

ADDRESS BY

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ANNUAL FELLOWS DINNER

AUSTRALIAN INSTITUTE OF COMPANY DIRECTORS

“GLOBAL FOOD SECURITY IMPERATIVE AND AUSTRALIA’S ROLE IN ITS
SOLUTION”

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Good evening, thank you for inviting me to speak at your Annual Fellows Dinner. Tonight I would like to address the topic of the 'Global Food Security Imperative and Australia's Role in its Solution' and I want to share with you my thoughts on this looming food security crisis and Australia's potentially important contribution.

You might well ask why a retired soldier and former Governor General has become involved in such matters.

Our global Challenge

Well, in recent years I have taken a great interest in our soil, water and agricultural industry in general and it has become clear to me that globally we face a very serious problem: namely how to double the globe's sustainable food production by 2050 to meet a projected population increase to around 9 billion and, indeed, as FAO estimates an increase in food demand by 70% in 2050 with 220,00 new mouths to feed every day.

How do we meet this challenge when,

- there will be less available agricultural land
- where soils are likely to be increasingly degraded
- where there will be substantially less water
- where farming input costs will be higher
- where R & D funds are likely to be inadequate, and
- where the effect of climate change will increasingly impact.

Furthermore FAO estimates that ¼ of the world's land is degraded and of the world's 13 billion ha of land over 4 billion ha of formerly forested land is now also degraded. Soil health has been depleted with severely reduced carbon content, derived from lack of organic matter, and poor soil health and structure and the necessity for ever increasing chemical inputs have, in turn, compromised the nutrient availability for plants and animals.

This then compromises the health and well-being of everyone of us world-wide. These factors, together with prolonged drought linked to climate change, have resulted in many countries worldwide experiencing crop failure, water shortages and population displacement.

In Syria, for example, there has been a massive exodus of farmers from their land into cities and in 2010 the United Nations estimated this to be around 50,000 people.¹

Water is the key. Water scarcity affects every continent and more than 40% of people on our planet and by 2025 1 billion people will be living in countries or regions with absolute water scarcity.² It is alarming to note that most of the world's great rivers including the Indus, the Ganges, the Euphrates, the Nile, the Rio Grande and the Murray Darling are in poor condition. The North China plain is running out of water as is Lake Chad and the Aral Sea in Uzbekistan, the size of Belgium and the Netherlands combined, has dried up because of appalling management. Critical aquifer irrigation resources in India, the Middle East and in SW USA are being depleted. And 3 billion people globally have no running water within a kilometre of their homes.³

The population pressure on land availability is also critical as land is a finite resource. FAO estimates that the world is losing 50,000 sq kms of farmland annually. Today we each have 2 hectares, one of which is already desertified and each person's health thus depends on the health and productivity of the remaining hectare.

Food prices have surged, particularly in developing countries, contributing to the unrest in Africa, and pushing 44 million people world-wide into poverty. The ramifications of population pressure, dwindling food resources and rising prices have been the trigger for 60% of all conflicts worldwide over the last 18 years.⁴

¹ <http://thinkprogress.org/romm/syria-climate-change-drought>

² Canberra Times, Thursday March 22 2012

³ Maude Barlow Senior Advisor to UN General Assembly

⁴ Julian Cribb, the coming Famine 2010

Regrettably, for the past 10,000 and particularly the past 100 years. We have drastically compromised soil health for yield and profitability, and we have,

- mined and degraded soils and natural resources from our land and ocean
- cleared 75% of the earth's primary forests and their carbon draw down
- depleted over 8bha of our former deep organic soils
- created over 4 bha of man-made deserts
- applied ever increasing amounts of chemical fertilizer particularly in monoculture farming enterprises, and
- in the process, used 150% of the sustainable resources of the planet.

The Situation in Australia

Even in Australia, where notwithstanding the fortuitous recent rains, innovative farmers and some good science, we are facing the reality that we are already impacted by climate extremes and a series of interrelated challenges that include:

- an increasingly aridifying landscape particularly in the southern half of the continent, where 60% of our arable land is degraded, much seriously
- more salinity and erosion,(in WA salinity has been occurring at about a football ground per hour)
- more erratic and unreliable rainfall, excessive evaporation, diminishing river flows and decreasing dam storage
- longer drought and consequently more wildfires
- more severe storms, cyclones and flooding
- population growth with more demand on resources and the need for more food production
- larger cities as urban 'hot spots' that negatively influence climate, particularly precipitation, and
- higher farming input costs.

