

## 17TH LIONEL MURPHY LECTURE

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delivered by

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**'HUMANISM & THE ENVIRONMENT: ADDRESSING  
NEED IN A WORLD OF ENVIRONMENTAL LIMITS'**

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(recording commences)

... today's level the population and resource use. That level of resource utilisation will rise to 170% of what the planet can reliably supply over the next decade or two. So those rather conservative figures are, to me, cause for very great concern. We are simply using resources of the planet far too liberally for it to be sustainable into the future. And you can see where that increase use has come from, if you think back on our own life times. 50 years ago, there was something like as half as many Australians as there are today and at that time every Australian used about a tenth as much power as they use today. So in our own nation we've seen this massive increase in resource utilisation, which has gone hand in hand with the population increase.

You can imagine what the potential of that sort of transition to a new lifestyle might mean for places like China or India with their billion odd people apiece. The sort of horror of that scenario came home to me yesterday when I sat through a presentation by the President of Chinese Academy of Sciences who was visiting Adelaide at the time. He gave a very comprehensive and fulsome talk outlining the Chinese Science Program and what terrified me most was that

it sounded so much like something you might hear in the nineteen sixties or seventies in the US or Australia. The space race was right up there as a major issue; damming the rivers, transferring water from the Yangtze River to the now exhausted Yellow River in Northern China. The sort of big engineering projects which have failed us so dismally in Australia, are still very much on the books in China and they're on the books because people need to dramatically increase the resources available to them in order to feed, let alone give some amenity to those billion odd Chinese - very, very large issues for us to deal with.

All of this is, of course, happening in the context of an ever-more globalising world. It seems strange to me now to think about what life was like fifty or hundred years ago on the Australian frontier, for example, when Australian police or settlers could go out and shoot Aboriginals, dispossessing them of their land without any thought that any payback might come their way. Yes, the odd spear might perhaps appear over the horizon, but in reality those people were able to act in ways that ignored any sort of payback, any sort of comeback to them. The British Empire did exactly the same thing with people after people around the world. In a globalised world you just can't do that any more and anyone who is familiar with Rappaport's *Game Theory* or co-evolution will understand exactly why that is. We've all got to know each other, we've all come closer to each other's reach and it's no longer just possible to take what you want and go away without viewing the consequences. Particularly true, I believe, in environmental issues.

People say the wars of the future will be fought over issues like water. I think that's very, very likely. And I think that our only defence against globalisation will bring, are the sort of things that Lionel Murphy held very dear to his heart -

- a sense of justice for all; a sense of acting with some moral integrity rather than acting for short-term strategic or economic gain.

Just to place Australia in that global picture - we're a nation of now 20 million people, just this year. We're a democracy; we're very well educated. We face an enormous environmental challenge, which I will turn to in a minute. But that environmental challenge is already giving us a strategic advantage. Now the old saying, "What don't kill you makes you stronger", is really true. For Australians dealing with issues like sustainable use of water, soil conservation, biodiversity, conservation -- if we get those right we will be able to lead the world. We're facing a crisis in a more severe form in some ways than other people -- facing it a little bit earlier. If we rise to the challenge, we will have a very marketable commodity, I believe, in the future.

But just to look at the threats that the Australian eco-system faces today -- and I'll just run through what I see as the four major ones really. They're threats effectively to soil, water, the atmosphere and biodiversity. And all of those things are interlinked. They all run together, but nonetheless we can just for convenience divide them up into that way for the moment.

Salinisation is probably the greatest threat to Australia's soils today. It's most manifest in south west of Western Australia and any of you who have been to Perth recently could quite likely have met the impacts of salinisation at the airport. I met that very impact when I was there just a few weeks ago. The taxi driver that picked me up was a cow-cocky, who had given up trying to grow wheat and cows and whatever else, because soil had destroyed his property and had come to town to try and make a living as a taxi driver. It's not the sort of thing you see happening in other Australian cities to the same extent perhaps. But certainly in Perth the crisis is bad enough and that's the sort of thing you are likely to see.

The problem for the southwest where it's best understood is absolutely massive. For every square metre of soil in the affected region of the south west of Western Australia which includes all the better water parts of the south west effectively, except for the very wet corner - for every square metre of soil in that area there is something like 70 to 120 kilograms of crystalline salt lying in the soil column below that square metre. So very, very large amounts of salt that if water ever reaches them can become mobilized and produce hypersaline water that will kill off anything that is trying to grow in that part of the world.

It's being predicted that 30 per cent of Western Australia's agricultural regions will be affected by salinisation in coming decades and much of that area will be affected regardless of what we do today. The reason is that the process was set in train, in some cases decades earlier. And what happened was people came into that country and cleared it on a massive scale with huge government assistance. What they did was clear away native vegetation that's very deep rooted and that native vegetation was probably the most efficient user of water

that has ever evolved in pretty much any environment I know in that not a drop of water barely escaped into that salty layer down below to mobilized the salt. Once that was cleared and people started planting crops the opportunity existed for water to come down through the soil profile and mobilized the salt, and you get a rising water table then that kills everything.

The situation has actually been made worse since the 1970s and I'll return to this issue when I come to global warming. But what's happened in the south west of Western Australia is that there has been about a 20% decrease in winter rainfall from the 1970s onwards. So about 1974 was the shift and every year after that they suffered on average about a 20% less rain than years before it.

This has brought Perth's water resources to absolute crisis. If you really want to see a frightening graph, just look at in-lows into the water catchments for the Perth area - truly terrifying stuff. But it's also meant that there's been more widespread crop failure and along with that, due to global warming, has come incidence of summer rain. So what happens is that there's no crops to soak up the water, just bare soil and then you get a summer cloud burst and all of that water goes straight into the ground table mobilizing the salt and causing this incredible problem.

The problem is so severe that 850 unique plant species are threatened with extinction. These are native species that are threatened with extinction as a result of that salinisation. Many of them exist in small nature reserves that simply are inadequate buffers to stop that rising salty water.

43,000 kilometres of rivers and creeks face elevated salt levels, so there is not a single catchment in the southwest of WA that doesn't exhibit some elevated level of salt and the impact of that on the biodiversity of the region is massive.

In terms of financial costs, the cost to repair the existing damage in transport infrastructure alone, (that's railway, roads, airports and that sort of thing) is estimated at now at half a billion dollars. So that, I know, is not a massive amount of money but that's to deal with one little bit of a very big problem.

The most frightening thing for me, as a scientist, is that I know that we don't have a scientific solution to this problem. If we were given all the money in the world tomorrow we couldn't fix it. We just don't have the basic intellectual muscle as yet to deal with this very fundamental threat to Australia's biodiversity and to our very existence.

In the east, salinisation exists but in a much less understood form. Just to give you one small example of its potential though, people have recently completed soil saltiness maps if you want for southern Queensland, the area that's now the headwaters of the Murray Darling River System. And those maps reveal, effectively, the sensitivity of the land's clearing. So if that area is cleared, the salt that's in the soil will get into the upper reaches of the catchment of our largest river and cause enormous damage.

It just so happens that Queensland is just about the sixth largest land clearing political entity on the planet behind Brazil and a couple of others. Moves are afoot to try and stop land clearing in Queensland; they haven't as yet been successful. If I could just divert there, to compliment the politicians that sit in this House on the outstanding work that is being done to stop land clearing in

New South Wales -- a logjam that's perhaps been 20 years in the obstruction and the making there has been broken just in recent weeks. And a huge tribute to all of those involved I think, a marvellous step forward, for many of the reasons, biodiversity, salinisation, global warming, just good management and a good future.

I would like to talk about pollution of the atmosphere at the largest level. The single most dire threat to the atmosphere at the moment is the greenhouse gases that have been produced from burning fossil fuels. Our best insights into their impacts have come from two particular studies; one global and one local. The Inter-governmental Panel on Global Climate Change released their assessment which is the third of their five-year rolling assessments in early September 2001. It was probably the worst time to release a report like that, given September 11 was perhaps less than a week away and blew all news of this very dire report from the front page of probably every newspaper on the planet. But the revelations of the Inter-governmental Panel are well worth reading. It's an incredibly boring document - I've got to tell you. It's very thick and it's a consensus document which has been contributed to by over 100 nations, including such environmental leaders as Saudi Arabia and the United States and you can imagine the sort of stuff they don't want in there. So whatever is in that document is pretty solidly grounded, based on million of human hours of work, research by the best climatologists on the planet.

What it says is that over the next century the global sea ...an increase in average temperatures of somewhere between 1 and 6 degrees, with the greatest likelihood being towards the upper end of the scale. Now I know that doesn't sound like much. But trust me, I'm a scientist; it actually is very, very severe. And the reason I say this -- I'm not only a scientist I'm a palaeontologist -- I

study the past; I know about climate fluctuations in the past. And if those projections are correct and it is towards the upper end of that range, the world will enter a climatic era or climatic phase that has never been experienced in the entire tenure of humanity on this planet. So we will be going truly into the wild blue yonder if that is to occur.

The implications of that change have been mapped out by CSIRO and I've got to say that any computer modelling of climate change is bound to be contentious and you probably won't find three climatologists who will agree on the details. But nevertheless it really is the best data that we have so far.

The projections for CSIRO go out to about 2070, and what they suggest is that for southern Australia -- that area from Perth through to about Sydney - that region will suffer a 40% decrease in its winter rainfall. Now for places like Adelaide, Perth and Melbourne that has incredibly profound implications.

If I could just take Adelaide, my hometown, as the example there because it is so seriously dependent on that winter rainfall zone for its survival, if those predictions are correct, in 2070 Adelaide will be situated in a 12 to 14 inch rainfall zone (to use the old standard).

There isn't a major city, or at least of Adelaide's size anywhere in Australia in that sort of rainfall zone for very good reasons: resources are just too limited to support them. Some of Australia's premium wine making areas such as the Clare Valley will lie to the north of Goyda's line, effectively meaning that they will be useless, unsuitable for agriculture. And that's the world of 2070. We're not talking about forever out there; this is the sort of period that my grandchildren will certainly live through -- so very serious issues.

In terms of biodiversity, which is the fourth underpinning really of our health and our sustainability in Australia, it's clear that we are facing a crisis. Even in our reserved lands, even in the places where we try to put biodiversity first, we haven't been able to sustain the full diversity of life that existed in those areas even a century ago.

Ongoing extinctions, particularly throughout northern and central Australia, are really quite terrifying from a biological perspective and particularly in the north, we can see them happening now. Cane toads have just entered Kakadu. Changed burning patterns are endangering species like Gould's Finch . They're just two very outstanding examples of a very wide spread pattern of biodiversity decline in Australia, which I haven't got time to touch on more than that.

But I hope that in giving you that picture I have been able to justify why I was so concerned about growing population and growing impacts of humans on the environment when I wrote *The Future Eaters* in 1994. I remember as I was researching the book hearing Bob Hawke ruminating about an appropriate population for Australia, and I admire the man in many ways, but he had a knack of believing in round numbers perhaps. I remember him saying "20 million people by 2000, a good enough target for Australia", as a toss-away line. There was attempt to understand the underlying issues that we're all facing and trying to work through and I was genuinely alarmed by that cavalier attitude to what I saw as one of the most serious issues that we faced.

Thankfully it took three extra years to reach that target, and those extra years I believe will hold us in good stead into the future. That slightly slower population growth will have impacts for many decades to come.

We were then facing, during the Hawke era unprecedented levels of immigration and immigration of a different sort to that that the continent had experienced previously - at least in European recent history. For the first time, probably since the Gold Rush, we were having significant numbers of Asian immigrants coming to the country, and there was very great concern in what was then, (I think I'm not insulting people by saying) an insular and xenophobic Australia -- at least some elements of it.

It was very, very hard to discuss population issues in that context that politically charged, very, very difficult context. I suggested in *The Future Eaters* that maybe Australia could support 6 to 12 million people. It was a brave guess but I was very much troubled whether I should include it or not. I did include it and it was sort of grabbed on by many people by saying "well, who should go home then?" or "who should leave?" or "what should we do?" But as it transpires, it was a guess that wasn't that far from the truth.

The recent CSIRO estimates produced last year suggest that if Australians could reduce their resource utilisation by about 60 per cent we'd be living sustainably. If you turn that around you could say, well if there was 8 million Australians using resources like we use them now, we'd be living sustainably, so the guess wasn't that far off.

The big question which I avoided back then, I suppose, is what do we do when we are faced with refugees, with people whose very lives depend upon us, either to accept them as refugees facing a crisis, whether it be economic, political or people who just need our help around the world?

I suppose that what I've come to envisage as a way forward, since writing that book, is a need for a transparent and very full audit of the consequences of an increase in human population in Australia, but also a very full and transparent audit of our activities at the global level. And providing that audit would mean a few things: it would mean that we would have to explicitly link our population with the core environmental issues that are so threatening our future.

The reason I want to do that is, as I said, the environment. I don't think we should be concerned about the environment just for the environment's sake. That's important: but I don't believe it can enter these equations. The reason I am so concerned about the environment is that future generations of Australians will have to live in that environment and some of them are going to be my children or the children of people who I hold very dear. It's just part of a humanistic approach to life to make sure that we leave the very best for those future Australians. But we can't do that at the cost of people who are desperately in need of our help today. How do we balance that issue of making room for a refugee intake in our immigration program, focusing our foreign aid in ways that do the most good and don't just feed Australian companies overseas, if that's not too cynical a thing to say? How do we manage that great basket of things? And sometimes I imagine you trying to do that. Australians, if they did try to do it, would feel a bit like the captain of a ship that's been lost at sea; the captain who didn't go down with his ship but climbed into a lifeboat but still had a bit of room to spare; was surrounded by drowning passengers and crew. Would he go and try to save the nearest person or would he go to the largest group of people and what about the people in that lifeboat who were saying we can take them on in a calm sea but what happens if it gets rough? And others, who would be calling for more to enter the lifeboat. Whichever decision you make, people are going to suffer in that circumstance; people will die that you

could have helped. But that's the situation that you are presented with and Australia as a middle-sized nation with middle-sized means, in a very large world of suffering and need, finds itself in exactly that situation.

I think that there are no easy answers to these problems. We can only be aware of the dimensions of the issue. We have to, above all though, be absolutely honest and clear-sighted in the decisions that we make, and that can be very painful. Because sometimes we will have to say, perhaps, there is a dire need at the moment to have a very significant migrant intake, which will cost us. Perhaps environmentally, perhaps in terms of just straight finances, if people are in great need. But these things must be done in the broader context and we do it with full understanding. Same with the environment, we sometimes will need to make very hard decisions, decisions that will cost us today to create that more sustainable and better future.

I think that we're still trying to cope with a very changed world, you know, with the series of tools that were developed a century ago, or more. They're sort of the accretion of history, the way we do things. And the world has moved so rapidly that sometimes I feel that we just don't have the right tools to make the changes that we need to make. The issue that the Wentworth Group and others faced over the Murray River crisis was very much of that nature. It occurred to us that the Founding Fathers of Australia in their wisdom had vested power over water in the States, sort of forgetting that the River flowed between two States and that same River actually went right through four different States. So how can States manage water in a situation where they don't control the whole catchment? It was a nonsense situation and something new needed to be created if we were to go forward and thankfully, very thankfully it was.

In terms of our approach to these issues of humanism and the environment I think there's a few key tools that we lack. One of them, surely is a Ministry for non-Australians.

(Missed recording this section about 1 minute)

.....our response in that area and that minister would have, one would hope, input into our foreign aid budget, its size, its disposition and would hope its proper use and also for the refugee component of the migration program - which today only represents 120th of the entire program by the way (we're talking about a tiny little component here). The Immigration program, it seems to me, doesn't first and foremost exist to ease the pains of those overseas but for different purposes -- most of them, I'm afraid to say, self-interested.

So they're some of the big challenges that I can see in this ever more interconnected world, where there's no refuge really for us but injustice and compassion and that kind of fair go that we feel that we're so proud of. We've been terrible, in fact, at giving people a fair go.

I was still astonished, when Lionel Murphy was on TV, when I saw him there, we had just pulled out of the Vietnam War. And I remember, as a child, watching images of that war on television. No one in their right mind, I would have thought, would have fought that war. But nevertheless there we were in it. And I still remember the shock of Australians as those refugees turned up from Vietnam, some years later. The sort of incomprehension that somehow where had these people come from? Why were they coming? And not seeing the direct connection between our actions overseas and that flow of desperate people into our country demanding succour and demanding action from us.

That's the sort of thing that has to stop and change in the near future -- whether it be in terms of the environment, clearing land and just waiting for the water to destroy the fertility of the soil, as it has in Western Australia or in our actions with people overseas.

As I said, I see the environment and fair go for people as just being inexplicably linked. We need to take a much clearer eyed and much more longer-term view of these issues if we hope to make progress in this very, very altered world we live in today.

Thank you very much