

Changing Agriculture's Approach to the Environment

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A Submission to the Agriculture and
Food Policy Reference Group



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1 Summary of Recommendations Advocated in this Submission

In this submission I outline the case for implementation of the following recommendations by the Agriculture and Food Policy Reference Group:

- 1.1 That basic data on the state of Australia's natural resources, including information on changes in vegetation cover (not just numbers of trees cleared), water quality and numbers of endangered species, be publicly available on the Internet. That this information be in the form of measured statistics, rather than modelled forecasts.
- 1.2 That an evaluation be undertaken of the processes of environmental law and policy formulation in Australia—including a legal, scientific and economic investigation—with the following aims:
 - Examination of the theoretical and philosophical premises on which environmental law and policy in Australia are founded.
 - Examination of the processes of environmental law and policy formulation to assess whether they are informed by the best scientific knowledge available.
 - Examination of the processes of environmental law and policy formulation to assess the extent to which they admit local knowledge and know-how.
 - Examination of the extent to which environmental decision-making takes account of the costs and benefits of proposed measures.
 - Assessment of the impact of current environmental policy and law on civil liberties and constitutional government, including substantive and procedural due process and the principle of compensation for property-taking.
 - Identification of novel ways of conservation through the use of incentives and market processes.
 - Development of proposals for legal and administrative reform in the area of environmental law.
- 1.3 That consideration be given to mechanisms for supporting diversification and competition within the Australian environment movement.
- 1.4 That open debate and discussion on environmental issues which affect agriculture be supported, including the use of the Internet-based, university-supported National Forum. This could include:
 - Sponsorship of a feature on agriculture consisting of a series of opinion articles and debates with topics to include GM food crops, broad-scale tree clearing and animal rights campaigning.
 - Sponsorship of qualitative research by the National Forum, which could be done in conjunction with the debates, to assess community attitudes.

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2 Introduction

I note that the Reference Group has been tasked with developing broad recommendations to improve the profitability and sustainability of Australian agriculture.

Australian agriculture has no future if it is not environmentally sustainable and if it is not also seen to be environmentally sustainable. We are all environmentalists now, and an industry that is perceived to be harming the environment will not be tolerated in the longer term by the broader Australian community.

I note that the Reference Group has developed a position paper titled 'Ensuring a profitable and sustainable agriculture and food sector in Australia' which broadly outlines the issues that the Reference Group believes will need to be addressed. Indeed, the 'Guidelines on preparing a submission to the Reference Group' ask that submissions are 'grouped under the headings raised in the issues paper'.

I note, however, that the position paper fails to consider key issues raised by the Hon. Warren Truss MP, then Minister for Agriculture, Forestry and Fisheries, when he announced the formation of the Reference Group. The following issues were a focus of the Minister's speech to the Victorian Rural Press Club on 2 March 2004:

- The urban/rural divide;
- The rise of animal rights activists and environmental extremists; and
- Issues associated with GM food crops.

It is my assessment that the position paper seeks solutions to many of the problems currently confronting Australian agriculture without adequately first exploring the origin and nature of the various threats, and without understanding the nature and magnitude of environmental issues. Yet these environmental issues will directly affect many of the other issues detailed in the position paper, including 'future operating environment', 'international markets', and 'education, skills and labour supply'. Indeed, the Heads of University Departments that teach agriculture-related subjects at Melbourne University and the University of Queensland have both recently commented to me that enrolments continue to fall because Australian agriculture is not thought to have a future because it is perceived to be irreversibly damaging the Australian environment.

In this submission I will suggest that, to move forward, we need to take a more evidence-based approach to claims of environmental harm, we need better monitoring and reporting systems to be put in place, we need to rethink our approach to environmentalism and natural resource management, and there needs to be better communication between rural and urban Australia. Achieving these things will require new approaches and new institutions.

The new approaches and new institutions are detailed in section 4, titled 'The Solutions'. I begin by first defining 'The Problem'.

3 The Problem

3.1 Agriculture and the Environment

3.1.1 *The Jared Diamond View—Reviewed*

There is a perception that Australian agriculture is uneconomical and irreversibly harming the Australian environment. During his visit to Australia in early June, Californian professor Jared Diamond told a crowd of 850 (that included government

Ministers, journalists and business bosses), that we should phase out agriculture altogether in Australia. He said that we are living on the world's most fragile continent in a period of climate change. I was part of the audience at Brisbane's Queensland Performing Arts complex, where he was often clapped and cheered during his hour-long address.

I assume that the message and mood were similar at the Sydney Writers Festival where Professor Diamond spoke at two closing ceremonies.

Jared Diamond was touring Australia to promote his new book titled *Collapse: How Societies Choose to Fail or Survive*. The book suggests that Australia's agricultural sector is so weak that we import most of our food. In contrast, the recently published *Australian Agriculture and Food Sector Stocktake* tells a very different story. The Stocktake indicates that Australian agriculture accounted for around a quarter of Australia's merchandise exports in 2003–2004 at \$26 billion, while food and food products imports were valued at \$5.6 billion for the same period. It was only two years ago, in 2003–2004, that we had a record wheat harvest of 25 million tonnes, worth more than \$4 billion dollars, which accounted for roughly 2 per cent of Australia's total exports. Moreover, the agricultural sector has, over a long period, had an excellent record of productivity growth—in excess of 2 per cent per annum—a record that could not have been achieved if, as Professor Diamond claims, the sector was mining its soils, water and other environmental resources.

Professor Diamond devotes an entire chapter in this book to Australia. I recently reviewed this chapter for the British Journal *Energy and Environment*.¹ Following are extracts from this review which give an insight about how Australian agriculture can be, and has been, misrepresented and misunderstood:

3.1.2. Crop Yields

Diamond is unambiguous about one of the major problems with Australian agriculture: 'a larger area of land has to be cultivated in Australia than elsewhere to obtain equivalent crop yields' (page 381). This claim can be relatively easily tested by comparing how many tonnes per hectare of particular commodities are produced in Australia relative to other countries.

More than half of the world's population depends on rice as their main source of calo-

ries and protein. Australia has a large rice industry based on irrigation in the Murray–Darling Basin which produces and exports enough rice to feed 40 million people a meal each day, every day of the year.² Australian rice growers are among the most efficient and productive in the world, producing more than double the world average of 3.77 tonnes per hectare.³ Furthermore, Australian rice growers have improved their efficiency of water use by 60 per cent over the last 10 years and now use 50 per cent less water for every kilogram of rice produced, compared to the world average.⁴

Cotton is another significant Australian export, also grown in the Murray–Darling Basin. Again, Australia produces more than double the world average on a tonnes-per-hectare basis. Australian cotton producers have not only maintained high yields, but by employing genetically modified (GM), insect-resistant cotton varieties, they have achieved an average reduction in insecticide use of a remarkable 88 per cent.⁵

Over 85 per cent of the sugar produced in Australia is exported. Australian sugar producers are among the most efficient in the world on a tonnes-per-hectare basis.⁶ However, the protectionist policies and agricultural subsidies of the US, Europe and Japan, which depress the world sugar price by an average 40 per cent,⁷ make it increasingly difficult for Australian producers to stay economically viable.

Diamond does not specify which crops yield so poorly in Australia, but he does make specific mention of oranges. Diamond claims that 'it is cheaper to grow oranges in Brazil and ship the resulting orange juice concentrate 8,000 miles to Australia than to buy orange juice produced from Australian citrus trees'. Australia currently exports almost three times the quantity of citrus it imports.⁸ During the 2003–04 financial year, Australian producers exported navel and valencia oranges worth AUD \$107 million.⁹

Indeed, Australia exports most of the food it produces, with crop exports valued at AUD \$13,269 million in 2003–04. Wheat

was the highest earner, with exports worth AUD \$3.475 billion in the 2003–2004 financial year.

Wheat is one of the few Australian crops with a yield that is well below the world average. The very low yield per hectare for Australian wheat reflects the economics of wheat-growing in Australia, since superior agricultural land is used to grow crops that have a relatively higher value. Australian wheat is generally not irrigated and growing regions are among the driest in the world.¹⁰ Nevertheless, Australia produces and exports relatively large volumes of wheat and other cereals because land is not scarce relative to other OECD countries. Tremendous economies of scale can be achieved, and the industry is highly mechanized.