Ladies and gentlemen, these are the realities with which many of you are familiar so I do not need to elaborate, and given this track record, it is very clear that current agricultural practice is not viable.

Australia needs to redesign itself to ensure resilience of our agriculture system and the ecosystem on which it depends. ⁵What we need now is a new ‘evergreen revolution’ to massively regenerate our landscape and conserve our water to ensure a safe future for every one of us.

Solutions

Can we do it? Yes. The good news is we have the solutions as we have a small but growing group of land managers in Australia who are using practical, effective, high-performance practices that I believe can show us the way. They are utilizing the unique natural processes of the Australian landscape to conduct riparian zone repair, recharge wetlands, increase biodiversity of ground cover, better manage pastures and stock and implementing no till sowing, thus regenerating healthier, more productive and resilient landscapes. These farmers are deeply concerned with not exploiting their land. They see themselves not as owners of the land but custodians of it. This connection, derived from experience, has given them the insight to understand that it is their responsibility to enhance and preserve their landscape for future generations. Farmers should, therefore, be recognised not simply as producers of food, but as the primary carers of the land and be rewarded accordingly.

I also believe that Australia can play a leading role in showing the world what can be done. But we need a comprehensive, coordinated strategy to improve innovative land management practices.

This is important as we have an opportunity to make a great contribution to global social well being, and, by extrapolation, to global security.

So how do we do it? Essentially we must manage our water, soil, plant and animal systems better by regenerating our landscapes, through a greatly improved understanding and capacity to mimic, as far as possible, Australia’s highly effective natural processes.

⁵ Prof J Williams, Australian Agriculture: Redesigning for Resilience

All of us, particularly those concerned with the landscape, must become landscape literate which will require a paradigm shift in thinking by research institutions, rural communities, funding agencies and governments.⁶

Water

Water is fundamental to life but it is a diminishing resource. Thus we should prioritize it as the nation's primary, natural, strategic asset and manage and probably price it accordingly. To date, the emphasis has been on the water levels in our major dams and rivers and this 'end of pipe' philosophy focuses on what is coming out of the pipe rather than how much is going in, and, to do this, we have interfered with the essential natural hydrological water cycles of the land to deliver above ground water to storage and irrigation systems.

Ladies and gentlemen, currently of every 100 drops that fall on our landscape, 4 go out to sea, 6 into rivers and waterways, 2 onto rooftops and roads and another 2 into dams for agricultural, industrial, urban and domestic use. So what happens to the remaining 86 drops? The answer is that some of it penetrates the soil with 6 drops going into the soil and 30 drops into vegetation. The remaining 50% is wastefully land unnecessarily lost to evaporation largely because it cannot filtrate the soil.

We cannot afford such profligate waste and recent rains have demonstrated that water storage capacity, in both above and below ground reservoirs, is inadequate.

We need to implement a 'front of pipe', or 'what goes in' policy where as estimated 25% of water (that is 10 times what we now have in our dams) could infiltrate and move through the soil.

Thus

- we need to re couple the floodplains with the rivers and streams to ensure they work to reduce the effect our eroded waterways have of draining precious water away
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⁶ Prof J Williams, Australian Agriculture: Redesigning for Resilience

- we need to restore our wetlands, 80% of which in the Murray Darling Basin alone have been drained, and
- we need to adopt policies and practices that focus on the capture and conservation of the 86 of every 100 rainfall drops that fall on the land.

Today 1 million of kms of our rivers and streams are mostly incised, wetlands are drained and the essential balance between functional vegetation and crop areas has been lost. And, overgrazing, overcropping and soil degradation have further reduced rainfall penetration.

Slowing down the flow in our waterways has conclusively demonstrated that it is possible to not only allow water to flow out over the landscape and be infiltrated into the soil, but also to actually raise the volume of water flowing downstream. And the restoration of vegetative cover contributes significantly to the retention of water within the landscape.

