

Chapter 3: Why Do the Same Modern Sustainability Debates Continue after 100 years?

Chapter 2 showed that many ancient civilisations have collapsed due the lack of environmental sustainability of development. Given this fact and the lack of progress on sustainable development over the last 100 years, it is important to investigate why humanity has made such little progress to achieve sustainable development. Why do so many of the same sustainability debates outlined in Chapter 2 continue after 100 years? It is widely recognized that there are many barriers to achieving sustainable development and hence only by understanding how to address them is it possible to develop a realistic strategy to achieve sustainable development. Here in Chapter 3, I consider some of these barriers and start to discuss strategies to address them. Chapters 4-9 further explore these strategies to address such barriers.

3.1 Nature Often Exhibits Delayed Feedbacks: The Problem of Overshoot and Positive Feedbacks

The fact that nature is a complex system which often has a delayed feedback to environmental pressures is a key factor in why ancient civilisations have collapsed from environmental factors and why insufficient progress has been made on sustainable development over the last 100 years. It is often difficult to immediately see how pollution and development are reducing the resilience of natural ecosystems *until it is often too late* and the ecological system has been pushed past a particular irreversible threshold. Jared Diamond showed in his publication *Collapse*¹ that this delayed feedback has been a factor in the collapse of many past civilisations. Richard St Barbe Baker's quote first outlined in Chapter 2 is even more pertinent here

“The great Empires of Assyria, Babylon, Carthage and Persia were destroyed by floods and deserts let loose in the wake of forest destruction. Erosion following forest destruction and soil depletion has been one of the most powerfully destructive forces in bringing about the downfall of civilizations and wiping out human existence from large tracts of the earth's surface. Erosion does not march with a blast of trumpets or the beating of drums, but its tactics are more subtle, more sinister.”

Richard ST. Barbe Baker- *I Planted Trees* - 1944²

In addition, many decision makers, untrained in ecology, have mistakenly believed that humankind can pull back once humanity's environmental pressure starts to cause serious ecological collapse. However, often by then the ecosystem may have already passed the ecological threshold and the collapse is either irreversible or the environmental pressure (pollution, system change) will need to be

¹ Diamond, J. (2005) *Collapse: How Societies Choose to Fail or Succeed*. Random House. New York.

² St. Barbe Baker, R. (1944) *I Planted Trees*, Lutterworth Press, London and RedHill.

reduced by a factor of ten or more to allow the ecosystem to recover. This phenomenon is known as hysteresis. How is it that so many ecosystems are close to collapse or have already collapsed? This chapter will show that there are many factors that have both led to past civilisations collapsing and have led to current unsustainable forms of development today. One factor has been the fact that humanity has based its management of natural resources on flawed assumptions. Take the paradigm of maximum sustainable yield management of natural resources. In most cases the maximum sustainable yield was very close to the thresholds for collapse of that ecosystem.

The mounting evidence of overshoot is covered in detail in numerous publications such as *The State of the World reports*³, *Limits to Growth- The Twenty and Thirty Year Update*⁴ and Paul Ekin's *Economic Growth and Environmental Sustainability*⁵. All over the world there is evidence that ecosystems and their services already are collapsing from Australia's Blue Fin Tuna stocks, to the wheat fields of Western Australia being overcome by salinity, to the algae blooms suffocating lakes in the Northern Hemisphere. There are now significant global efforts to better understand where these ecological limits and tipping points are.⁶

Also in the past some have expected change will be incremental and linear when in fact with ecosystems change is often non-linear and hence ecological collapse can occur suddenly.

Natural ecosystems are complex. Therefore it is often hard to determine what safe levels of emissions of pollutants are. It is also difficult understand the causal links between pollutants and negative environmental effects. There is usually significant uncertainty. Faced with uncertainty political and business leaders often call for more research to be done. This is often in areas where there will always be uncertainty because the systems are either so complex or it would take years and many people to collate enough data and analyse it to reduce the uncertainty significantly. Take the issue of sustainable management of fisheries. Government estimates of the state of fish stocks rely on the catch that fishers report. It is too expensive and difficult for governments themselves to go out into the oceans and take enough samples to know what the state of fish stocks are. Hence often by the time scientific consensus is built on an issue it is decades after the concerns were raised by the original scientist. By this time it is often too late and the ecological system is in irreversible decline or at best to solve the problem will require a dramatic reduction of environmental pressures for the ecosystem in question to have a chance to recover. The catch history shown in Figure 3.1 illustrates this.