The foregoing evidence contradicts Diamond's claims about Australian agriculture: it is highly productive, with some commodities achieving double the world average on a tonnes-per-hectare basis.

3.1.3 Mining the Soil

Diamond suggests that Australian farmers have irresponsibly mined the country's soil resource with 'soil nutrient exhaustion' identified as a type of land degradation (page 398). Diamond states that Australian soils are naturally unproductive because they are 'so old' that they have become leached of nutrients (page 380) and are thus more susceptible to mining.

This argument is flawed. Any agricultural system that does not apply fertilizer or manure at cultivation would be 'mining the soil resource'. The more nutrient-rich the soil is, the more potential there is for mining to occur.

Since the time of European settlement, fertilizers have been applied to Australian soils to raise the base level of plant nutrients in the soils, as well as to replace nutrients removed by the previous harvest. Contrary to Diamond's assertion that Australia's soils are poorer now than they were at the time of European settlement, in his book *Natural Gain in the Grazing*

Lands of Southern Australia, agronomist David Smith documents how European settlers broke what was previously a cycle of low fertility by adding plant nutrients (e.g. superphosphate) and new plant species (e.g. subterranean clover)—with the result that large quantities of atmospheric nitrogen and solar energy could be (and were) captured by the developing grazing and broad acre cropping industries. Smith describes this process as one of 'natural gain'.¹¹

In the past two decades, there has been a second revolution in Australian farming through the adoption of minimum tillage cultivation systems. For example, adoption of green cane harvesting and trash blanketing (GCTB) in the sugar industry has greatly reduced the potential for soil erosion and greatly increased the potential for improvements in soil structure by facilitating the return of organic matter.

The speed of adoption of GCTB in the sugar industry greatly exceeded the expectations of the Australian Conservation Foundation, which had predicted that less than 50 per cent of sugarcane farmers in the Mackay region would adopt the minimum tillage systems by 2000—yet over 85 per cent of Mackay cane growers used the GCTB system by 2000.¹² Under a GCTB system, soil loss is equivalent to levels in a natural rainforest situation.¹³

3.1.4 Killing the Great Barrier Reef

The move to more environmentally friendly farming practices, the phasing out of many insecticides and the adoption and promotion of a voluntary code of practice among farmers, did not stop the World Wide Fund for Nature (WWF) from launching an attack on the sugar industry in June 2001.¹⁴ Diamond repeats propaganda from this campaign, which claims that Reef waters have become more turbid and are now killing the Great Barrier Reef.

Despite an absence of supporting data, the WWF campaign resulted in calls to 'reduce the impacts on the Great Barrier Reef of land based sources of nutrients, sediment and pollution' and finally in the legislating

of impractical water quality targets with statutory effect.

A case study by Marohasy and Johns¹⁵ reviews the research papers provided by the scientists and activists as the 'best evidence' for an agricultural impact on the Great Barrier Reef. This information indicates that mangrove dieback has occurred at least once in one region, seagrass beds have expanded in at least one region, and the ability of some reef communities to grow coral has changed. Two papers provide evidence for traces of human-made chemicals in marine sediments, but there is no evidence to suggest that these very low, but detectable levels, currently have any impact on the Reef.

The health of corals can be reliably measured through coral cores, which measure and compare calcification rates dating back to the 1400s. These studies have demonstrated that during the 20th century, calcification rates (i.e. coral growth rates) increased by an average of 4 per cent across the reef system, including corals of the inner shelf.¹⁶

There is no evidence of deteriorating reef water quality. The inner reef (within 15km of land) is naturally nutrient-rich and very muddy.¹⁷ Contrary to popular perceptions, inner shelf corals and many inshore underwater communities thrive under conditions of relatively high turbidity. Furthermore, published studies indicate that sediment input from land-based sources, even under flood conditions, is far less than that held in suspension by natural swell waves on more than 200 days per year in the naturally muddy inner shelf of the central Great Barrier Reef. While the inner reef is naturally muddy because of sediment deposition that has occurred over many thousands of years, the middle and outer reefs are sediment- and nutrient-starved, and the extraordinary event that results in some land-based nutrient and sediment getting beyond the inner reef may be beneficial to these systems.

In summary, contrary to what Diamond declares, the available evidence indicates that the Great Barrier Reef is healthy.

3.1.5 Irrigated Agriculture

Diamond states that 80 per cent of Australia's agricultural profits are derived from less than 0.8 per cent of its agricultural land (page 413). It is unclear how Diamond derived this statistic and how he calculated profit. Irrigated agriculture occupies less than 0.5 per cent of the agricultural land in Australia and, in an average year, contributes approximately half of total agricultural profits¹⁸ and 26 per cent of total gross value of production.¹⁹ Perhaps Diamond was extrapolating from this data.

Diamond goes on to suggest that because most profit is derived from a relatively small land area, most of the land mass of Australia supports unproductive and unprofitable agricultural systems (page 413). This argument is flawed. It does not follow that because, for example, irrigated agriculture is profitable, that the rest of Australian agriculture is unprofitable, though it is apparently less profitable. Australian agriculture would be much more profitable if the US, Europe and Japan did not subsidize their agricultural industries.

Much is made of Australia as the driest inhabited continent on earth; calculated on the basis of available water on a per-hectare-of-land-mass basis. Because Australia is very large, and because Australia has some large deserts, this approach hides the reality of Australia's tremendous water resources. Indeed, according to the World Resource Institute, Australia has 51,000 litres of available water per capita per day. This is one of the highest levels in the world after Russia and Iceland, and is well ahead of countries such as Indonesia (33,540), the United States (24,000), China (6,000) and the United Kingdom (3,000 litres per capita per day).²⁰

Less than 5 per cent of the water that falls on Australia is diverted for use by agriculture, industry and cities. Most rain falls across northern Australia. There are large tracts of extremely fertile land in the north that are undeveloped, and are unlikely ever to be developed. Environmental activists demand that these areas re-

main untouched. Where there is an established water infrastructure supporting irrigated agriculture, for example in the Murray–Darling Basin, agriculture has been subject to relentless campaigning to return water to river systems as environmental flow.

3.1.6 Salinization

Diamond suggests that salinization has rendered much of the most highly productive farmland in Australia 'less productive or useless' (page 402). The Australian Bureau of Statistics *Land Management Survey 2002* indicates that two million hectares of agricultural land show signs of salinity, with 70 per cent of the area affected being in Western Australia. This represents 0.2 per cent of all farmland.

Much has been made of the potential for salinity to worsen in Australia, but no data exist to suggest that the areas at risk (drylands or irrigated land) have actually increased over the last decade. There are examples where the area at risk of salinity has contracted significantly. For example, in the mid-1980s, modelling indicated that 127,000 hectares of irrigated land in New South Wales had water tables within 2 metres of the surface and was at high risk from irrigation salinity. Furthermore, this area was thought likely to increase to 331,000 hectares within the next 50 years. Remedial action was taken, and the area at risk of salinity is now less than 14,000 hectares—this represents a reduction of approximately 90 per cent.²¹

Diamond also claims that rising salt levels will render Adelaide's drinking water too salty for human consumption in an unspecified and contingent future (page 402). There were problems with rising salt levels in the Murray River in the 1970s, but through the construction of salt interception schemes and improvements in on-farm drainage, the problem has been fixed. Salt levels at the key site of Morgan (just upstream from the off-shoots for Adelaide's drinking supply) have in fact halved over the last 20 years.

3.1.7 General Trends in Farming

While the percentage of Australia's land mass cultivated for crops or as sown pasture has remained steady at 6 per cent since the early 1980s, there has been a 25 per cent increase in the area under irrigation and a reduction of 19 per cent in the total number of farms.²² There has been a general shift from livestock production into cropping because cropping has generally become more profitable.

The total value of Australia's agricultural exports is forecast to be \$28.2 billion in 2005–06. This is an increase of \$237 million on 2004–05. There is no evidence for general yield decline in Australian agriculture as claimed by Diamond. Rather, through technological innovation, there has been continuous improvement. Australia is not unique in this regard. Over the last 40 years, with the help of technology (including fertilizers, pesticides, irrigation and new varieties), the world's farmers have managed to produce approximately twice the amount of grain and oil seed from essentially the same area of land.²³

At the same time, Australian agriculture has generally become more environmentally friendly through methods such as improved water use efficiency and minimum tillage cultivation systems. The next big potential revolution is in the area of biotechnology, including new GM crop varieties.

