

A Challenge for the Human Race – the Need for Leadership

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There has been much written and spoken about the issue of climate change over the past few years. These discourses build the case that there is a significant change in the global climate and that this change is the result of a continuing accumulation of greenhouse gases in our atmosphere. This chapter will not address the evidence supporting the premise that there has been a gradual rise in global temperatures and that this increase is causing changes in our climate. Suffice to say that the International Panel for Climate Change (IPCC, 2007), produced their last report in 2007, which represented the consensus arising from their extensive consultations. Consensus documents are usually very conservative in their projections and the IPCC report is not an exception. Consequently, it is not surprising that a meeting of 2,500 climate change scientists in March 2009 in Copenhagen formed the opinion that the changes in the climate are indeed progressing faster than predicted in the IPCC report. The case supporting this statement is outlined convincingly in several books — *The Hot Topic* (Walker & King, 2008), *Climate Code Red: The Case for Emergency Action* (Spratt & Sutton, 2008) and *The Last Generation* (Pearce, 2008).

The speed of change is recognised in the melting of the sea-ice in the Arctic Ocean, the rate of melting of glaciers in Greenland and evidence that the Antarctic ice shelves are warming and melting. The flow-on effects indicate the strong possibility that there will be a rise

of at least one metre in sea levels, with a prediction of a catastrophic 6- to 7-metre rise should both Antarctic ice shelves collapse and melt at some time in the future.

Climate change and the greenhouse gases that cause it are not limited by boundaries that define states or nations. Climate change is a global process and therefore requires a global response and global leadership. This fact must be recognised as we search for solutions that can reverse the factors causing climate change, and also how we mitigate the effects of the associated global warming and adapt to them.

To enable effective leadership at global, national, State and local community levels, it is critical that the leaders at these levels recognise the issues involved so that coordinated actions are made possible. While the problem that requires solution is the need to reduce the levels of greenhouse gases in our atmosphere, we need to remember that the levels of these gases are a marker of our human activities. Our very survival requires us to breathe oxygen and convert it to carbon dioxide. The nature of the food that we eat can contribute to greenhouse-gas levels, especially if we consume meat, since cattle release methane in the process of ingesting and fermenting vegetable matter. The levels of each human's daily activities may generate greenhouse gases, since many of these activities require the expenditure of energy, most commonly generated by the use of coal, oil or gas, whereas nuclear and renewable sources such as hydroelectricity, solar, tidal and wind-power do not. Each person's desire for goods and services also uses energy and can contribute to greenhouse-gas production, with some goods that require the smelting of metals making greater contributions than others. Each person's climate comfort can also add to the load, depending on the place of abode, the need for cooling or heating and the nature of the clothing worn by the persons concerned. Thus the lifestyle of each person and the levels of his or her consumerism influences the levels of energy expenditure.

It is estimated that the level of energy expenditure per head of population in Australia or another developed country is fivefold greater than that of a person in India, China or Indonesia. Thus if the populations of the latter countries were to reach a similar standard of living as Australia, their energy requirements per head of population would rise fivefold and, given the vast size of their populations, would cause great increases of greenhouse gases.

My purpose for labouring this issue is to bring out the salient points that population size and the levels of consumerism, as reflected by energy usage, are critical issues for leaders brokering global agreements and actions. Given the projections that the global population of six billion today is projected to rise to nine billion by 2050, together with the fact that most people wish to live longer and medical science is enabling that to happen, the population issue is very significant. Given that the population increases are projected to occur in the developing countries and that their peoples have desires to raise their standards of living, the levels of their energy requirements will rise, as will greenhouse-gas emissions, unless energy is derived from renewable sources. The net effects of these projections will be augmentation of the effects of climate change, unless conclusive global steps are taken to reduce our dependence on energy derived from coal, oil or gas.

Brokering global agreements that will be required at the end of 2009 in Copenhagen are likely to be difficult given the very different levels of affluence in the developed and developing countries. In the latter poverty abounds, clean water is a rarity and starvation is common, in contrast to the affluent, energy-consuming, throwaway lifestyles so prominent in the developed world where obesity is an ever-increasing problem. Yet, we all inhabit, as far as we are aware, the only planet that can support life, with a wonderful variety of life forms from viruses and bacteria through to mammals of which the human species is the only one that has shown the ability to significantly manipulate its environment. That manipulation has enabled an extraordinary increase in our lifespan and a complex of activities, which, because of their consumption of energy, now threaten the health of this planet.

If we are to broker international agreements spanning these different stages of development, we need to embrace a concept of global equity. Global equity, in my view, should aim to provide opportunities for all the people in the world to reach the same level of life style as in developed countries by 2050. If that were to occur, my conclusion is that we will leave a very degraded planet unless we each develop a more sustainable lifestyle, using energy from renewable sources and reducing our personal environmental footprint.

Our consumer-driven lifestyle also drives other parameters that reflect a progressive degradation of Planet Earth. For instance, pollution from transport, powerhouses and industry today kills a million people annually and is responsible for the ill-health of millions more. Further, there is significant data to indicate a progressive degradation of water supplies and the land in many countries, leading to food shortages. Consequently, a progressive movement within developed countries to decrease the environmental footprint of each citizen would have profound value in moving to a sustainable planet.

In this context, global leaders should be aware of a book published nearly 40 years ago, well before climate change became a household word. The Club of Rome in 1972 published a book, *Limits to Growth*, by Meadows and colleagues, which caused quite a stir at the time. It presented some challenging scenarios for global sustainability based on a system dynamics computer model developed by the Massachusetts Institute of Technology to simulate the interactions of five global economic subsystems, namely population, food production, industrial production, pollution and consumption of non-renewable natural resources. The computer modelling of the 'business as usual scenario' predicted that the entire population and economic system would collapse around the mid-21st century. The study also ran two other scenarios, one that involved the comprehensive use of technology that resulted in a delay in the collapse, and the second was the application of changing behavioural patterns to a sustainable lifestyle and acceptance of population limitations. The latter two resulted in an ongoing sustainable planet.

Their salient message was that continued growth in the global economy would lead to planetary limits being exceeded sometime in the 21st century most likely resulting in the collapse of the population and economic system but also that the collapse could be avoided with the early introduction of a combination of changes in behaviour, policy and technology.

This paper was attacked, unfairly in the view of Dr Graham Turner from CSIRO, who has re-examined the book and its conclusions recently. He has now inserted 30 years of data and rerun the program (Turner, 2008). Regrettably, this data supports the unsustainable business-as-usual scenario that will likely result in the collapse of the global system midway through the 21st century

unless urgent changes are incorporated. I emphasise again that the *Limits to Growth* was written well before climate change became a global issue. Turner's paper should be compulsory reading for all leaders as it points to the need to institute changes to a sustainable lifestyle, one that would also be compatible with an attenuation of greenhouse-gas emissions. In essence what this calls for is a move to reduce our environmental footprint by educating the public to recognise the issues and to take action that will lead to minimisation of our generation of greenhouse-gas emissions.

Leaders are faced with the issue of how to achieve the behavioural changes in the populace in developed countries that will enable the required reduction in environmental footprints and energy usage. Underpinning any actions must be an educative process, appropriately crafted and written in language that can be understood by a non-science trained layperson. Those of us in the developed countries need to remember that we put into the atmosphere the large amount of the carbon dioxide that is causing the rise in temperature, and that every molecule of this gas that we add stays there for about 100 years.

The second point we need to remember is that a large proportion of the emissions from countries such as China, India and Indonesia comes from our desire for the goods that they manufacture and sell to us. In effect, we have moved the factories that service our needs to their land to take the benefit of the low cost of their labour. We even send our iron ore and coal to them, from which we profit, but also require them to produce the energy to smelt the ore and to manufacture goods that are subsequently sold to us. Because of their need to fund health, education and food production as well as improvements to critical infrastructure, the developing countries choose the cheapest energy sources, usually those that generate the greatest carbon emissions. These emissions could be described as 'survival emissions', in contrast to what can be called 'lifestyle emissions' in the developed countries. However, all developing countries now have a rapidly developing middle class, and in India this represents about 200 million people now generating 'lifestyle emissions'.

The global leader needs to recognise these issues and also to note that the potential rise of sea levels will, in addition to threatening vital infrastructure and land for food production, result in some small

countries becoming uninhabitable. The Stern report outlined the effects of a rise of one metre in sea level (HM Treasury Stern Review, 2007). Sir Nicholas Stern reported that more than 200 million people live on coastal flood plains around the world, with two million square kilometres of land and \$1 trillion worth of assets less than one metre above current sea levels. Many of the world's major cities risk flooding from coastal surges, including Tokyo, Shanghai, Hong Kong, Mumbai, Calcutta, Karachi, Buenos Aires, St Petersburg, New York, London and Miami.

If one sets aside cities, the flooding of the Ganges delta of Bangladesh, apart from devastation and displaced populations, will remove a very fertile region from food production, creating significant risk of starvation for an ever-increasing population. The 6- to 7-metre potential rises that would occur if the Greenland ice and the Antarctic ice shelves melt would have unthinkable consequences.

There will be climate change refugees of the future such as the people of Tuvalu, the first nation to encounter a progressively uninhabitable 'country' due to rising sea levels. These are the vanguard of larger numbers in the future, perhaps in the nearer future than the distant future, given the rate of melt of glaciers, as the ice in Greenland and emerging data that suggest that the Antarctic ice shelves are increasingly at risk. There is also a significant risk of refugees fleeing countries whose climate has changed to the point that food production has led to starvation. These may well be the boat people of the future, creating problems for many countries where land masses are relatively close to enable travel in small boats.

It is time for the global leaders to think laterally and to explore new concepts and approaches. Perhaps a bold initiative, as proposed last year by Prins and Rayner (2007) from the London School of Economics, may help broker global agreements. They estimate the cost of providing power to all households in India by 2030 as about \$US120 billion, and this would double if it came from renewable sources. That translates into \$20 billion per year for 15 years, or just 3% of the \$700 billion annual military and intelligence budget of the United States in 2007. There will always be questions of funding for such an initiative. Perhaps greater attention may be given to a carbon tax on finished products. For instance, such a tax would raise the price of goods produced using energy from carbon-polluting power

stations. As such it would drive those countries to develop sources of energy that are renewable, and it will also levy a carbon tax on the consumer for goods manufactured offshore. Given that the production of goods takes place in developing countries, there will be a need for the developed world to subsidise them to build more renewable sources of energy. Funds derived from such a carbon tax on finished products could provide the source of the subsidy. As such it would not necessarily be considered as a form of protectionism by the developed countries to keep industries from moving offshore.

Most of all, national leaders involved in developing agreements need to ensure that the frameworks that are established are enduring and are not subject to change in the short-term. Long-term policies are critical as climate change is slow. Such long-term strategies will enable investment in new industries and can also drive the behaviour of populations, again a slow process.

Frameworks that have a long-term approach also enable national leaders to drive policy in their countries that are compatible with global approaches. National leaders will need to translate global agreements into the practical actions that are so necessary to achieve the reductions of greenhouse gases. They will need to balance the conflicting interests that will serve to make implementation difficult. They will need resolve to take long-term approaches well beyond an electoral time-frame, and may wish to broker bipartisan agreements to ensure continuity of policy. Ideally, they should prepare their nation and its population for the changes that lie ahead through education strategies that extend to the average person in the street, a person with limited scientific literacy who is more concerned with day-to-day life than looking to the longer term. Essential is an educated population that understands the need for what might be hard and unpopular decisions, critical to the combat of global warming. Identifying motivating factors such as the need to leave an inhabitable planet for their children and grandchildren may help to galvanise people into action.

National leaders can also gain assistance from local leaders who are educated about climate change. These are people who can assist their communities to undertake actions that will be critical to the abatement of greenhouse-gas levels. The local leaders can drive change through example, commitment and tenacity. Their actions

against climate change will stimulate local communities to drive new approaches. It is critical that each person reaches a minimum level of education about climate change so that all fully engage with their local communities. Through education of the young, a wide-ranging transfer of knowledge and actions can be initiated that will continue, hopefully throughout their lifetime. It is crucial that local communities and individuals are empowered to act to reduce their environmental footprint and to decrease their energy expenditure. They should not feel helpless and need to recognise that their actions will be critical for the long-term survival of Planet Earth.

There are opportunities for alternative types of leaders, leaders in business, in environmental groups, in community organisations such as Rotary and Lions, and in all these positions they have the opportunity to drive actions to reduce greenhouse gases and change the lifestyle of people to one that is sustainable. Clear communication and consistent messages are critical, and here coordinated planning and action across different sectors of our economy and lifestyle is required for maximum effectiveness. Each of the organisations mentioned above provide opportunities to influence others and to initiate novel approaches that can assist in changing behaviour.

Community education is critical to enable the stage to be set for government action to legislate to change people's lifestyle, otherwise, with short electoral timeframes, governments are reluctant to enact unpopular legislation. Unlike war-time approaches where people have tangible evidence of life-threatening issues, climate change is insidious and slow to demonstrate its effects. We have, therefore, been slow to take up the challenge.

Educational materials that can be understood by the lay person and rolling this material out through a wide variety of strategies enhances the outreach. The vehicles of dissemination may include websites, interactions with schools and governments, local, State and federal. Opportunities exist to work with community organisations such as Rotary, Lions, Country Fire Authority, Landcare and other environmental groups to improve their knowledge base. Other options include working with committed and educated business men and women who could stimulate their employees to take action as a company and also as individuals.

The local leaders also need to recognise that they may have another function. They may be called upon to exert pressure on national leaders when they renege from commitments made to reduce greenhouse gases. As such they can be agents of change in countries where democracy flourishes.

Leaders at all levels need to accept that we have a moral duty to ensure that the environment and our planet is left habitable for future generations. They need to recognise that we have a responsibility to use the knowledge that we now have to change the way we think, the way we behave, and the way our society operates. Scientific advancements mean that we have power and knowledge at our disposal that past generations did not. These technologies may not be perfect, but ignoring them and not using them to improve our environmental impact is irresponsible. If leaders do not act, the consequences of their inaction will be felt for many years to come.

Our leaders, global, national, and community, need to be clear about the value they place on managing climate change. The downturn of the global economy is currently at the forefront of everyone's mind. It is consuming the majority of air time on news services; newspapers are devoting pages and pages to reporting constant updates. However, leaders and their communities need to determine if a transitory downturn in the global economy is more or less important than managing climate change?

In reviewing past history, each economic downturn has had a finite duration, albeit with a clear recognition of the hardships. In effect, these downturns challenge the value systems on which economics is based. Consequently, in trying to determine whether a transitory downturn in the global economy is more or less important than managing climate change, leaders and their community populations all need to place a value on the latter. What is the value we place on having an inhabitable planet in the future? What is the value we place on the diversity of the flora and fauna of this planet? What is the value we place on the Barrier Reef, the alpine environments, the oceans and the marine life that are dependent on the availability of krill as a food source? What is really important to us? If economic stimulation is required, how should we spend our money? Should it prop up rampant consumerism that takes no note of the reality that our earth has finite resources? Or should it be spent on building a

sustainable lifestyle that emphasises the values of a society that cares for this planet, that cares for and values its biodiversity, that creates a framework where citizens respect each other, where children and adolescents are nurtured, mentored and cared for, and in return who respect the older generations for their wisdom and contributions?

Which is more important, a reversible economic downturn or a progressive warming of the global environment resulting in irretrievable losses of the biodiversity of this planet, and threatening the survival of many human beings?

In conclusion, the battle against climate change will be long and difficult, particularly because the strategy needs to be accepted by the diverse range of countries on this earth who have vastly different lifestyles and types of governments. It will require leadership at all levels of our society and community. These will pose different challenges and will require persistence, together with the ability to think laterally to identify new ways of brokering international agreements. These are challenges that we must accept and solve to ensure the survival of life on the earth as we know it now.

References

- Meadows, D.H., Meadows, D.L., Randers, J., & Behrens III, W.W. (1972). *Limits to growth*. Universe Books.
- Pearce, F. (2008). *The last generation*. London: Transworld Publishers.
- Prins, G., & Rayner, S. (2007). Time to ditch Kyoto. *Nature*, 449, 973-975.
- Spratt, D., & Sutton, P. (2008). *Climate code red: The case for emergency action*. Melbourne, Australia: Scribe Publications.
- Turner, G.M. (2008). A comparison to the limits to growth with 30 years of reality. *Journal of Global Environmental Change*, 18, 397-411.
- Walker, G., & King, D. (2008). *The hot topic*. London: Bloomsbury Publishing.



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