

# HUNTER VALLEY RESEARCH FOUNDATION

## 2009 LECTURE SERIES



Lecture 3

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Newcastle City Hall

### Dr John Williams

NSW Natural Resources Commissioner

*Title: Our Landscapes, Our Future: foundations for a democratic civil society*

Wej, thank you very much for that warm welcome. I appreciate the fact that you folks are prepared to come out when you could be watching the US Open, which I'm sure my wife would rather be watching than accompanying me here. I do appreciate the fact that we are able to have this conversation because I think it is very important.

When we look at the foundations of a democratic society and a civil society within that, what is often taken for granted is the land and landscapes, the natural resource attributes and characteristics that underpin our wellbeing. But I think it is time that our society realises that unless we give very high priority to looking after our natural resource assets – our land, our water, our air, our vegetation, and our biodiversity – we put at risk the very society itself. It is certain that we put at risk the choices that we have.

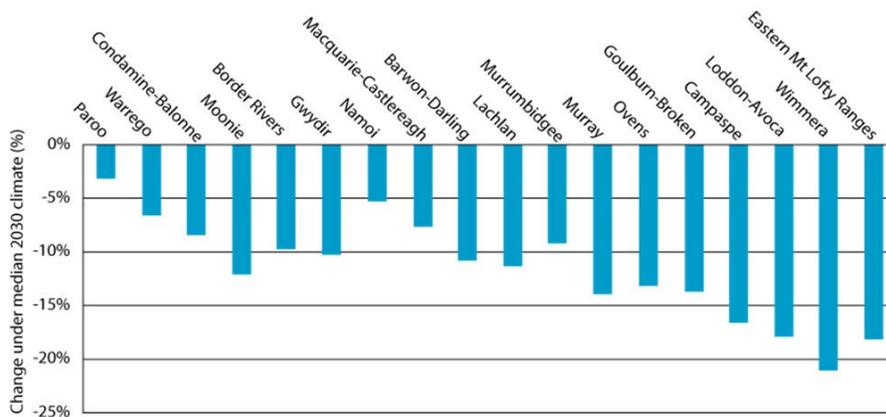
One of the issues that we need to get our head around is that of climate change, and you would have heard a great deal about that. But climate change is the driver for the impact that it will have on our water resource and our water security. The energy insecurity that we face as we move from an economy based on energy generation through fossil fuels to one that will be based on other sources. The technology to actually do that transition, apart from the political will and power to do it, is just enormous yet I wonder if our society realises how hard that is. The economic instabilities we have seen in recent times and the issue of global food shortages is very real and pressing. The one that sits as the elephant in the room, and we have to deal with this soon, is the population and development pressures that are very real in Australia and I want to talk more about that.

If we look at a recent CSIRO paper that was published by Graham Turner, *A Comparison of the Limits of Growth with 30 Years of Reality*, it says that the real world data basically supports the limit to growth model. Those who are old enough to remember the 1970s publication, *Limits to Growth*, knows that it shows that for the first 30 years of the model the world has been tracking along, the unsustainable trajectory of the book's 'business as usual' scenario. We need to remember that there has been analysis done to show that the Club of Rome suggesting that unless we get our natural resource management and our environmental management better done in our democratic and a civil society, then we face an awfully unsustainable future. Let's look at what that might be in more detail.



We know the impact on the Murray/Darling, which we can see from this picture of Lake Alexandrina and Lake Albert at the bottom of the system, is in desperate circumstances. This is due not just to the drought but also to our water allocation policy that was established in seasons of plenty. The adjustment to the over-allocation and to the climate variability, and the adjustment to climate change, is a challenge that we as Australians are yet to meet.

Impact of future climate on surface water availability



This graph is CSIRO data to show, under a climate change future scenario of a 'moderate' impact, the loss in water availability to our major river systems of the Murray/Darling. You can see that the losses will be a reduction in flows ranging between five and 20 per cent. It is important to set the climate change impact that shows in this graph against the reduction and variability that we have experienced in the last 10 years, which is a reduction of some 30 to 40 per cent, under the current climate variability and what existed in the Federation droughts, and in the droughts of the 1930s and 1940s. And we are having them again. The climate variability that we have to manage sits as a background printing upon which climate change must express itself. We need to keep that in mind.