3.1.8 Animal Rights and Other Activists

While the story of Australian agriculture is one of improvement in efficiency of production and a reduced impact on the environment, the general perception is very different. A major reason for this is the effectiveness of campaigning by animal rights and environmental groups. The campaigning is based on strategies which have been devised to have maximum political impact and to generate membership. There appears to be little or no respect for the evidence in the formulation and implementation of these campaigns.

For example, consider three major recent campaigns: 1. the campaign against geneti-

cally modified (GM) foods; 2. the campaign to save the Murray River; and 3. the campaign against broad-scale tree clearing. Each campaign was dishonest. The campaign against GM food suggested that GM canola was a first, which ignored the fact that GM cotton is an important existing source of vegetable oil.²⁴ The campaign against the Murray River claimed deteriorating water quality and increasing salt levels when there has been clear improvement over the last 20 years.²⁵ The campaign to ban broad-scale tree clearing claimed that we have declining forest cover when there has actually been a net increase in forest cover—even in Queensland during the 1990s at the height of land clearing.²⁶

People for the Ethical Treatment of Animals (PETA) have stirred up rural and regional Australia with their campaign against mulesing of sheep and the associated push for a boycott on Australian wool.²⁷ Agricultural industries have reacted against PETA and developed a strategy to counter the PETA campaign. It is interesting that agriculture has not recognized the fact that groups such as the ACF also represent as significant a threat—they are just less honest about their intentions.

PETA is running a campaign against mulesing on the basis that it is cruel to sheep. At the same time, the organization's Website and various media statements make it very clear that they are against the use of animals for food and fibre altogether.

In contrast, groups such as the Australian Conservation Foundation (ACF)—that have run the 'Save the Murray River' campaign and who give the impression that they are the friend of farmers and do deals with the National Farmers Federation—meanwhile campaign for more and more regulations and restrictions that will slowly kill innovation and the long-term competitiveness of Australia's primary industries.

Unlike PETA, organizations such as the ACF appeal to science and a scientific consensus to support their position, which they suggest is science-based. This is misrepresentation. Like PETA, they are essentially

about promoting a different value and belief system.

PETA is much more transparent. It actively promotes a vegetarian lifestyle and also synthetic alternatives to wool. Its Website states that 'choosing to buy nonwool products (polyester fleece, synthetic shearling, and other cruelty-free fibres) not only helps the animals, but can also reduce or eliminate many of the consumer problems and inconveniences that go along with wearing or using wool'. PETA is clearly promoting a different Australia: one which might arguably be more humane.

Whether metropolitan Australia buys the PETA argument or not, PETA hasn't really misrepresented its intentions or position. Groups such as Greenpeace (which works through the Network of Concerned Farmers) and the ACF also represent a different value and belief system and are essentially against modern, high yielding agriculture, but because these groups are less candid, rural industries have not responded strategically. In fact, there are industry groups that actively fund environmental groups, including the ACF, whose long-term objective is the demise of those very industries.

3.2 Technology and Biotechnology

Genetically modified food is often called 'Frankenfood'. Frankenstein was the scientist, not the monster, in Mary Shelley's famous novel. The monster was assembled from bits of dead bodies by the brilliant but wayward scientist Victor Frankenstein. The moral of the story is that science and technology can be a force for evil when man 'plays God'.

Greenpeace has played on this theme in their campaign against genetically modified (GM) food. The argument goes something along the lines that GM food is a product of scientists 'playing with' the basic genetic makeup of organisms, GM crops are therefore unnatural and unsafe, GM is therefore bad. Of course, the arguments for and against GM are much more complex, as are the arguments for and against all our technologies.

GM cotton has been a huge success—a boon not just for cotton farmers, but also for the environment, with the latest GM cotton varieties reducing pesticide application rates by 85 per cent. GM Cotton has been grown now for over eight years with no ‘monster’ traits emerging.

But a first principle of propaganda is to reduce all data to a simple confrontation between ‘good’ and ‘bad’, ‘friend’ or ‘foe’. Greenpeace does not seem interested in debating the pros and cons of GM, but rather in repeating the simple message that GM is bad.

The latest anti-GM Greenpeace campaign has been to bully chicken producers into agreeing not to feed their chickens GM soy.²⁸ The anti-Ingham chicken campaign started in April 2004, within weeks of Greenpeace securing a ban on the commercial production of GM canola in Australia. With Inghams, Bartter-Steggles, and Baiada agreeing to phase out their reliance on GM feed, Greenpeace has indicated that it will now go after Australian beef and pork producers who feed their animals GM soy.

The Australian farm lobby has not taken a stand for GM food crops. Organizations such as the National Farmers Federation have looked on as Greenpeace and the Greenpeace-sponsored Network of Concerned Farmers have moved from one target to the next.

The Greenpeace campaign against GM canola was based on the premise that GM canola would be the first GM food crop grown in Australia and that the oil from GM canola would also be a first. The reality is that Australian-grown GM cotton is a source of 35 per cent of the vegetable oil consumed in Australia. But the cotton industry never spoke up during the anti-GM canola campaign.

The decision in March 2004 by Premier Gallop to declare the entire State of Western Australia a ‘GM-free area’ is illustrative of the problem and it is likely to come back to haunt the WA Government. The purported concern for WA’s ‘clean green status’ will, hopefully, eventually be exposed

as populism playing to prejudice and ignorance. In effect, WA canola growers are now well and truly restricted to the continued production of triazine-tolerant (TT) canola. This variety, however, is not ‘clean and green’. Rather, its production is dependent on atrazine, a herbicide being phased out in Europe on the grounds that it poses an unacceptable environmental risk. The WA Department of Agriculture acknowledges that dependence on atrazine is a problem because of concerns about groundwater contamination.

The reality is that GM crops are cleaner and greener than conventional varieties, and in the case of canola, give a 20–40 per cent higher yield.

Australia is a secular nation and should take a rational approach to new technologies to facilitate efficient agricultural industries able to develop and adopt state-of-the-art technology. However, on the basis of what seems to be quasi-religious belief and prejudice, State Governments across Australia have imposed bans on biotechnology, a technology that promises improved yields while reducing environmental impacts.

The extent to which the national psyche has become captured by environmentalism is evident in *The Australian* newspaper’s ‘Saving the Murray’ campaign. Journalist Amanda Hodge was awarded a United Nations Association of Australia Media Peace Award for promoting ‘understanding and resolution of environmental issues’ for a story that was a part of this campaign. It included the following data-free assessment of technology and the Murray River. Hodge wrote, ‘Bridled by dams and beggared by progress ... the Murray’s health has deteriorated in direct proportion to the increasing importance of its resource to the nation’s economy’. Using Hodge’s logic, the 2003–2004 record wheat harvest must have been another blow to the River’s health.

The reality is that the Murray is an old river flowing through a semi-arid environment of ‘droughts and flooding rains’. Technology, however, has allowed us to store wa-

ter and keep the river flowing, even during extreme drought.

Biotechnology offers the potential for crops to be grown in the Murray–Darling Basin that are more drought tolerant. There is currently a research programme at the South Australian-based Centre for Plant Functional Genomics (ACPFPG) focused on drought tolerance and the related problems of high soil boron, salinity and frost tolerance. Frost tolerance has become an issue because plant breeders have been selecting for early maturing varieties in order to escape potential summer drought. But this has now exposed crops to frost during flowering. As an example, there is variation for all these traits in the ‘crossable’ gene pool for wheat and barley, but there are far better genes in other plants and these would need to be transferred via GM methods.

The Victorian Government claimed, and still claims, that it wants to be the biotechnology capital of the world—but only in the laboratory. There appears to be no clear path for the commercialization of GM food crops in Victoria or any other State (with the possible exception of Queensland). This is a direct consequence of the very successful anti-GM, anti-technology, anti-innovation Greenpeace campaign.

3.3 Philosophical Frameworks

3.3.1 Looking backwards instead of forwards

George Orwell introduced the concept of ‘doublethink’ in his book *Nineteen Eighty-Four*. Doublethink occurs when we hold two contradictory beliefs in our minds simultaneously and accept both of them. It has been described as a form of trained, wilful blindness to contradictions and it can help explain natural resource management planning as it is occurring across Australia at the moment.

