertainty.

There is uncertainty about extremes, synergies and tipping points, and about the ability of market and legislative mechanisms to be nimble. There is uncertainty about the solutions and there is uncertainty about the ability of people to do the right thing when commercial opportunities or necessity demand other actions.

Uncertainty brings an issue into individual and collective consciousness and makes it immediate. It also creates an opportunity – there is, with climate change,

both a challenge and a chance to make NRM in NSW more sustainable and to benefit producers, consumers and the environment.

Given the tension between uncertainty and need for action here and now, there is a consensus among NRM stakeholders represented on the NRAC, that:

- Climate change will affect the sustainability of natural resource management in NSW.
- Natural resource systems in Australia are sensitive to the effects of climate change because of the nature of our ecosystems, water security and coastal communities.
- Natural resource managers will be at the forefront of efforts to mitigate climate change effects because they have opportunities to moderate the stocks and fluxes of carbon in the landscape.
- Community responses to human-induced climate change should include systematic processes: to reduce emissions; to enhance sequestration; and, to facilitate adaptation to the effects, including increased uncertainty.

The debate is essentially about what we do with carbon. How and where our activities release it, transfer it or sequester it.

Plants capture carbon from atmospheric CO<sub>2</sub>, convert it to carbohydrate to release oxygen, animals eat the carbohydrate and microbes deal with the decomposition of what is left back to CO<sub>2</sub>. It is a simple cycle with considerable devil in the detail.

The science tells us that the stocks (stores, pools) and fluxes (flows, transfers) of carbon are a function of temperature, moisture, other physiochemical conditions and are moderated by the interactions among all the organisms. Science also tells us that carbon cycles are highly dynamic in space and time.

What humans have done and continue to do is two things. First, we have modified the habitats in which carbon is captured, sits and moves. There is a big difference in the stocks and fluxes of carbon in an arable field than in a plantation or old-growth forest. A natural wetland stores carbon in a very different way to a garden in the suburbs. Second, we have released fossil CO<sub>2</sub> into the atmosphere.

These actions interact to compound the effects of human induced climate change. It is not possible to consider climate change in isolation.

Natural resource management cuts into the carbon cycle to modify stocks and fluxes. As well as producing food and fibre we now want NRM options to help capture carbon, keep it stored for longer and retain, or indeed enhance, the productive goods and services we require from the environment.

Fortunately, there are solutions that can have mutual benefits. There are benefits to primary production, ecosystem health, biodiversity and nature conservation in the sequestering of carbon in terrestrial and wetland ecosystems. Habitats with biologically diverse carbon stocks are also much more likely to provide reliable delivery of ecosystem services, including clean water, in a changing climate.

Natural resource managers will be at the forefront of this mitigation and adaptation. They will be able to implement practices that will help reverse the climate change process because they have opportunities to sequester carbon and to manage its stocks and flows.

What natural resource managers need are reliable and coherent systems of measurement and accounting within a sound policy framework, with sound market and other funding mechanisms. Rather than build such a system for carbon, with another for water and still others for biodiversity and ecosystem services, there are many advantages to having a universal, integrated accounting system for natural resource assets and the costs and benefits of particular actions in relation to them.

## **Part Two**

### **Specific Responses to the Terms of Reference for the Inquiry**

#### **(a) The likely consequences of human-induced climate change on land (including salinity), water and other natural resources;**

The consequences of human-induced climate change are difficult to predict because:

- The science is complex. For example, even the selection of methods to measure carbon stores (pools) and transfers (fluxes) of carbon in natural resource systems and in the products from them is equivocal.
- In many cases the local effects on natural resources are unknown or unpredictable - especially the speed of change and the speed of adaptation. There is also uncertainty about the type, magnitude and intensity of climate change, the interactions between those parameters, and the capacity of the environment to continue to supply sustainable resources and services.
- There is a synergy between global change and climate change – climate change is not operating in isolation from the significant and ongoing effects of human induced land use change and fossil fuel use.
- We are tracking at the high end of past climate change predictions.
- There are tipping points in natural resource systems where processes change dramatically once a threshold is reached. We are not certain of where or when such thresholds will be reached. We do know that some already have been reached or will be reached before mitigation efforts take effect.
- The impacts of climate change are all intricately linked, yet there are differences in the resilience of economies and ecosystems to these impacts.

The Legislative Assembly Standing Committee is urged to take into account the most up to date, locally specific science. This is particularly important because uncertainty tends to increase as we move from the general to the specific - yet it is in the specifics of natural resource management where the effects are felt and where positive outcomes may be achieved for both people and the environment.

**(b) Options for ensuring ecologically sustainable natural resource use, taking into particular account the impacts of climate change;**

Think process, not just product. Education is essential.

Carbon sequestration is beneficial to biodiversity and ecosystem health. Investment to enhance carbon sequestration in the landscape is very likely to increase the value and usefulness of our natural resource assets.