We see the impact on our coasts, native vegetation, coastal lakes and farm lands are threatened by development and the Hunter Valley is no exception to that. The other issue is that the population can be expected to grow by another two million on our coastal system in the next 15 to 18 years. We have a population pressure on coastal systems like that.



This photo shows Merimbula on the south coast. Seventy five per cent of rural population is in coastal local government areas and the coastal growth rate is around two per cent, on a national average of 1.2 per cent. We see a 60 per cent higher growth rate on our coastal systems and in NSW, Kempsey is growing at a rate of 2.4 per cent and the Shoalhaven at 2.2 per cent.

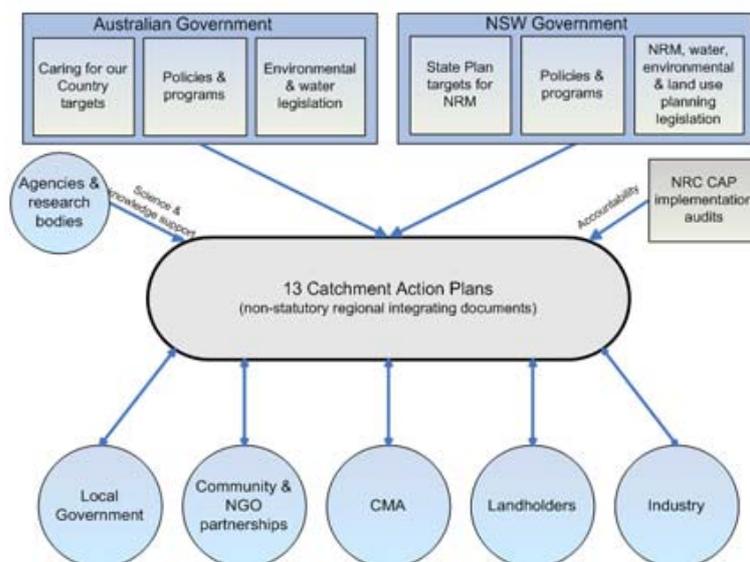
Population pressures will increase and by 2050, 42 per cent of the coastline between Nowra and Noosa is expected to be urbanised. The remaining agricultural land needs to be even more productive under climate change because it is our coastal systems that will retain the rainfall regimes that we need for our agriculture. We are going to have to deal with this conflict between population growth and urban development and the need for our well watered coastal lands to provide the basic food systems we need as the water availability in our inland river systems, as I showed you earlier, will continue to decline. The remaining coastal ecosystems will be pushed to the brink of their capacity to withstand that change. It is where we all want to live, where we all want to recreate but are we going to spoil the very essence of why we want to live on the coast. It is a choice we have. It doesn't have to go that way and I hope I give you some hope through this talk that we can adopt some new institutional arrangements and new processes that will help us, as a society, to avoid those outcomes.

Our decisions must determine our future. Our future is something we make. It is not something that is visited upon us. Our future quality of life depends on the health of our natural resources. We can make that case so readily. Everyday actions and decisions we make as a community determine the quality of the air we breathe and the food we eat. They determine the quality of the water we drink, of places where we live and play, and our spiritual connection to these places. Natural resource management, and looking after and managing our environment, is not a sideshow for a democratic society. It is fundamental to looking after the foundations upon which the wellbeing of that society depends.

Let's look at our future. Climate change, water shortages, food and energy insecurity are our future. We know they are on the horizon and we need to maintain our biodiversities so that ecosystems can provide the many services that are fundamental to sustaining our life and maintaining our wellbeing. This might be a bee population that pollinates our fruit and vegetables, or the sequence of vegetation in a riparian zone that guarantees the quality of the water that we drink. Our society's challenge in the future is to ensure that we look after the foundations so that our economy, which depends on the health of our natural resources, is in good shape.

We need to maintain the productive capacity for long term resilience. I introduce the word resilience, which some people say is jargon, but resilience is about an ability to have a system that can suffer and manage shock and change. It is a different concept than efficiencies. You might have things that are very efficient but that fail totally, whereas a resilient system will be able to take the shock and change and take us forward. We have got to achieve that through stewardship and through our careful decision making and not erode that resilience for shorter term benefits. A resilient system will always require us to back off, to some extent, our short term productivity but in the long term gives us the resilience to cope with the shock and change which we know we are confronted with.