³ Worldwatch Institute (2005) *State of the World 2005: Redefining Global Security*. WorldWatch Institute.

⁴ Meadows, D., et al (2005) *Limits to Growth: The Thirty Year Update*. Earthscan/ James&James Publishing. London.

⁵ Ekins, P. (2000) *Economic Growth and Environmental Sustainability*, Routledge Publishing, London, New York

⁶ See Resalliance's thresholds database at www.resalliance.org/ev_en.php Accessed 30 January 2008

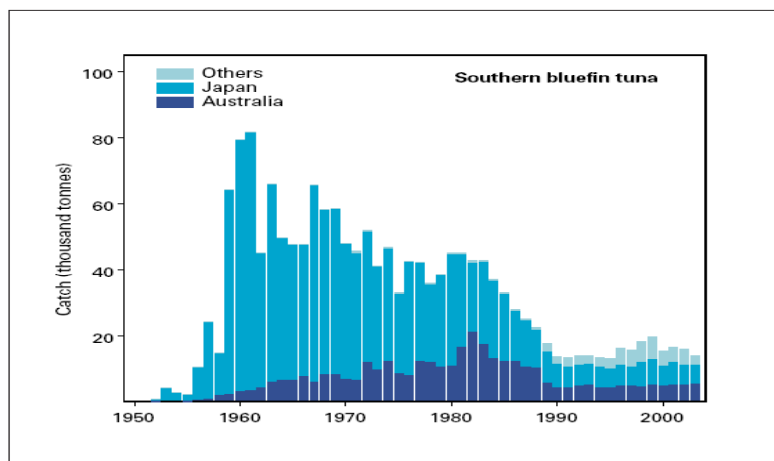


Figure 3.1: Southern Bluefin Tuna catch in thousands of tonnes from 1950-2004. This graph shows that the fishery has been significantly overfished with stocks crashing through the 1980s.

(Source: Caton, A et al, 2004⁷)

Ignorance of ecological limits, thresholds and overshoot regarding greenhouse gas emissions has delayed action on climate change for many decades. Chapter 2 showed that by 1908 scientists had warned on many aspects of the unsustainability of development but in 1908 no one knew what the thresholds of greenhouse gas emissions were. Most assumed that the seas and forests would absorb any additional CO₂ from fossil fuels. So during the first decades of last century, when worldwide use of oil was rising exponentially from a mere 500,000 barrels of oil in 1900 to 4 million by 1929, most scientists and engineers assumed that the carbon dioxide produced would not be a problem. It was not until the 1950s that scientists realised that the burning of fossil fuels could create significant ecological problems. By then the economy, industry, transport systems and the military of all nations were designed and built to be powered by the burning of cheap fossil fuels. Hence it would not be easy for modern civilisation to stop using oil and coal to reduce greenhouse gas emissions. A fact which illustrates to what extent humanity had been ignorant of greenhouse gas ecological thresholds and tipping points came in 1987 when scientists discovered that the burning of fossil fuels had meant that the carbon dioxide and methane levels had exceeded the “natural” peak atmospheric levels for the last 400,000 years. The Vostok ice core results showed that humanity is actually adding man-made greenhouse gases to a peaking of the natural cycle of CO₂ and CH₄. CO₂ levels in the atmosphere are now over 380 parts per million. They have not been above 300 parts per million for at least 400,000 years. (Figures 3.2-3.4)

⁷ Caton, A, McLoughlin, K. (2004) *Fishery Status Report: Status of fish stocks managed by the Australian Government*, Bureau of Rural Sciences. Canberra.