Between half and two-thirds of the carbon in terrestrial ecosystems is in the soil. Management of soil carbon is achievable, represents one of the best options for sequestration and could be a cornerstone of both mitigation and adaptation mechanisms. Despite challenges for measurement, permanence and accounting, and policy impediments, the potential of soil as a carbon sink cannot be ignored.

In view of the uncertainties and the need for prompt action, it is imperative that the community invest in relevant research and science, including investigating how the full environmental cost of products and services can be efficiently measured and accounted for, and fully incorporated in pricing.

Similarly, it is imperative to systematically identify and remove disincentives, and provide incentives for socially and environmentally responsible behaviour, not just for the big emitters but for all levels of business and the community. It will be important to manage the balance between sequestration and carbon cost - in a full carbon account, the thousands of small players have a significant impact on the carbon budget. Sustainable NRM under climate change will mean engaging the small players and helping them to assess and manage their risk.

Carbon credits will be part of a web of activities needed to achieve emission targets and adaptation – on their own they will not be sufficient. There will need to be many market and management instruments from complete carbon accounting (that includes product life cycle) to maintenance and restoration of native vegetation, to bio-banking and novel market tools not yet invented.

**(c) Approaches to land and water use management practices on farms and other natural resource management practices, having regard in particular to the role of such practices in contributing to climate change or as a tool in helping to tackle climate change;**

These approaches will focus on when and where carbon is cycled, what moderates carbon transfers and what will provide insurance against the negative effects of variation in carbon movements. The science tells us that this will be best achieved where practices promote natural cycles and biodiversity in landscapes that are connected.

Fortunately, there is a very strong synergy between carbon sequestration and biodiversity both above ground and in the soil. Carbon promotes biodiversity and once there is biodiversity it tends to sequester carbon. It is a handy juxtaposition where mitigation and adaptation can be achieved through the same mechanism.

Sustainable approaches to water management will be important - the message needs to be: recycle every drop, care for catchments and water quality.

To help tackle climate change, natural resource managers will need incentives and a whole of system approach to carbon accounting, covering all relevant activities, sources and transfers, eg. including Bio-banking, PVP, PNF, Part 3a EPAA.

**(d) The effectiveness of management systems for ensuring that sustainability measures for the management of natural resources in New South Wales are achieved, having particular regard to climate change;**

The NSW Government implemented major reforms to NRM management systems in 2003/04. The reforms included: the establishment of 13 Catchment Management Authorities; the implementation of joint Commonwealth/State NRM investment programs; and, the setting up of the Natural Resource Commission.

These reformed management systems incorporate strategic planning, targeting, measurement, evaluation and audit measures, and are very effective. However, like other relevant policy frameworks, the NRM Standard and Targets may need to incorporate appropriate and effective climate change factors and goals.

NRM management systems will be most effective in promoting sustainability if natural resource, social and economic aspects are all considered. There are benefits from collaboration with the Commonwealth and with local government. For example, NRAC suggests that policy frameworks and guidelines for local government councils should be developed in conjunction with local government.

NRAC recommends that the LASC should consider all relevant management systems (eg. CoAG Agreements, legislation, regulations and programs), including the points of overlap, when assessing effective climate change factors and goals.

**(e) The likely consequences of national and international policies on climate change on natural resource management in New South Wales.**

The consequences of national and international policies will be significant. Australia will be a participant in an international carbon accounting and trading system. It will have its own national trading scheme and become party to any number of new initiatives that will emerge as the global community grapples with mitigation and adaptation mechanisms.

The specifics of the cap and trade system proposed for the National Emissions Trading Scheme (NETS) will have dramatic consequences for mitigation and adaptation strategies in NRM. The effectiveness of a carbon market to achieve abatement will depend on the starting level of the cap, the ongoing reduction in the target, the rate at which the Government lowers the cap, the nature and amount of the penalty and proportion of permits given out to emitters.

There is a concern that, under present proposals farmers and smaller natural resource managers will not be given permits if they come under the cap. The ability of a NETS to allow credits to be created under productive farming systems will be critical to its effectiveness for NRM.

Because the effects of green house gas emissions will be with us for a long time, it is desirable that governments take the long term view. At the same time, there will be a need to fast-track regulatory decisions that will facilitate the required mitigation and adaptation outcomes.

Natural resource managers will be required to reduce carbon emissions associated with their NRM activities. They will also need (and want) to participate in carbon trading schemes and gain access to markets. In addition to access to carbon credits, systematic stewardship incentives are also needed, perhaps funded by a full cost pricing scheme, if research demonstrates this is practical.

A critical issue with 'carbon rights', is who owns the carbon? Local circumstances for ownership and trade may differ from those in international circumstances. There will be a need for a robust local carbon accounting system to link well with international rules. For example, more information is needed about the life cycle of carbon in wood products after harvesting.

Market instruments with rules of engagement that consider the risk profile for small-scale operators will be required – it will be important to engage the majority of natural resource managers in climate change mitigation.

The 80:20 rule (or Pareto Principle) says that most of the output comes from a few of the players. In the climate change mitigation and adaptation story we will need to reverse this rule to achieve policy targets and real world results.

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