Many people associated with government planning processes for natural resource management, including catchment management planning and the implementation of various vegetation management plans

under State vegetation legislation, accept the Darwinian view of evolution. That is, that the natural world is dynamic, not static. Animal and plant species have evolved—there was no Garden of Eden. They accept that ecosystems, like human societies, are emergent complex systems. In other words, ecosystems change and adapt and change again.

Yet these same people develop catchment and vegetation plans based on the idea that the landscape was in an ideal pristine state before European settlement. The benchmark year has been set at 1750 for New South Wales and at 1860 for Queensland.

An objective of these plans is to return catchments to how they were back then. For example, targets for some NSW Catchment Management Authorities (CMAs) include 30 per cent of the catchment area being covered in vegetation exactly as it was in 1750.

Yet some basic things that determine which plants grow where have fundamentally changed. For example, the planners seem to be conveniently ignoring the fact that the global climate was different in 1750. In 1280 AD, volcanic eruptions on Iceland, and a change in ocean currents, started a period that has become known as the Little Ice Age. Conditions were generally cooler and drier at that time. This period of cooler climate finished in the late 1800s. And now, of course, many people believe that natural warming is being augmented by warming associated with an increase in atmospheric carbon dioxide levels from industrialization. When climate changes, this drives vegetation change.

Interestingly, while it was generally drier in terms of precipitation (rainfall) during previous ice ages, parts of inland Australia, which are now desert, were inland lakes during the last proper ice age (which finished about 15,000 years ago). The lakes were apparently fed by glacial runoff from the Snowy Mountains.

Furthermore, before European settlement, the Australian landscape was actively managed by Aborigines for over 40,000 years. Aborigines used fire to favour

open grassland areas as opposed to closed forest ecosystems. With the end of Aboriginal burning and the introduction of sheep and cattle, there has been profound change. This may not all necessarily be bad, unless we insist that 1750 is the benchmark.

If I were a member of one of the NSW CMAs, I would ask the questions: What might the vegetation in my catchment look like in 50 years' time? How can I maximize biodiversity? How can I ensure a healthy landscape? What is the best return for the few dollars we have?

In asking these questions, we free the mind from doublethink. We acknowledge that change is real. We also redefine the paradigm in which decisions are being made.

These sorts of questions are not being asked. I note that the Agriculture and Food Policy Reference Group suggests through the position paper (page 17) that regional catchment management and natural resource management groups are active and that 'on-ground activity is only just commencing in many of these regions as plans and investment strategies are developed'.

The reality is that it is 20 years since the decade of Landcare, and while there has been much talk, much planning, many media releases, and billions of dollars of investment, the focus still seems to be on planning rather than on implementation or the celebration of success. A key problem is that most of the planning is backward, rather than forward looking.

This problem is also evident in the monitoring programmes currently in place to determine the health of the Murray–Darling Basin. Through the Sustainable Rivers Audit (SRA), the Murray–Darling Basin Commission (MDBC) is measuring river health relative to 'the condition that would exist now in the absence of human influence experienced during the past two centuries'. In other words, instead of measuring whether, for example, Murray Cod numbers are now increasing or decreasing, the Commission is seeking to determine whether there are as many Murray Cod now as there were 200 years ago.

This is the same approach that was used in the now-discredited 2001 assessment *The Snapshot of the Murray–Darling Basin River Condition*.

An inherent problem with this approach is that we will never know how many Murray Cod there were 200 years ago. Furthermore, the Murray River is a highly regulated system—yet its health is being measured relative to an unregulated, natural system. This is like judging an apple against the features of an orange. The dams, weirs and barrages on the Murray have fundamentally changed the River's ecology and this should be acknowledged in any monitoring programme.

An extensive study of the River's insect fauna undertaken in 1980–85 determined that

The overall diversity is high at all sites with the exception of those downstream of impoundments and the sites along the River in South Australia. The number of taxa collected in the Murray (439) compares favorably with other Australian River systems. The River Murray differs from the Meuse and many other large river systems in Europe and North America in that it has little industrial or domestic pollution. Consequently, water quality is high and this is reflected in a high diversity of aquatic animals. However, the influence of the river regulation has modified the fauna with the more tolerant, slow water forms dominating the highly regulated reaches downstream of Lock 9 [near Wentworth] and the true riverine fauna restricted to the stretches of River above Lake Hume.

This study accepted that the Murray was highly regulated and concluded that the river had a healthy and diverse insect fauna.

In contrast, the 2001 assessment, using a rationale similar to the SRA's, concluded that insect populations were in 'poor' or 'extremely poor' condition. Incredibly, the 2001 assessment also stated that insect populations had shown improvement over the period 1980 to 1997.

The media headline when the SRA study is released will be along the lines: 'Murray River fails basic health test' and, of course, 'More water needed to save River'. Few will understand that the river 'failed' because the scientists were making their comparisons with a hypothetical, well-watered, unregulated, 'pristine' system.

The MDBC should be collecting basic data on insect, fish and bird numbers and how they change seasonally, how they trend from year to year, and over decades. This information should be publicly available on the Internet, including details for key indicator species for key sites. It is most disturbing that such basic information is not already available for such an important river system.

3.3.2 Tree Clearing and Climate Change

The latest rounds of vegetation restrictions in NSW and Queensland have been driven by the Federal Government's global warming concerns and Kyoto.

At Kyoto, Japan, in 1997, the Australian Government agreed to a target of limiting greenhouse gas emissions to 108 per cent of 1990 emissions over the period 2008–2012. The Australian Government has never ratified Kyoto. It claims that the Kyoto Protocol does not provide a comprehensive, environmentally effective, long-term response to climate change. Nor are there clear pathways for action by developing countries, and the United States has indicated it won't sign. Without commitments by all the major emitters, the Federal Government says that the Protocol will deliver only about a 1 per cent reduction in global greenhouse gas emissions.

The Federal Environment Minister, nevertheless, continues to restate Australia's commitment to meeting its Kyoto target and praised the 'tremendous effort by governments, industry and the Australian community' in cutting emissions. Indeed, the Federal Government report, *Tracking the Kyoto Target 2004*, indicates that Australia is on target. But what the Minister does not always acknowledge is that this

was mostly a consequence of restricting and redefining 'tree clearing'.

The report says that vegetation management legislation recently introduced into Queensland and NSW will reduce carbon dioxide emissions by 24.4 million tonnes. By comparison, the energy sector increased emissions by 85 million tonnes of carbon dioxide equivalent during the period 1990 to 2002.

The total reduction attributed to 'land use change', which includes reduced tree clearing, is 78 million tonnes for the same period. So the increase in emissions from the energy sector has been offset by clearing fewer trees—at tremendous cost to individual landholders in Queensland and New South Wales. Yet the Minister made no mention of this.

What is known as the 'Australia Clause' (Article 3.7) in the Kyoto Protocol allows countries for which land use change and forestry was a net source of emissions in 1990 to include the emissions from land use change in their 1990 baseline.

It has been claimed that the Australian national greenhouse office consequently exaggerated the extent of the clearing in 1990 to give an inflated baseline value and at the same time not recorded carbon sinks resulting from forest growth and woodland thickening. This made it easier to achieve the Kyoto target for 2008–2012.

Ecologist Bill Burrows, writing in the international journal *Global Change Biology* in 2002, explained how Australia's often quoted total net greenhouse gas emissions would be reduced by 25 per cent if we included the sinks resulting from woodland thickening in our National Greenhouse Gas Inventory. But this would also affect our 1990 baseline and make it harder for the 'accountants' to suggest that we are on target, and even more difficult to justify the draconian vegetation management laws. Dr Burrows calculates the annual carbon sink in about 60 million hectares of grazed woodland in Queensland alone to be about 35 million tonnes of carbon dioxide equivalent per year.

