29 August 2002

Gavan Dwyer
Great Barrier Reef Study
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Dear Gavan

Submission to Productivity Commission Great Barrier Reef Study

Following are some key responses to your questions. These are provided largely in dot points due to the time available and follow on from our brief discussions on 29 August 2002.

1. Further Natural Resource and Use Information

As discussed with you on 29 August, more detailed information on:

- water resources and use
- dryland salinity hazard and management options
- extent and changes to native vegetation
- land use, soil properties and other inherent attributes like primary productivity
- sediment and nutrient export – amounts above modelled natural levels, causes and locations
- agricultural practice and the role of industries
- river, catchment and estuary condition and
- an analysis of agriculture based on profit at full equity

are all contained in various Audit Reports and available spatially at local scales sufficient for each of your regional assessments on the Australian Natural Resources Atlas – www.environment.gov.au/atlas.

A summary of Audit information is provided at Attachment 1.

2. Declaration of Local Interest

I declare my interest in the area and its sustainable management. I am a landholder in the upper Burdekin catchment [Crediton valley] engaged in cattle grazing / dairy and farm forestry. I am also a member of the Qld Ministerial Advisory Committee on Vegetation Management, the Great Barrier Reef Marine Park Authority Fisheries Resources Advisory Committee and previously chaired the regional Natural Heritage Trust Assessment Panel. This followed over 5 years as Regional Manager of Natural Resources for the then Department of Primary Industries covering and integrating land, water, fisheries and forestry issues.

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This interest implies both local knowledge and a commitment to seeking solutions to the natural resource issues facing the region. These issues can only be solved through trade offs, balancing economic, social and environmental outcomes. I therefore welcome the direction of the Productivity Inquiry and the scope of the questions towards seeking a common sense and workable set of solutions.

Nevertheless I have tried to confine my responses to your questions to findings from the National Land and Water Resources Audit and the experiences gained from leading this initiative.

3. Philosophy behind my Responses

I would suggest at the outset that information available is not an issue – there is more than sufficient information to define the nature of the various problems, causes and impacts and priority management strategies to minimise these problems. Likewise, for most of the problems there are common sense solutions. The issue that is central to the debate are the levels of trade off and duty of care required by all industries and users to maximise economic and social good, for the entire region and including the estuarine and marine areas that comprise in total the Great Barrier Reef ecosystems.

I also note that if our goal is to manage sustainably the Great Barrier Reef ecosystems, catchment land management for overall public good to minimise impact on estuarine and near shore marine systems is essential and probably the highest priority for this section of Queensland. There are many examples of biotic [eg mangrove jack, prawns, barramundi to list three of the more commonly known] and abiotic interactions [eg fresh water input, nutrients, sediments]. I strongly suggest that the primary indicator for overall catchment and Great Barrier Reef ecological health should be the health of the component estuaries and nearshore zones.

This also assumes that, in a risk management context, marine use management is largely already in place. That is, that threats from oil spills, marine pests, tourist use and over-harvesting are to a large extent minimised through existing management regimes. Certainly, it is my experience that industries such as the fishing and tourist industries are already heavily regulated and managed to deliver sustainable and profitable outcomes.

Q1: Nature of research and monitoring & areas of agreement / disagreement

- As noted above, there is sufficient information to drive improvements in practice – such as the Audit assessments.
- Further, work is already underway to further fine-tune the Audit's sediment and nutrient export analyses to more precisely identify locations for priority investment. The contact here is Dr Ian Prosser, CSIRO Division of Land and Water.
- In summary, while more research is always useful and we should build science into all our endeavours, we have the technology and the information upon which to base management.
- If an ecological view is taken and a recognition that essential biotic and abiotic flows for the reef incorporate estuaries, wetlands, nearshore marine out to the reef proper then the debate as to if there is or is not an impact on "the reef" is a non-issue.

Q2: Useful examples

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- The Audit's assessments in total provide much of the context for management. In summary, the east coast of Australia and particularly northern NSW and the developed sections of the Queensland coast are the major catchments of substantial increase over natural levels of sediment export and nutrient enrichment.
- The Audit's river and estuary assessments take these issues further, again providing an Australia-wide context for nominating this broad region as a priority for improved management.
- Audit examples are not just limited to problems. Most importantly, the Audit assessments provide an information base upon which to develop strategies and investment priorities.
- Implementation is a local activity and would build on the various information sets available. Within the Audit Reports are numerous examples of good practice by industry groups, often detailed as separate boxes to draw attention to these important solutions – horticulture, cane, grazing, cotton, dairy and so on. The challenge is making these excellent practices common practice and continuously improving practice.

Q3: Australia's obligations affected by deterioration in the health of the GBR

- While recognising the importance of international obligations etc I would suggest the key issue here is how we can maximise economic and social development through sustainable practice. Some examples:
  - Soil loss is occurring in some landscapes at rates very much higher than soil development and therefore agricultural productivity will be lost.
  - Nutrient enrichment is building a time bomb of potential algal blooms, that would then severely impact fisheries and tourism.
  - Inputs such as fertiliser and water are not in balance with the crops needs in many areas – we can have smarter and cheaper agricultural systems.
  - Grazing systems are not always based on practices to improve and retain a good perennial base, nor are they as flexible as they might be to accommodate annual droughts and more exceptional events.
  - Estuaries and wetlands, the highest value habitat in terms of primary productivity and therefore resources for fisheries are being impacted - eg loss to ponded pastures. Yet CRC Sugar has shown clearly the economic returns from a hectare of estuary habitat well exceeds returns from other uses.
  - Tertiary treatment of sewage effluent to minimise enrichment of the estuary and nearshore zones is yet to be fully implemented.
- I suggest the question is more how do we make all our land use activities more profitable and sustainable. The answer lies in smarter practice and continuous improvement in practice. Unfortunately the market drivers for sustainable practice are not in place.
- There is also a key role for science and agribusiness in assisting all land uses to develop more profitable and sustainable practices.