Ladies & gentlemen, as recently demonstrated, flood damage needs to be better controlled to minimize its impact not only on people and property, but also on agricultural land that is primarily concerned with the production of food. Recent flooding has devastated large areas of SE Australia and enormous bodies of water remain across the level plains of NSW and Victoria only to be slowly evaporated. Wheat and other cereal crops have been severely damaged and some potato crops wiped out. What we need is an accurate understanding of how our river systems used to work which would enable better strategic planning for future inundation and allow us to utilize flood waters more effectively.

Carbon

The second fundamental of good land management relates to carbon as carbon is the one measureable driver that underpins the natural system from which all life is derived.

Australia needs to transition to a sustainable but effective low carbon future, but to date the debate has centred on reducing human emissions of greenhouse gasses with little abatement being achieved.

Effectively, in Australia, the only practical large scale mitigation option is to rebuild the resilience of the landscape. And the key to rebuilding resilience lies in restoring the structure and health of our soils. To do this we need to restore the former naturally high organic matter of most of our soils as the carbon content of soils governs their capacity to retain and supply more water within the soil to sustain active plant growth. Increasing soil organic matter also encourages soil microbiology which effectively 'brings it to life'.

Carbon in the soil is also fundamental to productivity. It promotes the sustained production of essential food and fibre as well as the capacity of plants and animals to resist disease, insect infestation and climate stresses. Moreover, the sequestration of carbon, via functional vegetative cover, has the capacity to facilitate a cooler landmass and thus a more even distribution of precipitation which, in turn, has the capacity to mitigate flood, fire and drought severity.

Across Australia's dryland cropping and grazing sector it would be unusual to find actively farmed soils with a carbon content of 1.5% or more. Normal carbon levels for quality agriculture should be 5%.

Currently on both the 1.5billion ha farmed globally and the 40 million ha farmed in Australia, we are:

- losing 1-20 tonnes of topsoil for every tonne of food produced
- losing 5- 10 tonnes of carbon per ha per annum via our current farming practices⁷.

As a result, soil is losing its carbon content, its structure and its water holding capacity and the recent rain event across SE Australia has emphasised the urgent need to regenerate our soils to act as sponges to absorb and store floodwaters. Compacted soil only encourages rainfall to run off or remain on the surface only to be evaporated.

⁷ Walter Jehne, Trebling Food Production: Can we do it and what would it take?

Also, we must cease wholesale land clearing and urgently replant to revegetate as rapidly as possible the earth's land surface, including its cities, and in the process restore the critical small water cycle.

So how do we increase soil carbon? We need to

- increase high organic matter in soils with intelligent use of vegetation within our agriculture to protect soils from the oxidising effects of wind and salinity
- practice minimal tillage and burning of stubble
- implement planned, rotational grazing
- use bio fertilizers,
- have 100% ground cover 100% of the time, and
- reduce dependence on increasingly expensive fossil fuels and non organic fertilizers.

Holistic principles when applied to agriculture enhance soil health and optimize humate formation from the bio-mass produced rather than increase oxidation which destroys the critical elements of soil such as fungi and microbes that are fundamental to soil sponginess and its ability to produce nutrition rich plants and crops.

Leading farmers have confirmed how innovative holistic practices can bio-sequester up to 10 tonnes of carbon per ha per annum. As a result, innovators are securing up to 3 times the protein production and sustaining higher grain yields and qualities with often half the inputs, with just under half the former rainfall⁸.

We need to ensure that our farmers have incentives, information and on farm viability to be able to adopt the essential changes to secure our food needs and benefit the national interest. So, we need to support innovative farmers, harness their expertise and provide suitable training for those who want to implement best practice land management.

⁸ Walter Jehne, Trebling Food Production an Sustainably; Can we do it and what would it take?

How Do We Address the Issue of Food Security ?

Australia could treble its food production in a sustainable manner and we could feed a hungry world. But, first, ladies and gentlemen, we do need to recognise that we are at risk and understand the urgent need to address the issue of food security. We also need the will to change.

We must recognise the need for a unified, cooperative approach for all farmers, land managers and agricultural policy makers and scientific agencies. And we need governments to take the lead. Although Australians recognise that food security is a major global issue, their knowledge of the issue is limited. Thus ,the imperative for governments take the lead is also limited.⁹

Governments need to adopt policies that create incentives for sustainable farming practices . Farmers need an additional payment for better attention to natural resource management. This may mean dearer food in some cases, but it will ensure greater protection of natural resources and the capacity to continue producing enough food. A 1-2% GST on food would also enable farmers to be properly rewarded and a regulatory framework is required that establishes how food and fibre is to be marketed.¹⁰

Moreover, in Australia, food is often treated as a bulk commodity which is cheap, however food is strongly linked to the health of the nation. High quality nutritional food should be available to all groups within our population but there appears to be a society-wide lack of appreciation of the fundamental role of food in our health. Again governments should take the lead to better inform the public so they can better understand and accept consequential price rises.¹¹

Australia has a tradition of leadership in agricultural science, so now is the time for government to properly fund research and development and not allow the decline in investment to continue to decline.

⁹ Prime Minister's Science, Engineering and Innovation Council Report 2010

¹⁰ Prof J Williams, Australian Agriculture; Redesigning for Resilience

¹¹ Prime Minister's Science, Engineering and Innovation Council Report 2010

Agriculture has the oldest workforce in Australia, with an average age of 65 but the reality is there are fewer and fewer agricultural graduates to apply the necessary advances in food production systems in the future.¹²

Science and technology have a vital role to play in ensuring adequate food production and governments cannot ignore the need for scientific understanding of the ecosystems that underpin agricultural activity which impacts directly on them.

The challenge is to farm without harm: that is to manage the resource base in such a way that both agriculture and the environment win.¹³

Ladies & gentlemen, China is in the process of building new cities to house their enormous and burgeoning population. World- wide arable farm land is being lost, but Chinese authorities recognise that green belts for the production of food must be integral to the construction of these cities as citizens need ready access to food supplies.

China is also investing heavily in buying agricultural land across Australia. Similarly, Haddad, a food production and distribution organisation based in Qatar, has purchased properties primarily in NSW. The concern for many, particularly in the farming community, is how will these overseas investors actually farm their land? Will properties be used simply as vehicles for the production of commodities and profit applying the old rules of 'industrial agriculture' of heavy inputs, heavy grazing and monoculture cropping? How much understanding will overseas land managers have of Australia's unique and fragile ecology and how much will they 'steward' their environment to ensure the long term capacity for this land to produce?

The organic urban vegetable gardens in Havana Cuba, established twenty years ago to guarantee adequate food supply at the time of economic embargoes by the United States, have been an outstanding success. Whilst the imperative in Australia is not the same, the outcome of more nutritional food, sustainably produced is something not lost on the Australian public.

¹² Prime Minister's Science, Engineering and Innovation Council Report 2010

¹³ Prof John Williams: Farming without Harming

Consumers are increasingly aware of the value of Farmers Markets and Community Gardens, thus, town planners and local councils now need to more actively factor in this trend to meet the needs of their citizens.

Similarly, there has also been increasing recognition that teaching children about growing fresh food and vegetables and recognition of the objectives of the Slow Food Movement is gaining momentum.

In 2008 George Brown, then Prime Minister of Britain, declared war on wasted food. Food is wasted, particularly in the Western World, as if there were no hungry people on the planet and FAO estimates that a full third of all fruits and vegetables never reach the consumer, by perishing in the fields, in storage or en route.¹⁴

Ladies & gentlemen, if there was no food waste, could there be no food security issue? Clearly, current regulations, for example the 'use by date' practice, need to be redesigned. The NSW government's 'Love Food, Hate Waste' program indicates that only 1 in 5 consumers are actually aware that food is wasted.¹⁵ Initiatives such as Oz Harvest, are gaining acceptance and should be applauded, but much still needs to be done to educate the public to alter the attitude to food; its production, preparation and preservation. Growers, educators, cook book writers, cooks, nutritionists and restaurateurs, indeed all of us, need to be enlisted.¹⁶ Government commitment, too, in particular in relation to research, waste, distribution, conservation, planning, pricing and capacity building in developing countries, is vital.¹⁷

How to Catalyse The Fundamental Changes?