How do we meet this challenge? It is about making better decisions now to avoid future costs. The costs of making environment and natural resource decisions that are poor are absolutely huge. At the moment, the Australian economy has allocated nearly \$14 billion to repair the Murray/Darling Basin because of past decisions that we all have made in over-allocating water in that system and living in it in an inappropriate way. Fourteen billion is about one-third of the actual initiatives that have been part of the stimulus package. It is a large amount of money and it is just one example of the huge cost when we get our natural resource decisions and management wrong. To bring about a better way forward, in my view, governments, communities and individuals, and industry need to form the partnerships that look after the foundations that determine our wellbeing. We are starting to build these but there is a long way to go. In many ways, natural resource management has been something you did when you had the main job done and you had a little bit of time on Sunday afternoon to do a marginal add-on extra. But it's not like that. Natural resource management should be core business, like education, health and defence. In my judgement, it should be funded in the same core manner. At the moment, much of natural resource management is funded a bit like a chook raffle. We raffle off a bit of Telstra and we run for a while. It's not good enough, to my mind, when these things we are doing are fundamental to our long-term wellbeing and prosperity.



We need to do that and make it main core and fund it appropriately. But also, as the diagram above shows, we need to get our institutional arrangements and our interactions between government, community and industry organised in a way that builds ownership and empowerment at the grass roots level and with a regional frame to it, so that we get the connectedness that we need. Improving production and conservation, and the community attitudes towards them, need to be outcomes that we achieve together. We have got to move on beyond the polarisation of conservation and production. We must have both and have them in a way that enriches us and empowers the people who ultimately are responsible for those resources, which is people in our communities, in local government, in our catchment management authorities and agencies. It is us, the people, who need to take responsibility and be empowered with knowledge and information to help us make those things come together. It is about building the capacity to be sustainable. That means we have to have people who understand how things work and not just manage crisis situations through a Development Application that goes strange, like we have in Catherine Hill Bay.

To try and address this, the NSW Government under Bob Carr, put some important reforms in place. One of them was to set out what we are trying to achieve, what is the goal. The Natural Resource Commission was set up, working with communities and agencies as best we could in the time frame, to determine what was a reasonable aspirational goal for NSW. That is that we seek to find resilient, ecologically sustainable landscapes functioning effectively at all scales - that means things can work at the size of a football field or hill slope, or a river system or catchment – that support the environmental, economic, social and cultural values of our communities. I think everyone would want to do that but how do we actually do it?

It is about maintaining and improving the condition of what we have set as the State-wide targets for water, land, biodiversity and community, people. We do not isolate people, who need to have sufficient economic sustainability and wellbeing to look after their resources and the capacity to do that. If that is not there, the resources can not be looked after, the land, water and biodiversity. This resilience is the ability to recover from setbacks and adapt to change. Resilience is not only required of the actual landscape and its physical features, but also of the community, which needs to have the resilience to cope with disturbances and shocks, such as drought and climate change. In building ourselves the institutions of planning, in the catchment management authorities and local government and state agencies, we need to be able to examine whether our communities are robust and able to change and cope with shock. The communities of the Murray/Darling Basin, for example, are absolutely in shock. Will we be able to build, as a nation-building process, communities that will be resilient to learning to live with probably half the amount of water than they currently have been able to use? That is what resilience might mean.

Resilience is equally important in environments that are complex, rapidly changing and uncertain. That certainly characterises the nature of the way we are in Australia. Things are uncertain in how our climate is changing, how we are populating, how things will work. I've recently returned from doing some work in Central Queensland, in the Biloela/Gladstone region. You might remember that country was cleared in the '60s of the brigalow vegetation to establish agriculture. Now we are seeing a lot of that agriculture starting to unwind as water resources and groundwaters that were exploited in that period are no longer there. Communities are faced with change and new circumstances all around them. How do we re-build those communities? They produced a lot of food in cereals and other irrigated products but the basic resource base was over-allocated and with the climate change, or climate variability I believe, that is no longer so. We need to be able to build resilience to be able to cope with the complexity and the rapidly changing circumstances that we have.

The approach that NSW takes to managing for resilience is through catchment action plans that are implemented by catchment management authorities (CMAs), the sort of body that Wej (Paradice, HVRF CEO) is Chair of for the Hunter and Central Rivers. The CMA provides a community interface with government to build a non-statutory plan that addresses how we manage the Hunter system so that all those ecosystem behaviours and performances that we want actually hang together and are connected.

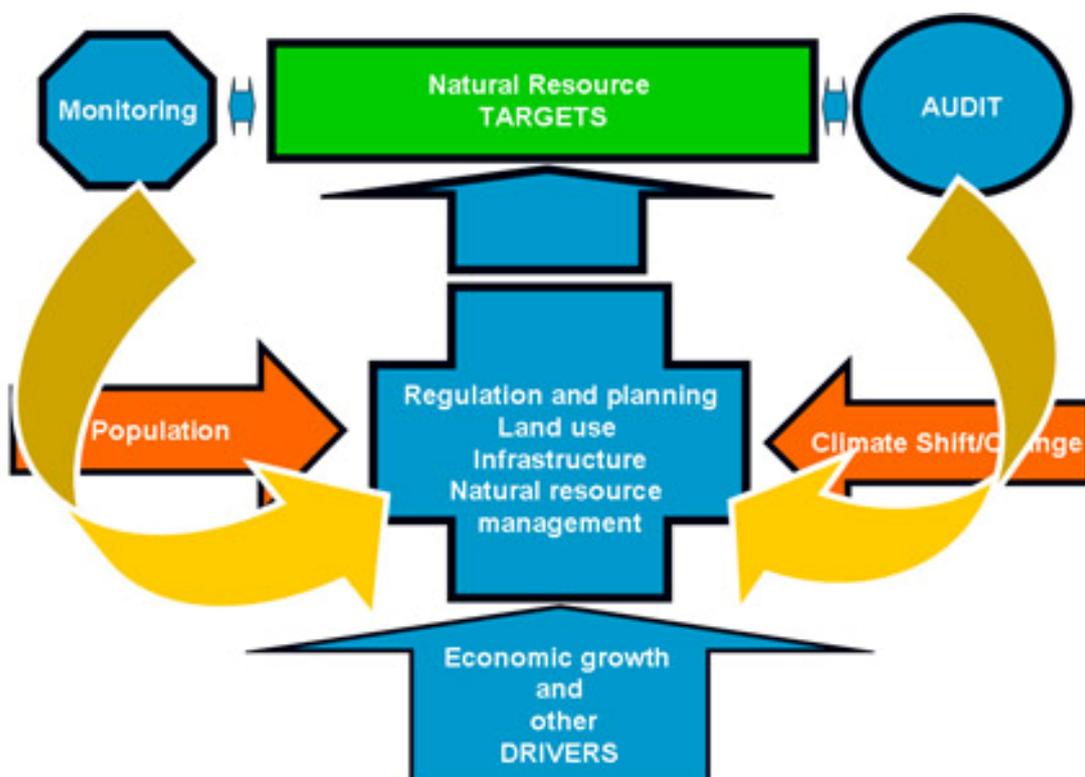
The aim is to integrate NRM (natural resource management) within the region, managing the water, the biodiversity, the land and the community values together. It is a huge challenge but it is a new concept that appears to be creating positive outcomes. The Natural Resources Commission has examined the process by auditing seven of the 13 catchment management authorities across NSW last year. Our evidence is that implementation of those catchment management authorities are starting to happen in a

way that is very progressive and positive. It is not all perfect but the principals seem to be standing up to the test of being put into practice.

State and Commonwealth agencies provide the policy frame, the legislation and the technical experts that inform and support the CMAs. That is the framework that was set up when these reforms were introduced and we have added to that. The fact that the NSW government has supported the CMA and the regional models in the financial sense, by allocating some base funding of nearly \$40 million to the bodies, plus the Australian Government's support, to give this program of regional planning and progress a reasonable chance of success. It is still early days but it is part of deciding if this is the way to have a civil society that looks after its natural resources by having an interface body between community, and all the groups within that community, and government. I think it has a lot of potential and our examination of it suggests that it is a progressive way to go.



This is a picture of the catchment action plan for the Northern Rivers, which is a 10-year strategic plan, and is a regional and state priority. It is not a CMA plan, it is a plan that should be owned by all the people in the Region. As Judy Henderson, who is Chair of Northern Rivers, says “if it is not a plan that everybody can hold to then we need to make sure that it is”. I think that the catchment action plans should be prospectuses that set out for government, private and investment interests the best way to look after the natural resources and environment that underpin our wellbeing as a community. It is a guide to the best actions to deliver integrated natural resource management.



Trying to see how this works together, we can look at this reasonably complicated diagram. You can see that we have at the top the Australian Government and the NSW Government policy and regulatory frame for natural resource management. The State Plan has natural resource targets which are to maintain and improve the condition of 13 key assets, from our rivers and lakes, through our biodiversity, as we've talked about, and the Australian Government has their frame. The issue for the CMA, the local government and community is to try and pull all that together into an integrated plan, which we call a CAP. It is that CAP that then should inform the local government planning, and the local environment plan. In NSW we have local environment plans but there is not much environment in them. A local environment plan should be spatially explicit as to where the natural resources are. The environmental assets that these communities cherish and need to sustain themselves in the long-term need to be identified and then linked in to a regional scale. That is the frame that we have brought into being with the reform process in the last four years. I think it is worthy of working hard at to see if we can make it work better and better.

Is it working? The reforms did bring broad scale clearing to a halt but I think we have a smouldering injustice in NSW between rural communities, which have to work inside the Native Vegetation Act, and urban centres, where the Act does not apply. At the margins, in the peri-urban and the rural residential area, the two Acts are not in clear definition. The consequence is that it is much easier to take out a whole lot of vegetation if you are in an urban centre than it is if you are in a rural centre. So who is paying for looking after biodiversity? It seems that the rural sector is picking up the tab and the urban sector maybe is getting a free ride. That is radical stuff but I think as a civil society we need to share the responsibility for looking after our biodiversity across all sectors of the community. Currently I think we have some way to travel.

Two million hectares of native vegetation has been enhanced and protected and rehabilitated in this period and there is certainly a large area of land that is much better managed to protect it from soil erosion, particularly wind erosion in NSW. Remember the dust storms of the 1930s and 1940s? These droughts that we are having now are much like the 30s and 40s droughts in terms of rainfall distribution - maybe a little severer because of the climate change impact on higher temperatures and higher vapour transpiration - but the better use of agricultural land and minimum tillage and conservation tillage, has meant that those dust storms now have been very much less than in those equivalent dry periods of the 30s and 40s and those around the turn of the century and the Federation drought. There has been progress.

Significant invasive species control programs have been carried out. From our auditing of the catchment action plans in the CMAs, we think that, on the whole, they are being implemented. The CMAs are demonstrating resource condition change and are moving towards more resilient landscapes. The point is that we can see benefit at the small scale at the hill slope, in the farm paddock, the riparian zone, and in some urban areas but when we get to the larger regional scale, we have greater difficulty seeing the impact of the investment yet. There are some examples where we see consistent investment over a long period of time, such as the approach to riparian vegetation in the Hunter, which has been worked at consistently for 30 to 40 years. A little bit of money directed regularly and strategically over a long period of time is showing benefit. Money spent and splashed here and there without a consistent strategy is showing very little benefit, which will not surprise you.

I want to show one example of what can be done. In your own region, in Lake Macquarie, through an integrated 10-year plan of improvement and an investment of

something like \$27 million, we've been able to improve the seagrass coverage in the Lake by 2.5 million square metres. If you want to know how big that is, it is another way of say 250 hectares but it is a substantial improvement. The water clarity has increased by about 96 per cent over this period of investment because we have had a clear strategy, and engagement, not without difficulties, between local government, community and the CMA over time, with a lot of community involvement to make that investment happen. Hundreds of volunteers have planted some 600,000 plants and rehabilitated wetlands across the Lake Macquarie system. You can see that when we get a clear strategy, a good goal, real commitment from our community, and a serious investment over a sensible time frame, we can look after an asset. That asset, Lake Macquarie, is absolutely fundamental to your wellbeing as I'm sure most of you know.

Is it enough? Our past actions have had a significant impact on our natural resources. We have recent experiences of prolonged droughts and extreme weather that damage them and I have shown you some photographs of that. We are really uncertain about how climate change will impact. We know we have to prepare in a flexible manner for that impact. But building resilience into our natural resource and social systems is more important now than at any time that Australians have faced.

So what can we do to build resilience? The first thing is to identify and protect the fundamental assets. We need to respond and adapt to the changing conditions and the most important factor is improving the institutional arrangements for managing our natural resources. We have made some starts but we need to get consistency and continuity to achieve that. We need to support environmental stewardship, where we value natural resource assets on private land, as well as on public land, and where the beneficiaries of those natural resource assets pay for their maintenance. Let me give you an example. If a private individual has a salt marsh near Coffs Harbour, that feeds into the fish hatcheries of an estuary where a major tourist resort sits, the person who maintains the salt marsh is providing an ecosystem service and deserves a stewardship payment from the resort and from the community generally for his role in maintaining his marsh in a productive, functioning ecosystem rich manner.

That is the sort of issue we have yet to get on the table in any substantive way. We are starting to see it happen in the stewardship program for Box Gum Grassy Woodland that the Federal Government has initiated. The opportunity for this, and a new way of looking at our natural resource assets and paying for them to be maintained, is quite exciting. We have got to optimise the learning and innovation and keep it happening.

It is about balancing values. Should we farm the land or mine the minerals? Protect the native forest on it or sub-divide it? Do we divert water from our rivers to the farmers who supply our food? It is not the farmers taking the water out of our river systems, it is you and I, for the food that we eat. We need to remember that. When we eat a lettuce, we have taken water out of a river system. Or do we flood the wetlands that our native birds rely on as a breeding ground, a migratory path maybe? Or do we flush the estuaries for the eco-systems that yield our seafood? Do we take the water for the grain crops and the rice at the top of the catchment and thereby damage the estuary at the bottom that provides our prawns, oysters and fish?

It is about balancing and understanding that river systems, estuaries and lakes are connected. We need to understand those connections. We need to change the myths that drive Australian thinking about water resources, that is, any water that runs to the sea is wasted. Of course it is not wasted. It is generating the nutrient balance for the fish reserves, the oysters and the prawns that we all want. Sure we need rice and grain from

irrigated crops, and dairy industries, but we have to try to balance the functionality of the whole system.

Do we preserve the natural beauty of our coastline or develop it so that more people can enjoy living near the beach? By developing the coastline, we risk ruining the very reason that we want to live near a beach. They are the big issues. So how do we go about it? NSW has put some good things on the table. They are still ephemeral in many ways but they have some substance to them. First let's agree on what we want to achieve. We want to maintain and improve the condition of our natural assets. That is our civil society saying we don't want to damage the environment any more. We set those targets and the regulation and the land planning, land use, infrastructure, and natural resource management are all directed towards achieving those targets, recognising that the planning and regulation has to manage the population pressures.

How do we put the population in place, yet maintain the delivery of those natural resource targets and goals, given the fact that we have climate shift and variability, as well as change, and we have to recognise our economic growth and our other drivers to do this? The answer lies in putting those pressures together, through our regulation, planning, land use, our infrastructure implementation, and our natural resource management. That all needs to come together, to deliver the natural resource targets.

Two more important things are the need to monitor how we are going with those targets (and currently we don't do this very well, although it is improving), and the need to audit the progress and use that information to feed back into the way we are doing business. That is how we will build resilience in this sort of model. It is a matter of pulling all these things together but one of the strongest things is knowing what you are trying to achieve. Ask the question of your local government and your local planning body, what are you planning for? Is it to maintain and improve those assets upon which our long-term wellbeing depends? That seems a reasonable goal for planning and one that I think you should adopt. You need to adapt to changing conditions and recognise new opportunities. In times of change, new opportunities arise. Adapting requires significant shifts in our attitudes and behaviour. Climate change may shift how and where agricultural production can occur and where it is appropriate to build our cities and towns, with rising sea levels and changes to where our flooding lines are drawn. There is a lot of change on the horizon that we have to deal with and our planning and institutional arrangements, and feedback mechanisms in a civil society, need to be able to make that accommodation. If we freeze ourselves in to rigid regulation that does not recognise the circumstances we are in, then we have a recipe for great pain.

Rural communities should benefit from emerging markets for carbon and provision of environmental stewardships. There is a whole lot of possibilities on the horizon with the carbon markets and sequestering carbon in our soils, our vegetation, in our landscapes, that can transform regional and rural Australia in profound ways. As I said, the environmental stewardship programs provide future possibilities. We need to build in to our economic systems the real market values of environmental services so that our economics does not treat the environment as an externality all the time. This emission trading scheme and putting carbon into the economy means that no longer is the carbon dioxide that we put into the atmosphere an externality. It is now a part of the economic system. My judgement is that in time we will build all those impacts on the environment into the economic analysis so that we actually price the consequences of what we do properly.

Let us talk about the institutional arrangements because we need an integrated approach to resolve these complex issues. Centralised, siloed institutions are not designed for the kinds of challenges we face. Institutional arrangements need to evolve in new directions and resolve our future challenges. We need to keep open minds on this and shake our governments to think of civil, institutional arrangements that help our communities, our local government, our regional bodies to work together in ways that are flexible and adaptable and able to deal with the problems and complexities that we, as a civil society, face. The regional NRM provides us with a framework to do that.

We have got a lot of learning to do and functionality to achieve and there is significant opposition to having another level of organisation in society beyond local, state and federal government that must be overcome to achieve a regional approach. But the natural resources and environment are different here than elsewhere. How we manage Lake Macquarie is very different to how we need to manage Moreton Bay in Brisbane. We need a regional approach that takes on board the community aspirations and understanding but also the regional and local ways in which your ecosystems function. The sorts of issues that are important to western NSW are very different than the issues that we need to resolve in the Southern Alps and in the Murray. We need a regional approach.

We need to get an alignment in our planning with natural resource management. We have such a complex array of government plans and the environment and natural resources are usually tagged on the end rather than being the purpose of the planning. In NSW we have plans for the allocation of natural resources, the water sharing plans that are largely disconnected from the plans that guide our land management, investment and protection. The catchment management plans are not connected to the water sharing plans in the way that they could be. Our landscape planning for population pressures are disconnected again. This issue of determining the land use in a local environmental plan (LEPs) needs to be tied back to a natural resource planning appropriate scale.

There is a lot that could be done to integrate and connect our statutory and non-statutory planning. It currently is not. In aligning our planning we have got to build a stronger technical base into our state agencies to address the regional and local issues in managing the resources. We need to recognise that the opportunity for the Federal Government to integrate and play a role in regional planning merits a great deal more thought.



We have agreed targets, that is, the 'maintain and improve' principal for the assets we hold dear. But we have catchment action planning, a CMA responsibility, and that goes out to sea to three nautical miles, then we have a local environment plan nested within that, and those together need to be able to deliver, along with the policy and agency material, the targets that we have set for ourselves. We need an integrated approach that links planning and regulation to the delivery of natural resource targets.

The support for environmental stewardships needs to be appropriately funded by regional bodies, which could be the purchasers of those services on our behalf. That is a long way off but I think that there is evidence in Victoria of that starting to work. Locals receive support to act as stewards for the landscape they live in and that is resourced through some regional structure and taxation process. We might even think about having a GST on food that feeds back to looking after the resource base on which our food is produced in a sustainable manner.

There are all sorts of opportunities that we need to consider but it is about removing some of the unnecessary regulation and focusing on the outcome, and building partnerships between our society and our local, regional and state government bodies. It is partnerships that will make us strong and able to cope in a resilient way. The issue of recognising a stable funding base is critical, where natural resource management is a core business, funded from the budget just like the other necessities we all depend on, our health, our education, our defence and our public transport.

We have to optimise learning and to pull the knowledge together. There are some guidelines provided through the standard that we are trying to develop in NSW of how to go about managing our natural resources. Yesterday's knowledge probably won't solve tomorrow's problems. That is why I'm delighted to be speaking here at the Research Foundation's forum, because it is research and knowledge that is made available to communities and not hidden away in dim corridors of power. Making knowledge available to people to empower them and help them gain the understanding they need to make good decisions is what it is all about.

The future challenges need all the forms of wisdom we can draw on. We need to access the best available scientific knowledge, learn from on-the-ground experience, and encourage new and insightful approaches. Learning can connect people to their community. As Australians, we have now become disconnected from our environment. Many of us had relations and family who were connected to the farm and most of us have now lost that connection through urbanisation. We are the most urbanised population in the world. Understanding where our food comes from, for my grandchildren, is quite an amazing exercise. They have such a disconnect they have no idea where it comes from and I'm enjoying exercising a grand-parent's role in making sure that they do understand the environment and the source of their food, and how it all hangs together and provides life for them.

It is about having a culture that encourages innovation. Our future is in our hands. It is a time of change and we can not afford to be asleep at the wheel. It is a time of turning challenges into opportunities. We have to make choices and it will pay to be on the front foot. Adaption and innovation will be important. It is not the time to panic. But it is the time to think and make serious change. Because I think it is possible to build resilient communities and landscapes that are in harmony with the Australian landscape, this sunburnt country. That is the challenge for our democratic, civil society. To be able to build our communities based on a resource base that is resilient and able to sustain our wellbeing into the future. Thank you.