Campaigners and governments have, in effect, ignored the fact that trees regrow. To be sure, trees don't regrow everywhere, some parts of Australia have been over-cleared and large areas of once native grasslands have been sown to exotic grass species. Vast areas of the Australian landscape, however, were deliberately maintained as grassland and open woodland, as opposed to forest, by the Aborigines through their use of fire. These grassland areas were generally more productive than forests for the hunting of wildlife. Remove fire from this landscape and the species assemblages (the ecology) naturally changes.²⁹

Whether this change is good or bad involves a value judgement, but to deny the change is to close one's eyes to the reality of the situation. For example, even during the height of tree clearing in Queensland, that is, at the very time the Wilderness Society was claiming that tree clearing was turning Queensland into a wasteland, there was a net increase in tree cover of 5 million hectares in Queensland's rangelands.³⁰

In advance of the legislation, the Queensland Government went to great trouble to suppress the findings of a report prepared by its own officers that detailed the detrimental impacts of uncontrolled woodland thickening on a range of environmental and economic values, consequent to the clearing bans.³¹ The Federal Government's own Productivity Commission has found that the tree-clearing legislation generally fails to take account of regional environmental characteristics and agricultural practices, is a serious impediment to private conservation measures (including through tax distortions and regulatory barriers to efficient farm management), while imposing on landowners the cost of wider conservation goals demanded by society.³²

3.4 If You Can't Measure It, You Can't Manage It

The Agriculture and Food Policy Reference Group's position paper promotes the concept of payments for environmental services and includes the following text:

In future, farmers may be paid for their output of environmental services such as biodiversity (for example, the management of wetlands for migratory bird habitats), improved air and water quality and other environmental and public health benefits. To be feasible, incomes from delivery of environmental services would need to at least offset any reductions in earnings from traditional agricultural enterprises that result from changed management practices (pages 16–17).

Many landholders would no doubt be eager to provide environmental services for an agreed recurrent budgetary allocation that at least offsets any reduction in earnings from rearing cows or growing cotton.

But it is not going to be this straightforward. There are simply too few taxpayers relative to the many environmental services currently provided for free by landholders. Just think for a moment about the vast area of remnant native vegetation of high conservation value across Australia managed by private landholders.

The position paper suggests that payments for environmental services could be delivered through 'market based instruments'. Functioning markets exist for sulphur dioxide credits in the United States and for carbon dioxide in Europe. The theory is that a cap is first placed on total pollution emissions and then permits equal to the cap are distributed to the polluters. This type of approach requires that transferable rights are clearly defined and protected by government.

Mick Keogh of the Australian Farm Institute has calculated that current bans on tree clearing in Australia are potentially worth \$600 million a year in carbon dioxide equivalents. He suggests that because agriculture is not part of current carbon-trading schemes in Australia, the \$600 million is, in effect, revenue lost to the agricultural sector. If agriculture were part of a national carbon-trading scheme, as suggested by Mr Keogh, then emitters (e.g. coal-fired power stations) could theoreti-

cally purchase woody vegetation from farmers as carbon equivalents.

The concept of paying for environmental services presupposes that the Australian public knows what it wants from the Australian landscape, that what it wants can be measured in some way, and that the provision of such services will be priced and allocated in a valid manner.

The recent banning of logging in the Pillagoo-Goonoo forests of north-west NSW, suggests that this is not the case. Here the NSW Government, in response to environmental campaigning, essentially chased timber workers out of forests created by the same workers who thinned the cypress and undertook controlled burning—in effect providing an environmental service at no cost to the taxpayer.³³ These artificial forests, artificial in as much as they are less than 120 years old and have always been actively managed by timber workers, contain the highest density of barking owl populations in NSW.

Better water quality is often mentioned as something people want. Water quality is relatively easily measured and a good deal of information on water quality is collected by both local and State governments across Australia. Access to this information, however, is difficult. As a first step towards developing a trade in water pollutants, governments would need to make water quality data publicly available.

Indeed, if I were to nominate specific areas of environmental need, high on my list would be better monitoring programmes. Access to basic information including, for example, how Murray cod and koala numbers are trending over time, should be available.

The development and implementation of proper monitoring programmes would need to occur in parallel with a rethink of our approach to environmentalism.

3.5 The City/Country Divide

Just before Professor Diamond arrived in Australia, the NSW Farmers Association organized a 2,000-strong drought rally in

Parkes. The rally generated significant interest by the metropolitan media. NSW Farmers Association President Mal Peters continually made the point that there was a crisis in the bush. There was an image of the same desperate farmer driving his tractor mindlessly about a dusty paddock on television.

The farm lobby may have got the television coverage and drought aid it wanted, but I suspect that, for the most part, the images simply re-inforced the perception in metropolitan Australia of farmers as environmental vandals flogging a dry landscape.

At the same time that NSW Farmers Association President Mal Peters was telling metropolitan Australia there was a crisis in the bush, he was floating the idea of a \$10 million media campaign to improve the image of rural Australia in the cities.³⁴ I received the following e-mail at about this time in response to my fortnightly column in *The Land* newspaper:

In 2002 people in Sydney were a soft target for drought aid. Likewise people in the bush think the city end have it easy, big salaries and 9am to 5pm.

Since 2002 stories about Farm Management Deposits increasing over the drought, big crops in 2003, the cost of lamb and beef going up and up, property values skyrocketing etcetera has made the majority of city folk, leaving home at 7am and returning by 7pm scratching to cover mortgage interest payments etcetera, a bit cynical.

As a company trying to sell professional advisory services I know about the lack of management expertise and business acumen in the bush. A decision to pay to protect 1% to manage the value of an asset which varies by up to 30% each year would seem common sense to most business people in Sydney, however, we have found that less than 2% of farmers are interested.

Interestingly the 2% are bigger professional farmers frustrated at the difficulty of expansion from a lack of sell-

ing by inefficient farmers propped up by drought aid.

You are spot on city people aren't as dumb as Mal Peters would like his constituency to think. Mixed messages etcetera all to be covered up by some marketing campaign!

The growing divide and growing resentment between metropolitan and rural Australia needs to be recognized by the Federal Government as an issue that can only be addressed through improved communications between the two groups and more consistent government policy.

4 The Solutions

Asia's demand for food (including wheat, beef and milk) is predicted to grow by more than 20 per cent over the next five years. There is a place, indeed a need, for Australian agriculture in as much as the world needs to be fed and clothed, and Australian farms are amongst the most efficient and sustainable in the world. Yet, paradoxically, there is a push to close down agriculture in Australia, driven by the false perception that Australian agriculture is irreversibly harming the environment. The extent of the ill-feeling towards, and misinformation about, Australian agriculture came to the fore during the recent high profile visit by Jared Diamond already mentioned in earlier sections of this submission. It was evident during this visit that our educated elites do not have confidence in Australian agriculture.

The view that agriculture should eventually be phased out has been developed and is promoted by the larger Australian environmental organizations, including the Australian Conservation Foundation (ACF). Although it is hard to credit, the ACF works closely with the National Farmers Federation, an organization which should be promoting the value of Australian agriculture and the many improvements in environmental management that have occurred over the last 30 years.

Environmental campaigning tends to be driving new rules and regulations. Indeed, environmental law is one of the fastest growing areas of the legal system. It now encompasses a vast body of statute law comprising Acts of Commonwealth and

State parliaments and subordinate legislation in the form of regulations, orders and decrees.

There are increasing concerns that the processes of environmental policy formulation and implementation are leading to outcomes which have seriously negative impacts on individual producers, industries, local and national economies, civil liberties, the rule of law and on sustainable environmental protection.

There is a pressing need for:

- Basic data on air and water quality, vegetation cover and numbers of endangered and icon species to be made publicly available;
- A critical evaluation of the processes of environmental law and policy formulation in Australia;
- A more evidence-based and solution-focused approach to environmentalism; and
- Better communication between rural and metropolitan Australia.

In this section, I make the case for new approaches and new institutions to address these four distinct needs.

4.1 The Need for Basic Data

In 2002, the Australian Bureau of Statistics (ABS) published a report titled 'Measuring Australia's Progress'. The report began by acknowledging that 'it is difficult to obtain national time series data that encapsulate the changes in Australia's natural capital'.³⁵ However, the report then proceeds to present graphs with trend lines suggesting that relevant facts have been

systematically collected. Yet with reference to the first indicator, biodiversity, the report states that its use of numbers of species listed as vulnerable and endangered under federal legislation as a measure of biodiversity may *not* be reliable. Undeterred, the report then concludes that declining biodiversity is nevertheless a reasonable conclusion, because 'many experts ... believe that total Australian biodiversity declined during the 1990s'.