Q4 Regional Investigations

- Regional management is important for delivery and allows local people to work through the trade offs required between economic, social and environmental factors.
- Regional management can only work if there is a strong policy base for action. The Deputy Prime Minister articulated at the ABARE Conference this year the need for partnerships, information, incentives and property rights. Certainly there is

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widespread acknowledgment that much needs to be done to deliver a policy base that fully incorporates incentives and property rights.

Q5 & Q6 Indicators of Economic Importance

- The Audit has documented a "Profit at Full Equity" approach to economic analysis. This seems to be a useful way to incorporate a range of contributing factors and is a method used internationally. Might I suggest that the Productivity Commission consider working with the Australian Bureau of Statistics and others such as CSIRO to update the Audit's 1996/97 figures with the more recent 2000 – 2001 figures available from the Australian Bureau of Statistics.

Q7 Social Indicators

- The Audit grappled for a long time and commissioned a range of technical papers, workshops etc to try and develop some form of useful social assessment linked to natural resource management.
- We came back to two key messages.
- Firstly, that a range of social information such as that detailed in our *Australians and Natural Resources, 2002* Report could be routinely collated from ABS data and other sources and provides a useful understanding of the social context. However, there is not necessarily a "magic" indicator.
- Secondly, as researchers like Frank van Clay contended to us at the outset and the Fitzroy work displayed, social information to assist in understanding particular opportunities is best collected in a targeted and local manner, around that particular issue.

Q8 & Q9

- The Audit found that consistent comparisons are not always possible. Further, there are always a number of unpriced variables that make analysis based on a balance sheet approach difficult, if not imperfect.
- As to data sources, might I draw your attention to the sets of Recommendations in the Audit's Information Report and in the Audit's Final Report. Australia collects a lot of data, possibly even, our investment in data collection is too high. For example, we expend over $100M per year in collecting water quality data. In comparison Australia's investment in interpreting this data to provide information is minimal. Australia has yet to put in place good data management systems that make data readily available and collate and integrate from data sets information products that are useful to managers. An information-based approach to management and policy development is essential and will deliver cost efficiencies for our investments. Rationalisation of our data collection activities would be part of such a strategic approach.

Q10 Regional Disaggregation

- Regional boundaries should vary with the issue under consideration. For catchment management and issues such as soil export, surface water catchment boundaries are useful. On the other hand for industry practice, we must work with the differing climate / soil / use zones that industry recognises and so on.
- Based on the Audit experience the key issue here is to collect all information products spatially and at the finest scale practical. If this is done then any number

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of regional boundaries can be superimposed over the information products. Clients and applications vary. Aggregations and interpretations should vary accordingly.

Q11, 12, 13 and 14

- These questions are broadly beyond the Audit's remit. Nevertheless our experiences in trying to predict aspects like salinity hazard to 2050 suggest that a crucial factor in any predictions is to accurately document all assumptions and subject these to a range of sensitivity analyses.

Q 15, 16 and 17

- The Audit has collated some of the information on industry practice in association with and checked by the key commodity groups. This is reported in *Australian Agricultural Assessment, 2001.* Various improvements in practice are also detailed as examples of the role industry plays in continuously improving productivity and sustainability. Examples are in both volumes and a specific chapter on practice is in volume 2.
- This Report also details issues such as nutrient balance and how we might best fine tune our on farm inputs, particularly through partnerships with agribusiness. Government has a key role in fostering partnerships and funding some of the science needed to support the extension and advisory activities of agribusiness.
- There are many good examples of sustainable and productive practice as there also are many land users committed to improving their practices.
- The issue is more how do we make best practice common practice. What are the incentives, the duty of care framework and the definitions of property rights necessary to foster good practice across all land and water users – urban and rural.
- A corollary issue is Governments and the media's apparent preoccupation with the doom and gloom approach. Good examples are the focus on dryland salinity and biodiversity at the expense of fostering sound, economically based and multi-value natural resource management. Integrating sound natural resource practices into agricultural and other business activities will deliver a much broader and beneficial spectrum of outcomes across environmental, economic and social components of the Australian landscape.

Q18, 19,20 and 21

- As referred to previously, there is much to be done to provide a policy framework for action. This policy framework would need to articulate the role of incentives, cross compliance, duty of care and property rights. Detail is well beyond the remit of the Audit.
- Underpinning policy implementation is good information provision and application of this information to set priorities and help define management strategies. This is within the Audit remit. The recommendations within the Audit Reports detail how this might occur. Certainly an independent information agency would be very useful and as Audit 1 proved, provides a sound basis for developing a range of constructive and multi-institutional partnerships.
- Likewise institutional arrangements are beyond the Audit remit. Suffice it to say, given it took us in excess of 18 months to negotiate Australia-wide access to data at the cost of transfer, there are likely to be a range of other institutional barriers to implementing effective natural resource management.

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- One of the institutional arrangements that the Audit had the good fortune to interact with as part of its estuary assessment activities was the Moreton Bay initiative. Institutional arrangements for Moreton Bay go across a range of State and Local Government agencies with partnerships across science and the community to deliver cost effective and practical solutions for the entire region including common property resources of the Bay and its environment. Perhaps this provides a model for a much more ambitious initiative – the Great Barrier Reef catchments and common property resources.

Yours sincerely

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Atts. 1. Summary of Audit outputs

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