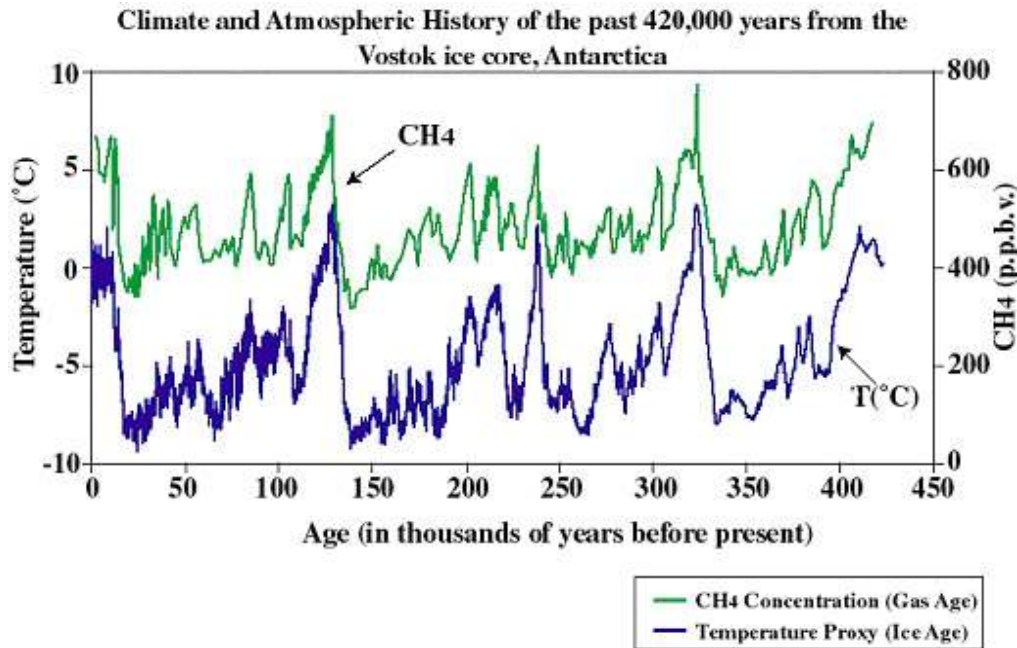


Figure 3.2: Plot of CO₂ Concentrations and Temperature from 400,000 years ago to 1950.

(Source. Petit *et al*, 1999⁸)

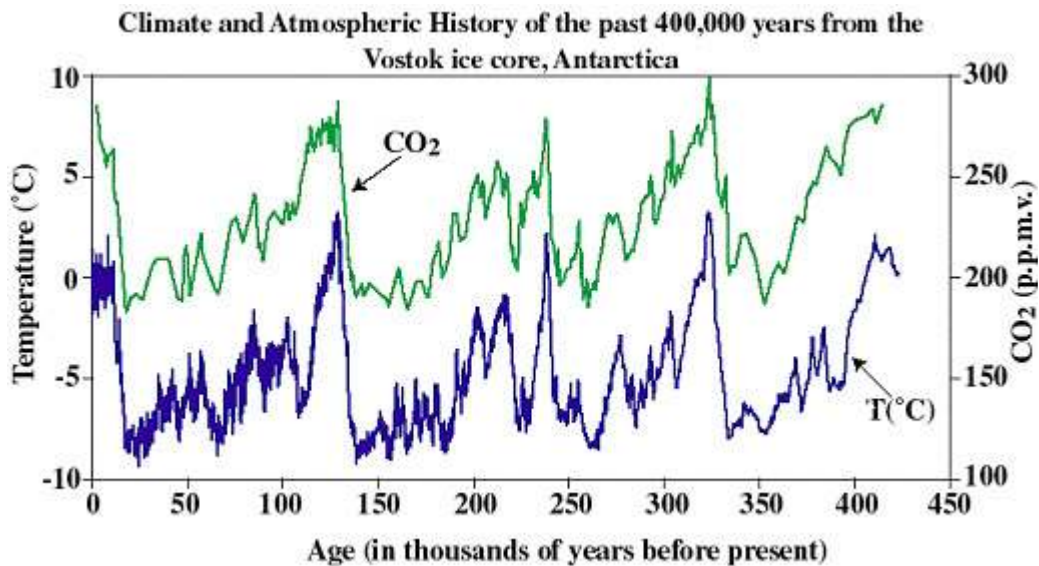


Figure 3.3: Plot of CH₄ Concentrations and Temperature from 400,000 years ago to 1950.