Catalysing the fundamental paradigm shifts required involves a considered approach. Leading and managing this change will require continuing dialogue with a wide range of stakeholders, specialist and interest groups. I am pleased to say that the dialogue has already begun.

¹⁴ The Coming Famine, Julian Cribb, 2010

¹⁵ Serena Locke, ABC Radio, 10.4.2012

¹⁶ The Coming Famine., Julian Cribb 2010

¹⁷ Future Directions International 2011

The not-for-profit organisation that I chair, Outcomes Australia, through its Soils For Life program is undertaking a number of initiatives:

- accurately defining our global food and water crises to galvanise the Australian public into demanding corrective action
- defining best practice in sustainable land regeneration, agriculture and water management
- undertaking documentation of best practice in selected demonstration sites
- defining the stakeholders in the landscape management processes- farmers, land care agencies, indigenous communities, mining companies, banks, food chain stores, chemical companies, research bodies and governments
- examining potential blockage points including legislative/regulatory fiefdoms of all types, farmer conservatism and lack of targeted R & D.

So What is Our Plan?

Outcomes Australia envisages a three phase plan in leading and managing change.

- First, we have sought expressions of interest from farmers who are already exhibiting best practice. We have 17 of these as case studies as demonstration sites of what we assess as leading practice in landscape and water management across a variety of land types and regional areas where they are producing quality products in a sustainable and profitable manner.
- Second, we are examining the how, why and what arising from each demonstration site. Our interviewers are visiting selected properties to thoroughly describe the innovative practices of these farmers. Their reports will be incorporated into an inclusive and comprehensive report of proven data which will be published later this year. The aim is to encourage best practice to farmers and land managers throughout Australia.

- Third, in promoting these case studies, we aim to inform as many of our 130000 farmers as possible to raise their awareness and knowledge. We aim to reach all Australians and, indeed farmers and land managers globally.

We will then hope to establish an appropriate research, teaching and training base to support widespread action. We will also roll out our best practice findings through established organisations such as Land Care, the CMA's, NFF, the universities and natural sequence and holistic farming associations.

There will be many contributors to the landscape regeneration solution and its capacity to produce more food , more efficiently, sustainably and profitably. I liken this to a mosaic with interlinking parts, but with water management linked to healthy soil through natural sequence, bio farming processes and the restoration of functional vegetation as core components.

Conclusion

Ladies & gentlemen, the globe is about to face a food/water crisis of immense proportions and Australia is not isolated from this. We need to act now, especially with the predicted burgeoning population, if we are to prepare for this crisis and ensure we can sustainably produce and feed the many millions more people on half the arable land now available to us. Soils for Life sees the best approach to the challenges that face us lying in a comprehensive, coordinated approach with improved soil and water management practices as key. We must recognise that many current land management practices may no longer be suited to today's conditions and we must recognise that good solutions exist now, if we can work together to implement them.

We need to communicate and cooperate with land managers, farming and scientific groups throughout Australia, and of course, with key industry fora, to develop a program that informs and educates a broad range of stakeholders on leading performance landscape management.

Importantly, we need government at all levels to understand the huge role agriculture can play as a carbon bridge, to encourage the reduction of fossil fuel usage and the draw- down of current and future CO2 emissions.

At the same time, through the use of bio fertilizers, we can provide the essential soil fertility and financial kick-start to farmers as they implement crucial natural regeneration methods that mimic, as far as possible, Nature herself.

A healthy landscape, underpinned by well managed water and healthy soils, will produce healthier food and healthier food would result in a more sustainable demand.

Ladies & gentlemen, we have an opportunity to both benefit Australia and offer much needed assistance to countries facing similar problems, such as China, India, the Middle East and Africa.

This is my long term hope.

May I conclude with two quotes:

Franklin D Roosevelt: 'The history of every nation is eventually written in the way it cares for its soil'.

And

'Save the Soil-Save the Planet'.

Thank you.