

ADDRESS BY

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FULL DAY SEMINAR

"CLIMATE CHANGE AND THE ECONOMY"

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Good morning, ladies and gentlemen; thank you for the invitation to address your seminar. The Governor's Leadership Foundation is a magnificent concept and deserves its already proven success, including through an active alumni.

I wish to speak on the urgent imperative and thus the leadership requirement, to change the way we manage the Australian landscape for both food security and climate change reasons.

The Challenge

Almost daily we are told that Australia and the world is running out of time to address climate changes and a related series of challenges that include our food integrity, water security, land degradation, future energy options, our globe's increasingly unsustainable population growth and resource demands and the need to substantially increase our food production.

To put it simply, by 2050 the globe has to sustainably double its food production with its agricultural land decreasing by around 1% per year, with that land reducing in fertility and with substantial reductions in fresh water availability.

In Australia some 300m of our 550m hectares of agricultural land is degraded. Salinity, aridification, the draining of our wetlands, destruction of flood plains, severe damage to riparian zones, overuse of chemicals and non organic fertilizers and soil carbon loss have all been contributors to this very unsatisfactory state of affairs.

I believe that the interrelated character of these challenges can be best met *through a comprehensive coordinated approach* and that improved land management practices are key to that approach.

I suggest that agriculture and land and water management more broadly, must play a significant role in meeting Australia's climate change adaptation or CO₂ drawdown imperative, and that these proven leading practise processes can also play *a more important role* in ensuring our longer term Food Integrity¹, and by extension to the well being of our environment and communities.

To realise these opportunities, Australian farmers and land managers will have to change their management practices to more sustainable bio farming systems, reducing their reliance on increasingly scarce and expensive inputs – fossil fuel, extracted minerals, chemicals and water. We will need to restore the biodiversity of our landscape through an investment in targeted reforestation and bio diverse revegetation.

Change on such a large scale will require strong leadership, sound supporting policies, extensive education and focused, effective incentives.

So what must we do?

¹ Food integrity encompasses quantity, quality, nutritional balance and value whilst being produced through sustainable systems

Essentially we must manage our water, soil, plant and animal systems better, by regenerating our landscape through a greatly improved understanding and capacity to recreate where feasible, the unique natural processes that govern productivity and resilience of our soils, in a nationally coordinated way.

Of paramount importance is to recognize that water is our most important national physical asset and that it must be owned by us all, but strategically managed at the national level and probably priced to reflect that importance.

Put simply, what happens to water when it falls on our landscape as rain, has to be managed in such a way that every drop is utilized to the maximum advantage; whether in maximizing its capacity to hydrate and fertilize the soil; to replenish relevant aquifers or when saved through capture from rooftops, roads and storm water drains or recycled from waste; it all has to be properly managed.

Regrettably in my view, our current approaches to water management are focused mainly on the 'on average' 12% of rainfall that end up in our streams, rivers and eventually our dams; the water we actually see.

Another 2% falls on our rooftops and roads. However the greater potential for efficiency lies in making better use of the 86% of rainfall initially falling on our soils of which a staggering 50%, or 25 times the quantity held in all our dams wastefully evaporates because it cannot filtrate the landscape.

This is where the importance of organic carbon in soils comes in. A properly structured soil with appropriate carbon content will allow rainfall to penetrate and be initially stored in ground (where it should be), for use by plants and animals. It will also allow the water to filter slowly recharging our waterways, particularly during times of limited rainfall.

Our landscape used to be characterised by 'in soil' reservoirs; reed covered billabongs, meandering waterways and fully functioning floodplains. Historic soil sampling collected and analysed across South Eastern Australia in the 1840s revealed carbon contents between 5-10%; today it is more likely to average around an inadequate 1.5%.

Our landscape management since aboriginal and European settlement has altered this naturally efficient system. We all need to recognise the fundamental importance of carbon, not only in the structure of a healthy soil, but in allowing for up to eight times its own weight of water to be held in that soil. Further it facilitates the availability of minerals and nutrients to plants through the enhanced essential biological activity of fungi and microbes. Healthy soils means healthy food and animals and by extrapolation, healthier people.

We should note that poor dietary habits probably account for up to 50% of our \$100bn annual health budget.

I note also, that Professor John Crawford, one of Australia's leading soil scientists, has recently highlighted that farms can better cope with floods and drought if soil carbon levels

are built up. Given our earlier extended drought and now our recent flooding experiences and the plans to mitigate future events, this claim requires further serious and immediate examination.

Improved water use efficiency and soil health contribute directly to our ability to regenerate forests and bio diverse vegetative cover in our landscape. Professor Willie Rippl highlighted a basic truth in a recent writing when he said: “that trees and other plants can, and do, have a profound influence, not only on how the landscape functions, but on climate, through their ability to moderate temperature.” Unquote. As we have massively cleared land of trees for fuel, urban development and agriculture, we have unwittingly contributed to some of the climate change characteristics we face today.

These key fundamentals, of managing water through a ‘front’ rather than ‘end’ of pipe approach, improved soil health founded on enhanced carbon content, and revegetating our land, are the keys to a healthy, sustainable landscape and no other challenge is more important in my view.

The positive impact for Australia’s response to a Changing Climate

To be effective in meeting true climate change outcomes we need solutions that can ideally contribute to *drawing down legacy, current and future CO₂ emissions* – reductions to future net emissions are not sufficient. The sequestration of stable carbon is the imperative.

Whilst CO₂ levels have risen substantially and quite quickly (399 ppm) and can be seen as a contributor to the climate change problem, carbon also provides the solution. Carbon as the fundamental building block of life, must be recognised as a key element in fostering the stable climate and bio-systems upon which our wellbeing and survival depends. Further, as our land continues to degrade, fundamentally altering the hydrology of our soils and landscape and contributing to the increasing warming of our climate, it is vital that carbon is returned to our soils to restore their hydrology, bio-productivity and resilience and to facilitate carbon sequestration.

Australia currently ‘emits’ the equivalent of some 160 million tonnes of carbon annually (160 mil tC/an)². While this is only 1.6% of the global net carbon deficit of 10 bil tC/an, Australia has further responsibilities, in that:

- Our advanced affluent society has one of the highest per capita emission rates.
- Our indirect emissions through the export of over 300 mil t/an of coal and gas are significant.

² Approximates to 600mil tCO₂/an through a 1:3.7 conversion factor

- The planned doubling of these coal and gas exports in the near future will further exacerbate indirect emissions.
- There is extensive, relatively undeveloped land areas for farmers to simply and effectively bio-sequester carbon and help lead in the biological capture and storage of carbon to help offset global emissions, and finally,
- We possess the advanced technological and practical capabilities, albeit uncoordinated, to help address this global imperative.

To meet our direct and indirect responsibilities Australia could bio-sequester 1 bil tonnes of carbon annually (1 bil tC/an)³. To do this we need to more closely emulate nature and regenerate the photosynthetic capacity of part of our often degraded bio-systems. The regeneration of just 20% of Australia's 550m ha of rural land at the confirmed, conservative rate of up to 10 tC/ha/an, would bio-sequester 1 bil TC/an and meet our total legacy, current and projected sequestration target.

Regenerating these variably degraded soils would not only substantially contribute to the global atmospheric carbon draw down target, but help to secure essential water / food sustainability and thus social stability.

Food Security

Despite the good farming practices of many of our farmers, together with some good science, the realities of an increasingly arid and degraded landscape with severe salinity and erosion, more erratic and unreliable rainfall, diminishing river flows and available groundwater, high evaporation losses, and increasing input costs for fuel and non organic fertilizers, will impact significantly, not only on the productivity and viability of agricultural enterprises but also on the health and well being of every Australian.

We have the land, the people, the skills and the imperative. Leading soil carbon farmers have confirmed the capacity to sequester up to 10tC/ha/an through innovative land management practices, throughout many regions and sectors of Australia. Whilst small in number now – probably less than 5000 - with relevant incentives these practices could be extended successfully and quickly to involve at least 30,000 of Australia's 120,000 farmers.

Practical action – a way forward

Clearly, catalysing these fundamental paradigm shifts will require a considered approach and the will to implement change. Leading and managing this change will require continuing dialogue with a wide range of stakeholders, including governments, specialists, numerous interest groups and of course our farmers.

³ 1 bil tC/an target offsets current (160 mil tC/an + over 300 mil tC/an from coal and gas exports) and planned emissions (increase coal and gas exports of over 350 mil tC/an)

I suggest that the level of coordination required, demands that the matter be given as a key responsibility to the Deputy Prime Minister and each state Deputy Premier or equivalent. The plethora of over 1400 regulations, the vested interest by various groups and the reluctance to change by many farmers, is inhibiting progress. What we need, ladies and gentlemen, is a unified vision for Australia.

Farmers need to be seen not just as growers of food but as the primary custodians of our landscape and rewarded accordingly. I head a not for profit organisation called Outcomes Australia which plans to select at least 15 case studies of what we assess as leading proven practice in landscape and water management, across a variety of land types and regional areas, that are producing quality products in a sustainable and profitable manner. They will broadly replicate the Australian rural landscape. With the assistance of others we will freely document these practices and productivity improvement for all to see or read. These 'demonstration sites' will encourage other land users to better understand best land management practice through coordinated demonstrations, and we will promote these case studies as widely as possible.

All Australians need to know what the required changes look like. We will then concentrate on ensuring that the appropriate incentives and impediments to wider adoption of these exemplars are addressed.

Agriculture and Carbon

As earlier postulated, carbon in the soil is key to healthy soils, and regulating a clear forward price on carbon is important in providing an incentive and enabling the essential on farm investment and change. A model for structuring and implementing such an effective incentive scheme *that directly links those seeking CO₂ offsets with those providing credits through their land management activities should be preferred by Government.*

I am attracted to a scheme that incentivises a net reduction in emissions, based on a forward price signal on a known, consistently escalating schedule. I believe we need to leave the responsibility and the incentive to change, with the major CO₂ emitters, whilst allowing the Australian Government to play its role in delivering nationally funded R&D programs to the wider benefit of a low carbon future for Australia.

It is suggested that such a net emissions reduction incentive would provide early adopters with a competitive advantage in the market and, with such market forces at play, have negligible inflationary impact.

Farmers, land managers and others will need confidence that their changes will make a difference. In addition to the case studies work we propose, the scientific and research communities need to urgently examine the high level of carbon sequestration being achieved by leading farm innovators and their potential to be extended more widely. The carbon sequestration potential under conventional farming practices should not be seen as

the maximum possible, or be the drivers of policy, when we know that numerous innovators have been achieving greater bio-sequestration outcomes by some orders of magnitude.

I think it also important that governments ensure that our remaining prime farming land is not lost forever to new urban developments or mining ventures. The globe is losing around 1% of its arable land annually. At this rate, by 2050 we will have access to 40% less land to produce 100% more food and fibre. Whilst we have an abundance of land mass in Australia, converting our most productive agricultural and forestry land to suburbs or for coal extraction purposes as is currently proposed in the upper Hunter in New South Wales for example, does not make sense, given the food integrity challenges we face.

Cities also have their part to play by recycling their water, so they do not reduce farmers ability to grow food to the standards and quantities we need. Cities too could begin to recycle the nutrients, food and organic waste they now send to landfill or out to sea. This is a colossal waste in a water and nutrient scarce environment. What is also needed is the policy environment that removes the impediments, subsidies and distortions that protect the status quo.

Retailers too need to recognise that their supply chains for quality food and fibres are at risk due to climate and land stresses. Consumers are now better informed and better educated about how and where food is grown. There is an accelerating demand within the community for more comprehensive eco labelling in terms of the nutritional value of the product as well as how sustainably it has been produced.

This is particularly so in Europe, where for example, Marks & Spencer have recognised in their How We Do Business Report 2010, that 'the public are prepared to take action on the issue of environmental damage, provided we offer solutions that are affordable.' Marks & Spencer's Plan A is their impressive corporate response. I expect that our Australian retailers would be well served by studying this initiative and also the forward looking policies of TESCO, WAITROSE and SAINSBURY.

Conclusion

The challenges we face in dealing with a changing climate, land degradation, food and water security and the needs of increasing global populations are unprecedented. Effective practical policies and actions are needed now. The good news is that effective, safe solutions are available, founded on improved management of the Australian landscape. However, we need to support land managers with sound policy, research and incentives to ensure that Australia can play a leading role in providing these solutions both regionally and globally.

As I have highlighted, water is fundamental to life, but it can only do its job properly through the aegis of healthy soils. If we save our soil we save the planet. The common thread is carbon and its key role in building soil health and thus naturally regulating the water cycle

through the photosynthetic and evapotranspiration action of trees, plants and a regenerated soil structure. But to do this, effective and coordinated change is essential now.

So let me briefly summarize this morning's presentation:

- Water should be seen as the nation's primary strategic asset and managed and probably priced accordingly.
- Water can only do its job through the aegis of healthy soils.
- Healthy soils provide the basis of sustained food productivity and the capacity to revegetate the landscape such as to positively influence climate and flood / drought remediation.
- Carbon in the soil is key and can be rapidly increased through good bio farming practices.
- A Net Emissions Reduction Incentive based on an escalating carbon levy can potentially handle our whole carbon emission reduction challenge, whilst improving soil fertility and enhancing farmer prosperity.
- Farmers should be recognised as the primary custodians of our agricultural landscape and be rewarded accordingly; and finally,
- To pull all this together quickly and efficiently, requires coordination at the highest political levels, Deputy Prime Minister and Deputy Premier or equivalent.

We will need strong leaders to orchestrate these changes. So accept the challenge and go to it.

Thank you.