(Source. Petit *et al*, 1999⁹)

⁸ Petit, J., Jouzel, J., Raynaud, D., Barkov, N., Barnola, J., Basile, I., Bender, M., Chappellaz, J., Davis, M., Delayque, G., Delmotte, M., Kotlyakov, V., Legrand, M., Lipenkov, V., Lorius, C., Pépin, L., Ritz, C., Saltzman, E. and Stievenard, M. (1999) *Climate and Atmospheric History of the Past 420,000 years from the Vostok Ice Core, Antarctica*, Nature, 399, pp429–436

⁹ Petit, J., Jouzel, J., Raynaud, D., Barkov, N., Barnola, J., Basile, I., Bender, M., Chappellaz, J., Davis, M., Delayque, G., Delmotte, M., Kotlyakov, V., Legrand, M., Lipenkov, V., Lorius, C., Pépin, L., Ritz, C., Saltzman, E. and Stievenard, M.

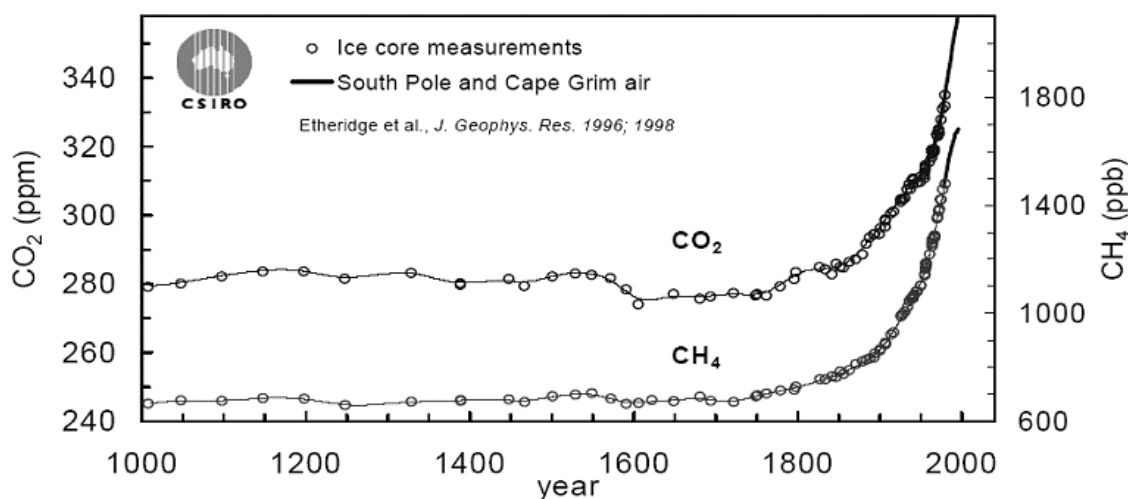


Figure 3.4: Changes in Atmospheric Carbon Dioxide and Methane in the Last Millennium.

(Source: Etheridge, J et al, 1998¹⁰)

3.2 Unforeseen Environmental Impacts from Technology Development

Many technologies have caused significant environmental impact in the past because they often have unexpected side effects or second order consequences that were not originally understood by the designers of the technology. Ignorance of ecological thresholds and the problem of overshoot has meant that often technologies were developed without understanding of their environmental consequences.

In Chapter 2, it was explained how unforeseen and unexpected problems with salinity arose due to irrigation technologies leading to the decline and collapse of the Sumarian civilisation. By about 2300 B.C., agricultural production in Mesopotamia was reduced to a tiny fraction of what it had been. Many fields were abandoned as essentially useless. