Carbon and Landscape Conservation in Australia

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Thank you for inviting me to speak to you today. I share your great passion for the conservation for the Australian landscape.

I want to talk with you, not about future challenges, but future opportunities.

I want to talk about carbon and landscape conservation in Australia.

Introduction

Decisions that farmers make about land and water management, not only in Australia, but around the globe, are of vital importance to the health of our planet.

They produce the food and fibre on which our civilisation is built. They are also the custodians of our precious natural resources: our soils, our fresh water resources, biodiversity.

As a nation we have grown wealthy on the food and fibre produced by innovative farmers. We have all shared in that wealth and we expect to continue to benefit from it.

But the agricultural practices we have imposed on this continent were developed to suit a very different place – the wet, fertile landscapes of Europe.

Today much of our agriculture depends on the acceptance of high levels of natural resource degradation: to our rivers, wildlife, wetlands, and estuaries.

Most farmers don't like it, most Australians don't like it – but that's what the current markets demand because we have not found a mechanism by which we can embed the costs of environmental protection into the price of food and fibre.

Yes, we have made progress: we now have land clearing laws in every mainland State; we have a $10 billion investment program aimed at returning overallocated rivers in the Murray Darling Basin to sustainable levels of extractions; we have made major changes to taxation law that both recognise the unique circumstances that go with farming in Australia; and that also allow farmers to claim tax deductions for undertaking conservation action.

There has been one other reform: a cultural revolution – the Australian Landcare movement.

When history is written, the Australian Landcare movement will be recognised as one of the defining changes of our generation.

Landcare's great contribution to our nation is that it has brought about a fundamental change in the way Australians see our landscape and our place in it.

It has created a new understanding, that we are part of the history of the nature of this unique and ancient land, not some transient European outpost, and that having made this choice, we know that we need to learn how to live sustainably in it.

Our problem is that Australia is a nation of 22 million people on an ancient continent of 7.5 million square kilometres.

We have never had the financial resources to deal with the problems we are confronting.

The Commonwealth government's flagship environment program *Caring for Our Country*, has a total annual budget of $400 million: an investment of less than $0.53 per hectare.

By contrast, the cost of repairing the damage to Australia's natural resources is estimated to be over $80 billion.[1]

We know what needs to be done: we need to get serious money onto farms, so that those who are managing our land and our river systems can get on and fix these problems.

And, we need to get information to our land managers so that they can make better investment decisions to the benefit not only them, but the rest of their community, and for that matter the nation as a whole.

If our nation is to have any hope of living in harmony with our dry, flat, ancient continent, with its unique biodiversity and its soils that are naturally depleted in nutrients and high in salts, we need a radical change to the economics of land and water management in Australia.

And here's the good news: really good news.

If Australia and the world acts in what is patently in our own self interest to address the risks posed by climate change, the new carbon economy has the potential to create an economic platform that could unleash a revolution in landscape conservation across the Australian continent.

Harnessing the Power of Terrestrial Carbon to Transform Landscapes

That's a big call, so let me explain.

The focus in climate change policy has centred on reducing greenhouse gas emissions from energy generation, manufacturing and transport, because this is fundamental to any solution to climate change.

The science now tells us that it will be next to impossible for nations to achieve the scale of reductions required in sufficient time to avoid dangerous climate change, unless we also remove carbon from the atmosphere and store it in vegetation and soils.

It is in this second component that lies at the heart of what I call the economics of nature in the 21st century.

Because rainforests and restored river basins store vast quantities of carbon, we can design the carbon economics of the 21st century, so that for the first time in human history we can grow the world economy without destroying nature.

This is an unbelievably important concept.

A 15% increase in the world's terrestrial carbon stock would remove the equivalent of all the carbon pollution emitted from fossil fuels since the beginning of the industrial revolution.[2]

Terrestrial carbon includes carbon stored in forests, woodlands, swamps, grasslands, farmland, soils, and derivatives of these carbon stores, including biochar and biofuels.

Carbon economics of the 21st century present our generation with the opportunity to not only stabilise the world's climate system, but to also create an economic system that will conserve the world's biodiversity.

Healthy landscapes store vast quantities of carbon. Biodiversity is carbon.