According to the *Endangered Species Protection Act* 1993 and the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC), a species can be listed as vulnerable if there has been a substantial reduction in its numbers and its geographic distribution is limited. However, the reduction in population numbers could have occurred decades ago, with population numbers now stable or potentially increasing.³⁶ As a consequence, new listings do not necessarily give an indication of current trends with respect to biodiversity.

A significant scientific literature advises that threatened species lists have limited value as indicators of changes in the state of the environment, including the observation that changes in lists more often reflect changes in knowledge of status rather than change in the status itself.³⁷

Furthermore, any person may nominate a native plant or animal species for listing under the EPBC Act, with over 311 species nominated over the period 2001 to 2003.³⁸ Indeed, nominating a species is an integral part of many environmental campaigns. Successful nominations normally secure significant State and Federal Government funding for the development of associated Recovery Plans.³⁹

No species extinctions have been recorded in Australia over the last two decades. Several species have been rediscovered, including the mahogany glider. If the ABS had chosen to compare the number of known extinctions to the number of rediscoveries or, for example, reported on the increase in the area of conservation reserve set aside for biodiversity protection, then the report

might have concluded that biodiversity in Australia is actually increasing.

Land clearance is the second environmental 'headline indicator' in the ABS report. The report's main conclusion is that 'Land clearing continues to have a major impact on our biodiversity, soil and water. Since the mid-1990s, the rate of land clearance has increased. Estimates indicate that about 470,000 hectares of land were cleared in 1999, around 90 per cent in Queensland'. However, the ABS does not place the 470,000 hectares in any context relative to the land mass of Australia, area planted to new forests, and area of trees naturally thickening and regenerating. In short, we have no idea what the net change in tree cover was.

Clearly there is a need for more honest and basic reporting on key environmental indicators.

Recommendation

That basic data on the state of Australia's natural resources, including information on changes in vegetation cover (not just numbers of trees cleared), water quality and numbers of endangered species, be publicly available on the Internet. That this information be in the form of measured statistics, rather than modelled forecasts.

4.2 Evaluation of Environmental Law and Policy Formulation⁴⁰

4.2.1 Productivity Commission Report 2004

In its August 2004 Report on *The Impacts of Vegetation Management and Biodiversity Regulations*,⁴¹ the Productivity Commission acknowledged the validity of many of these concerns and made recommendations which, in effect, require the radical re-evaluation of the philosophy and processes of environmental regulation in Australia. The Commission's Report highlighted the following serious defects in the current regulatory system:

- Lack of cost-benefit assessments before regulations are made and the absence of on-going monitoring and independent reviews of costs and benefits once the

- regulations are in operation.
- The poor quality of data and science on which native vegetation and biodiversity policy decisions are based.
 - Inadequate use of the extensive knowledge of landholders and local communities in the formulation of policy and regulations.
 - The failure to take account of regional environmental characteristics and agricultural practices in imposing across-the-board rules, particularly in relation to native vegetation regrowth.
 - Serious impediments to private conservation measures, including tax distortions and regulatory barriers to efficient farm management.
 - The imposition on landowners of the cost of the wider conservation goals demanded by society.

The Productivity Commission's Report deals only with native vegetation and biodiversity issues. Many of its findings, however, are relevant to environmental law and policy generally. There are also other fundamental issues that call for investigation.

4.2.2 A theory of conservation

Environmental policy at Commonwealth and State levels does not reveal a coherent theory or philosophy of conservation in Australia. Instead, the field has become a battleground for environmentalists and other interest groups affected by conservation policies. While this kind of contest is both natural and desirable in a democracy, it can, and often does, overlook the fundamental questions that need to be addressed.

Nature is dynamic, not static. Ecosystems, the organic world, human societies and culture itself are emergent, complex systems. They are adaptive and it is arguable that they have no teleological or pre-ordained ideal states. The planet itself, according to this view, has no ideal state. If there is an ideal state, it is important to know what that is and why that state is ideal. In such a world, the following questions, among others, become fundamental:

- What things should be preserved?
- What things can be preserved?
- Why do we preserve some things?
- In what form should things be preserved?

One vision of conservation is premised on the belief that there is an ideal state of nature worth preserving and that all human interests should be in harmony with this state and yield to it when conflicts arise. There is another way of looking at nature which is informed by evolutionary theory and the science of emergent complexity. According to this viewpoint, there is no pre-ordained ideal state of nature. Nature is a dynamic process that is unfolding as a consequence of endogenous forces, including the endeavours of human beings to better their lives. It is also subject to catastrophic shocks, some of which, in hindsight, may prove beneficial.⁴²

The answers to the fundamental questions raised above depend on how we understand nature, of which human communities are integral parts. An inquiry to this end must involve science, philosophy and economics. Some of the most advanced work in complex systems has been generated in these fields.

4.2.3 Science, policy and due process

It is said that science and politics do not mix well. No science is perfectly objective or exact but historically the natural sciences have insulated their methodologies from emotive debate better than other disciplines. However, politics tends to intrude on science when political decisions depend heavily on scientific theories and findings, and environmental law and policy are no exceptions. The integrity of science can be compromised at two levels. First, it can be compromised by bias at the level of investigation. Second, and more commonly, science can be compromised by policy-makers through misunderstandings or misuse of scientific findings.

If good science is critical to good environmental law and policy, then it is essential that the processes of environmental

policy-making, legislation and adjudication are subject to appropriate standards of substantive and procedural due process. It requires, as a minimum, that views of all stakeholders and experts, including government agencies, property owners, traditional users, producers, environmentalists, relevant scientists and economists, are heard in objective inquiry. The process should not privilege special interests—whether they are those of proprietors or of environmentalists. Decisions should be taken by independent tribunals and not by bodies structurally biased to particular policy positions. The decisions should be judicially reviewable and, where appropriate, subject to parliamentary review.

4.2.4 Environmentalism and civil liberties

There are growing concerns that aspects of environmental law and policy have unacceptably high costs in terms of their impact on civil liberties.⁴³ Among the concerns are the following features of environmental legislation:

- Regulatory decisions affecting rights being taken in breach of natural justice by structurally biased tribunals that deny rights' holders reasonable opportunities to present their cases.
- Uncertainty of laws defining environmental offences that make compliance difficult and costly.
- Investigatory powers that are intrusive and which compromise due process.
- Negation of traditional procedural and evidentiary safeguards in prosecutions for environmental offences, including the reversal of evidentiary burdens usually borne by prosecutors.
- Denial of compensation to property owners for the loss of property rights and diminution of property values.

Given that certain environmental objectives are worth achieving, the question arises as to who should bear the costs involved in their achievement. The common law principle is that those who cause damage to others must pay for reparation, but beyond that, if individuals are asked to sac-

rifice property for the benefit of all society, the cost of that sacrifice must be borne by society. This is an important principle that lies at the heart of constitutional government and the case for conservation laws that depart from this principle needs to be rigorously tested.

4.2.5 Economics of conservation

The gulf between environmentalism and economics is evident in Australian conservation law and policy. Although economic activities are frequently measured for environmental impact, the reverse rarely occurs except through the self-interested lobbying efforts of workers and businesses. The bias against economics among conservationists may proceed from serious misunderstandings about the nature of economics. The idea that economics is intrinsically at odds with conservation values is wrong. Economics is neither foe nor friend of conservation. It is a science that helps us understand better our environment, the costs of conservation and our policy options when dealing with conservation issues.

Economics is helpful in many ways. It allows us to measure the costs of law and policy on households, communities and nations. It throws light on the reasons why humans behave the way they do by locating incentives and disincentives to action. It demonstrates the role of institutions in processing information and adapting social life to ecology. The following observation of Baden and Geddes captures the critical economic dimension of the conservation debate that this project aims to investigate.

There is a real need to foster among ecologists a more sophisticated understanding of the importance of property rights, the market process, and the rule of law. This will help achieve conservation goals. When we conceptualize economics as a branch of evolutionary biology, the discipline becomes more accessible to this audience. In fact, they are logically alike, intellectually isomorphic. Like biological systems, economic life evolves as people and organizations learn,

respond, and innovate. Markets, like DNA-driven organisms, are highly efficient information-processing systems. Unfortunately, flawed information yields perverse outcomes.⁴⁴

4.2.6 Politicization of decision-making

Political action and influence rather than the rule of law, science or economic choice has increasingly become the driver of policy and decision-making about the environment. The groups who cry loudest and with most passion often hold sway. The dominance of politics over reason and evidence has been accompanied by a trend towards devolving policy formulation to 'the community'. There are at least two problems with this approach.

First, membership of these community groups—whether they are catchment management boards, bushfire management boards, or native vegetation management boards—is determined more on the basis of political influence than on knowledge, expertise or representativeness of local or affected parties. For example, the Nature Conservation Council of NSW (NCC) has been appointed to over 300 resource management committees or boards. Its appointments have been made because of the political influence it has gained as a representative of environment activist groups. It undertakes no scientific research; it does not represent people from the affected communities, its values and view are seldom supported by science; it seldom represents local concerns or affected parties and it pushes fundamentalist policies that view Man and commerce as inherently harmful to the environment. NCC characteristically places full-time, professional activists on the committees: activists who have the time, energy and skills to dominate proceedings—particularly when most other members have busy day jobs.

Second, even if the community groups are representative of affected parties, they still need technical support. This is characteristically provided by State Government departments and research organiza-

tions which, in turn, are increasingly staffed not by experts or neutral parties, but by activists. For example, the Deputy Director General at the Department of Infrastructure, Planning and Natural Resources in the NSW government is a former WWF activist. He is now responsible for overseeing planning and scientific support to catchment management boards and other resource planning committees in NSW. Although he is a highly skilled activist, he has no scientific training. When he was appointed to the position, he was also given the role of Chief Scientist.

Recommendations

The Agriculture and Food Policy Reference Group support an evaluation of the processes of environmental law and policy formulation in Australia—including a legal, scientific and economic investigation—with the following aims:

- Examination of the theoretical and philosophical premises on which environmental law and policy in Australia are founded.
- Examination of the processes of environmental law and policy formulation to assess whether they are informed by the best scientific knowledge available.
- Examination of the processes of environmental law and policy formulation to assess the extent to which they admit local knowledge and know-how.
- Examination of the extent to which environmental decision-making takes account of the costs and benefits of proposed measures.
- Assessment of the impact of current environmental policy and law on civil liberties and constitutional government, including substantive and procedural due process and the principle of compensation for property-taking.
- Identification of novel ways of conservation through the use of incentives and market processes.
- Development of proposals for legal and administrative reform in the area of environmental law.

4.3 Support for a New Environment Movement

Although it may be true to say that 'We are all environmentalists now', the great majority of Australians have little or no say in the environmental policies being put to governments—federal, state or local. These policies are almost exclusively the domain of a tight network of conservation groups which ensure that one view, and one view only, is put forward.

This network includes the multinational corporations Greenpeace and the World Wildlife Fund. These groups meet several times a year through the Mittagong Forum. They strive to increase movement-wide collaboration on issues and campaigns, along with an increased understanding of emerging issues and the potential strategies to tackle them.

In the lead-up to the 2004 Federal Election, Greenpeace, the Wilderness Society and the Australian Conservation Foundation released a joint policy document aimed at focusing attention on the three issues they considered most important for Australia. These campaigns were: stopping climate change, stopping logging of old growth forests in Tasmania, and taking water from Murray River irrigators. It is unclear why and how the conservation movement chose these issues. In terms of outright destruction to wilderness areas and their associated fauna and flora, weeds, feral animals and bushfires should be high on the list of those issues that need to be tackled and which can be addressed in a cost-effective way. Instead, campaigning by the established environment network has focused on closing down industries with a focus on logging and irrigation.

The Greenpeace anti-biotechnology campaign has successfully resulted in the banning of GM food crops in all States and Territories with a canola industry.

The established environment network has been well funded by the Federal Government. For example, the Federal Government provided grants to WWF of over \$15million during the period 1996–2003.⁴⁵

When a new environment group working from fundamentally different principles formed earlier this year, the Australian Conservation Foundation (ACF) took legal action in an attempt to prevent the group launching on World Environment day. The legal action was ostensibly conducted on the basis of trademark infringement. However, the associated media suggested that what was really at issue was the fact that the Australian Environment Foundation (AEF) had strong timber and mining industry connections.⁴⁶ The AEF's charter is radically different from that of the established network in that it is evidence-based, solution-focused, and states that sustainable resource use is not incompatible with environmental protection. The AEF also recognizes the need for active management of the landscape, which contrasts with the 'hands off, leave it to nature approach' advocated by all the larger established environment groups in Australia.

If we were to embrace a new environmentalism that acknowledged that landscapes are dynamic, the need for active management of Australia's vast rangeland areas could be acknowledged. The research focus could be about understanding the triggers for environmental change. For example, widespread woody weed establishment occurs when there are above-average autumn rains in western Queensland and it is at this time that active management is most critical.

If we could include woodland-thickening and forest encroachment as carbon sinks in our National Greenhouse Gas Inventory, then, nationally, net emissions would be reduced by 25 per cent.⁴⁷ This would then create the potential for Australia to choose between carbon credits for more trees or open grassland supporting a pastoral industry, kangaroos and granivorous birds—a mix that would benefit biodiversity.

It may seem counter-intuitive, but if we accept that change is the only constant in the natural world, then the protection of particular environments with particular species assemblages may necessitate a high

level of active management. Indeed, a new environmentalism based on the notion of a dynamic landscape may provide increased opportunities for activism where, in the past, for example, policies have virtually promoted neglect, particularly in some National Parks.

In terms of outright destruction to wilderness areas, including old growth forest and rare and endangered species, the 2003 bushfires were an environmental disaster of incredible proportions. More than three million hectares were incinerated, including three-quarters of Kosciusko National Park. Compare this with annual clearing rates of native vegetation by farmers in NSW and Victoria amounting to fewer than 20,000 hectares. One conclusion in the October 2003 House of Representatives Select Committee Report 'A Nation Charred' was that 'there has been grossly inadequate hazard reduction burning on public lands for far too long'.

But this discussion is not occurring. Instead, we have legislation that effectively bans the management of re-growth in our rangelands, and management plans that make it difficult effectively to control burning to reduce the incidence of wildfires in national parks and conservation reserves because the established environment movement advocates no active management of the landscape.

There is a need for groups such as the AEF that challenge the accepted wisdom on environmental issues. However, given the influence and nature of the current environment establishment, groups such as the AEF will find it very difficult to establish and access funding.

Recommendation

The Agriculture and Food Reference Group considers mechanisms for supporting diversification and competition within the Australian environment movement.

4.4 Better Communication Between Rural and Metropolitan Australia

The views of environmentalists and envi-

ronment groups tend to be accepted without scrutiny, including by the mainstream media. An example of the extent to which the metropolitan media have been captured by 'environmentalism' and have run campaigns against agriculture is detailed in a review of *The Australian* newspaper's 'Save the Murray Campaign'.⁴⁸

There is a desperate need for the issues currently confronting Australian agriculture to be openly and honestly debated and discussed by all Australians.

There is an existing national Internet forum which was established to give a voice to all sides of important debates in Australia. The National Forum, owned by a number of Australian institutions including the University of Sydney, was established as a forum for debate and discussion, nurtures new writers and different perspectives, has an established and diverse audience, and uses the Internet. The Internet has the power to overcome distance—something that can be a real handicap for rural and regional Australia.

The Forum's internet journal *On Line Opinion*⁴⁹ reaches a monthly audience estimated at 70,000 and includes articles from the left and right of politics. The journal is read and supported by opinion leaders in metropolitan Australia. National Forum also sponsors polls and undertakes detailed qualitative polling.

Recommendations

The Agriculture and Food Reference Group consider mechanisms for supporting open debate and discussion of environmental issues which affect agriculture, including the use of the Internet-based, university-supported National Forum. This could include:

- Sponsorship of a feature on agriculture consisting of a series of opinion articles and debates, with topics to include GM food crops, broad-scale tree clearing and animal rights campaigning.
- Sponsorship of qualitative research by the National Forum, which could be done in conjunction with the debates, to assess community attitudes.

References

- 1 Marohasy, J. (2005), 'Australia's Environment Undergoing Renewal not Collapse', *Energy and Environment*, **16** (3). In press.
- 2 FAO (2005), *International Year of Rice*, Homepage: www.fao.org/rice2004/en/p13.htm (viewed 14 March 2005).
- 3 Duwayri, M., D.V. Tran, V.N. Nguyen (2000), 'Reflections on Yield Gaps in Rice Production: How to Narrow the Gaps', in M.K. Papademetriou, F.J. Dent and E.M. Herath, (eds), *Bridging the Rice Yield Gap in the Asia-Pacific Region*, FAO, RAP Publications: 2000/16.
- 4 Australian Rice Growers Association: www.rga.org.au/environment/water.asap (viewed 14 March 2005).
- 5 Higgins, T.J. and G. Constable (2004), 'Development, Regulation and Use of Genetically Modified Crops in Australia', *Farm Policy Journal*, **1** (2), pages 14–22.
- 6 LMC International (2004), *Sweetener Analysis*, Newsletter, April 2004, Oxford.
- 7 Seales, T., S. Gordon, A. Hafi and C. Toyne (1999), *Sugar: International Policies Affecting Market Expansion*, ABARE Research Report No. 99.14, Canberra.
- 8 ABARE (2004), *Australian Commodity Statistics*, Canberra.
- 9 *Ibid.*
- 10 Donath, E.J. and J. McGarrity (1976), *Wheat in Australia*, Oxford University Press.
- 11 Smith, D.F. (2000), *Natural Gain in the Grazing Land of Southern Australia*, Sydney, UNSW Press.
- 12 Geno, L. (1996), *Keeping it Sweet*, The Australian Conservation Foundation, Melbourne.
- 13 Johnston, A., D. Walker, and A. Wood (1997), *Spatial Analysis of the Impact of Land Use on Nutrient Loads in the Herbert River Catchment*, SRDC Final Report—Project CSC13S, Brisbane.
- 14 Marohasy J. and G. Johns (2002), 'WWF Says "Jump", Governments Ask "How High?"', *IPA Review*, **54** (1), pages 3–5. Long version fully referenced at: http://ipa.org.au/publications/publisting_detail.sap?publid=347.
- 15 *Ibid.*
- 16 Lough, J.M and D.J. Barnes (2000), 'Environmental control on growth of massive coral porites', *Journal of Experimental Marine Biology and Ecology*, **245**, pages 225–243.
- 17 Larcome, P. (2001), 'Holocene Great Barrier Reef: sedimentary control and implications for environmental management', *Geological Society of Australia Special Publication*, **21**, pages 281–294.
- 18 Hajkowicz, S. and M. Young (2002), *Value of Returns to Land and Water and Costs of Degradation*, Final Report to the National Land and Water Resources Audit. CSIRO Land and Water.
- 19 Commonwealth of Australia (2001), *Australian Natural Resources Atlas: Agriculture*, National Land and Water Audit.
- 20 Lomborg, B. (2001), *The Skeptical Environmentalist: Measuring the Real State of the World*, Cambridge University Press.
- 21 Marohasy, J. (2003), 'Myth and the Murray: Measuring the Real State of the River Environment', *IPA Backgrounder*, **15** (5). Available at: www.ipa.org.au
- 22 Walcott, J.J., H. Zuo and H. Rath (2004), *Recent Changes in Agricultural Land Use in Australia*. The Regional Institute Ltd.
- 23 Chrispeels, M.J. and D.E. Sadova (2003), *Plants, Genes and Crop Biotechnology*, 2nd edn, American Society of Plant Biologists, Los Angeles.
- 24 Marohasy, J. (2003), 'GM Fish and Chips? Already an Australian Staple!', *IPA Review*, **55** (3).
- 25 Marohasy, J. (2003), 'Myth and the Murray: Measuring the Real State of the River Environment', *IPA Backgrounder*, **15** (5).
- 26 Marohasy, J. (2003), 'How Useful are Australia's Official Environmental Statistics?', *IPA Review*, **55** (4).
- 27 For example, 'Wool "too slow" against PETA', *The Land*, 3 March 2005, page 8.
- 28 'Chicken trio agree to end GM grain use', *The Land*, 17 February 2005, page 32.
- 29 Neldner V.J., R.J. Fensham, J.R. Clarkson and J.P. Stanton (1997), 'The natural grasslands of Cape York Peninsula, Australia. Description, distribution and conservation status', *Biological Conservation*, **81**, pages 121–136; Burrows, B. (1999), 'Tree clearing—rehabilitation or development on grazing land?', *IV International Rangelands Conference*, Townsville, Australia.
- 30 Queensland Department of Natural Resources and Mines, *Land Cover Changes in Queensland 1999–2001*, January 2003. (See <http://www.nrm.qld.gov.au/slats>)
- 31 Thomson, M. (2004), 'Thickening report existence proved', *The Queensland Country Life*, 12 August 2004; McCullough M, B. Burrows, B. Holmes and J. Scanlan, 'The impact of tree

Changing Agriculture's Approach to the Environment

- thickening in grazed remnant woodlands', Productivity Commission Submission from the Queensland Department of Natural Resources and Mines. Never submitted or published
- 32 'Impacts of native vegetation and biodiversity regulations', Productivity Commission Inquiry Report No 29, 8 April 2004. (See <http://www.pc.gov.au/inquiry/nativevegetation/index.html>)
 - 33 Marohasy, J. (2005), 'Save the Forests: Support Evidence based Environmentalism', *Online Opinion*. <http://www.onlineopinion.com.au/view.asp?article=3535>
 - 34 *The Land*, 2 June 2005, page 7.
 - 35 Australian Bureau of Statistics (2002), Measuring Australia's Progress <http://www.abs.gov.au/Ausstats/abs@.nsf/0/b66ebefc05cdf265ca256bdc001223ec?OpenDocument>
 - 36 As an example, Murray Cod was recently listed as vulnerable under the EPBC Act even though numbers have been stable in NSW since 1964 and gradually increasing in South Australia. See <http://www.ea.gov.au/biodiversity/threatened/species/m-peelii-peelii.htm>.
 - 37 Possingham, H.P., S.J. Andelman, M.A. Burgman, R.A. Medellin, L.L. Master and D.A. Keith (2002), 'Limits to the use of threatened species lists', *Trends in Ecology and Evolution*, 17 (11) pages 503–507.
 - 38 See <http://www.ea.gov.au/biodiversity/threatened/nominations/index.html>
 - 39 See <http://www.ea.gov.au/biodiversity/threatened/recovery/index.html>
 - 40 This section is based on an ARC Linkage Grant Application being developed by Professor Suri Ratnapala, Dr Jason Potts and Jennifer Marohasy titled 'Evaluation of the processes of environmental law and policy formulation in Australia: A legal, scientific and economic investigation'.
 - 41 Australian Government (2004), *Impact of Native Vegetation and Biodiversity Regulations*, Productivity Commission Inquiry Report No. 29, 8 April 2004.
 - 42 Marohasy, J. (2004), 'Time to Redefine Environmentalism', *IPA Review*, 56 (4), page 12.
 - 43 Ratnapala, S. (2004), 'Vegetation Management in Queensland', *IPA Review*, 56 (4), page 10.
 - 44 Baden, John A. and Pete Geddes (2004), 'Economics for Ecologists', *Bozeman Daily Chronicle*, 29 September. Available at: <http://www.free-eco.org/articleDisplay.php?id=417>
 - 45 Hamilton, C. and A. Macintosh (2004), 'Taming the Panda: The relationship between WWF Australia and the Howard government', Discussion Paper No. 68, The Australia Institute. Available online at: http://www.tai.org.au/Publications_Files/DP_Files/DP68.pdf.
 - 46 The Australian Environment Foundation Website is at: www.aefweb.info.
 - 47 Burrows, W.H., B.K. Henry, P.V. Back, M.B. Hoffmann, L.J. Tait, E.R. Anderson, N. Menke, T. Danaher, J.O. Carter and G.M. McKeon (2002), 'Growth and carbon stock change in eucalypt woodlands in northeast Australia: ecological and greenhouse sink implications', *Global Change Biology*, 8, pages 769–784.
 - 48 Marohasy, J. (2004), 'Why "Save the Murray"?', *Quadrant*, XLVIII (12). Available on line at: http://www.quadrant.org.au/php/author_letter_list.php?author_id=393.
 - 49 <http://www.onlineopinion.com.au/>