CSIRO has assessed the biophysical potential of the Australian landscape to store carbon.[3]

If Australia were to capture just 15% of this biophysical capacity, it would offset the equivalent of 25% of Australia's current annual greenhouse emissions, every year for the next 40 years.

This represents a gross investment potential of terrestrial carbon in Australia of between $3 billion and $6 billion per annum: an order of magnitude more economic firepower than in the entire *Caring for our Country* program, every year for the next 40 years.

That's a potential investment of between $50 million and $100 million, on average, for every NRM region across Australia, every year for the next 40 years.

Whilst there will be many issues affecting whether this potential is converted into reality, the implications are that a price on carbon presents an economic opportunity of almost unimaginable scale, to pay our farmers and other land managers to help us fix a raft of environmental challenges facing Australia:

- restoring native vegetation along the nation's rivers, wetlands and estuaries;
- expanding habitat to create viable populations of threatened species, which is a foundation stone for the long-term conservation of biodiversity; and
- improving soil carbon in agricultural landscapes, which have been in slow decline over the past 2 centuries.

In October last year, the Wentworth Group released our blueprint *Optimising Carbon in the Australian Landscape*.[4] It puts forward a suite of institutional reforms that we believe are required to turn opportunity into reality.

Fundamental to these reforms is creating the economic driver, by designing the Carbon Pollution Reduction Scheme so that it captures the full potential of storing carbon vegetation and soils.

To our great delight the Coalition and the government agreed to a suite of changes to the CPRS that we believe do put in place the necessary institutional arrangements to do this.

To our horror, 24 hours later, the Coalition walked away from a responsible policy on climate change that took over a decade to achieve.

In doing so they also walked away from what could be the greatest reform in landscape conservation in Australian history.

Despite these recent setbacks, I remain optimistic that we will as a community, act responsibly – we will take the action necessary to address climate change.

And when we do, if we are clever, we fundamentally transform the way we farm in Australia and the way we manage the Australian landscape.

Frontline Support for Landcare

The new carbon economy is fundamental to creating the economic drivers for reform. But that alone will not deliver the optimal outcomes we need.

We also need to put in place regulatory controls on this terrestrial carbon market, so that multiple economic and environmental benefits can be realised, whilst avoiding unintended consequences for fresh water resources, biodiversity and agricultural land.

We need to plan where we plant trees, where we produce food, and where we might do both.

For example, without complimentary land use controls and water accounting arrangements in place, there is a risk that carbon forests will take over large areas of agricultural land, causing adverse impacts on food and fibre production, and impacting on regional jobs that are dependent on those industries.

In some locations, newly established carbon forests could also cause a reduction in runoff into rivers and worsen existing over-allocation problems.

The challenge for Australia is to optimise this new terrestrial carbon economy, to drive investments into improving the health of our agricultural soils, protecting areas of high conservation significance and repairing degraded landscapes, and away from damaging native vegetation and prime agricultural land.

To do this we need to build on the strengths of the institutional reforms that have flowed from the Landcare movement.

The Landcare movement led to the building of the regional Natural Resource Management bodies.

We moved to the regional model because we understood that they are at a scale large enough to monitor and manage the environmental pressures on our landscapes, but still small enough to ensure that solutions are tailored to the unique circumstances of those landscapes.

Their other great strength is that they are owned by the communities we are expecting to undertake these radical transformations.

But if our regional NRM bodies are to have any chance of providing a leadership role in managing the terrestrial carbon economy, our regional model requires major surgery.

It is burdened by red-tape and bureaucracy, they do not have the necessary access to the science and information to help us fully understand what is happening in the landscape, and they do not have sufficient resources for them to do the job we need them to do.

We need less bureaucrats in Canberra and in our capital cities second guessing their every move, and we need more professional support out in the bush where they can use their skills and knowledge to help our farmers make this great transition.

If we are to decide where we want trees, where we produce food, and where we might do both, we need to radically improve the quality of existing regional natural resource management plans and we need to link these new plans into land use planning schemes.

These plans would identify areas:

- restoring native vegetation along the nation's rivers, wetlands and estuaries, to improve water quality and re-connect native vegetation across our vast, fragmented landscapes;
- expanding habitat to create viable populations of threatened species, providing a foundation stone for their long-term survival; and
- identify opportunities in agricultural landscapes for improving soil carbon, to help address climate change mitigation, and improve the condition of agricultural soils.

This is where local government has an important role, because land use planning schemes need to be the primary regulatory tool in guiding the terrestrial carbon investments.

Often these Councils do not have the expertise to do this, so building greater partnerships between NRM bodies and local government is fundamental to such a transformation.

The other great flaw in the current institutional structures is that in some parts of Australia, some Landcare groups and some NRM groups have been working in competition with each other, competing for scarce funds, rather than combining their skills and resources.

This is an unfortunate and unwelcome consequence of poor delivery and cost shifting within Commonwealth and State government programs, underpinned by too few resources to address the scale of challenges confronting these groups.

If farmers are to be given the opportunity to contribute to the creation of healthy and productive landscapes, they need access to the best available information; information that is directly relevant to their farm, and information about the place of their farm in the landscape.

That information cannot be delivered out of Canberra or out of the capital cities.

Rather than competing with Landcare, our regional NRM groups should be charged with the responsibility for providing the frontline support to Landcare: supporting them with access to the best available science, and providing a one stop shop to scientific and spatial information they need to make better on-ground decisions.

This requires Commonwealth, State and Local government agencies to adequately resource the NRM groups so that they can deliver these products more widely and more effectively.

This does not mean going to Canberra and asking for more money.

Instead we should follow the example of NSW in transferring specialist staff out of the central agencies into the CMAs, so that these professionals can get on and do what they were trained to do – deliver science and information, rather than do what they currently do – spending millions of dollars of tax payers money shuffling paper, whilst the front-line support for our farmers and landcare groups collapses before our eyes.

Regional Scale, National Environmental Accounts

There is another institutional reform that is fundamental to realising the opportunities a new terrestrial carbon economy presents for landscape conservation in Australia: building a system of regionally based, National Environmental Accounts.

If we don't know what's going on, if we don't have the most basic information on how healthy or unhealthy our environmental assets are, if we don't have the most basic understanding of

what changes are taking place and why, then we have absolutely no chance of restoring the Australian landscape.

If you don't measure it, you can't manage it.

Just imagine trying to run the Australian economy without economic accounts.

The lack of an environmental accounting framework is one of the great failures of public policy of our generation and is at the core of our environmental problems.

It has resulted in policy and land use decisions that have caused significant and unnecessary damage to our natural environment, it has resulted in the massive waste of billions of dollars of public funds aimed at repairing this damage, and now as climate change imposes its footprint on the Australian landscape, it means we do not have the tools in place to adapt to these changes.

There is an enormous amount of environmental monitoring and data collection already taking place in Australia: in local Councils, regional NRM groups, State government agencies, universities, Commonwealth research agencies, and non-government institutions.

Our problem is that almost none of the data currently being collected is in a form that can be used to guide policy and investment decisions. There is duplication, lack of consistency and waste in how much data is collected, stored and disseminated.

The current State of the Environment model is not capable of delivering these outcomes.

In Australia the first national SOE was released in 1996 – 14 years ago. The second national SOE was produced in 2001. Because the data issue had not been resolved, it effectively repeated the expert opinion of the first SOE. Another SOE was released in 2006 – it said the same as the 2001 and 1996 report.

We now have SOEs being produced by the Commonwealth government, by all State Governments, and in NSW at least, by every Local Council.

Each of these reports has cost tax payers millions of dollars to produce, but none of them are capable of being used in any systematic way to inform investment decisions.

So policy makers are left with no choice: we build 'expert panels' for project after project, program after program. These panels meet to argue over the priorities, because everyone has a different "opinion" as to what's important.

Hundreds of reports, millions of dollars of expenditure and none of them are capable of being used to guide cost effective investments or systematically track change.

And this argument is simply looking at the delivery of existing environmental programs. When we look to the future with carbon offset markets potentially driving billions of dollars of investments, the problem becomes manifestly greater.

For the past decade, Commonwealth and State bureaucrats have been trying to correct the flaws in the SOE reporting model by building a federal data system. Their solution is to ask for more money from taxpayers to collect more data.

Our problem is not data. We are drowning in data. Our problem is that almost none of this data can be used to guide policy and investment decisions.

In 2008, the Wentworth Group, in association with a number of other experts, put forward an alternative model to the current State of the Environment process.

This *Accounting for Nature*[5] model starts with a fundamentally different premise, taken from the 100 years of experience in economic management of the industrial revolution: you create a common currency for all environmental assets, at all scales, make use of the vast range of existing information that is already being collected, and then aggregate this information to produce the environmental accounts that can be used (by Local government, regional, State, and national accounts), to guide investment decisions.

It sounds impossibly complex, but it is fact remarkably simple, and is already being used in a number of programs across Australia - the SEQ Healthy Waterways Partnership being the standout institutional example. And there are many, many others who are champing at the bit to emulate this model.

Let me frame our argument by way of example:

1. The local CMA around Tamworth has a problem with water quality in one of its creeks. The project manager is a chemist by training and decides to collect *E coli* samples, and through this monitoring, pinpoints the problem and he applies for funds to fix the problem.
2. The same CMA, but with a different project manager, has a problem in a different creek. She is a freshwater ecologist and decides to survey frog populations, and through this monitoring, it pinpoints the problem and she applies for finds to fix it.
3. Which project should get the funds? How does a grants body decide whether an investment to improve frog populations in one creek delivers a more cost effective investment than improving E coli levels in another?
4. Multiply this process thousands upon thousands of times and you have the existing program delivery model for most environmental programs in Australia.

In the real world there are thousands upon thousands of environmental indicators which can be used to make thousands upon thousands on investment decisions, each with their strengths and weaknesses.

Frog populations are valid for some issues, E. coli for others.

The great urgency is not bigger information systems: it is to establish standards for the collection of data to create a common environmental currency, so that existing information can be used for a range of purposes, by a range of users, at a range of scales.

In doing we will drive massive cost efficiencies in data collection and information dissemination and we will, for the first time in history, put environmental information on an equal footing to economic accounts.

Conclusion

Let me conclude with these thoughts.

The arrival of Europeans in 1788 has transformed this remote, ancient island continent. We brought with us the industrial revolution, which has created unimaginable wealth.

We have built one of the most vibrant and stable democracies in human history.

But we also brought habits that are incompatible with the long term health of our landscape.

Today we celebrate the 20th anniversary of the birth of one of the defining cultural changes in our nation's history – the Australian Landcare movement.

It has brought about a fundamental change in the way Australians see our landscape and our place in it.

But the realities are that we are a small nation on a vast continent, and even though we know what we need to do to live in harmony with the nature of Australia, we have never had the economic resources to implement these changes at scale.

Action on climate change can change all that: healthy landscapes store vast quantities of carbon; biodiversity is carbon.

With a responsible emissions reduction target and a price on carbon, a properly guided terrestrial carbon economy has the potential to drive an economic revolution in landscape conservation across our vast continent, a revolution that can last for generations.

Just imagine what this can achieve.

With a price on carbon, by expanding the role and skills in our regional bodies to take Landcare to a new level, and with the building of National Environmental Accounts we will transform the Australian landscape.

Rather than being the generation that condemned humanity by its mistakes, history will record our generation as the generation that became true custodians of the remarkable land we call Australia.

The choice is ours.

Notes and References

[1] Virtual Consulting Group and Griffin NRM, 2000. *Repairing the Country: a National Scenario for Strategic Investment.* Prepared for the ACF/NFF and the National Land and Water Research and Development Corporation.

[2] Based on 2007 IPCC 4th Assessment Report, Figure 7.3 (pg 515) for stocks of carbon, and updated with rates of flux from Table 7.1 (pg 516). The total volume of all carbon emissions from fossil fuels since the beginning of the industrial revolution until 2005 is estimated to be 320 Gt of carbon, and current stock of terrestrial carbon is estimated to be 2271Gt.

[3] CSIRO, 2009. *Analysis of Greenhouse Gas Mitigation and Carbon Biosequestration Opportunities from Rural Land Use*. For the Queensland Premiers Climate Council.

[4] Wentworth Group of Concerned Scientists, 2009. *Optimising Carbon in the Australian Landscape*. October, 2009.

[5] Wentworth Group of Concerned Scientists, 2008. *Accounting for Nature.* A Model for Building the National Environmental Accounts of Australia.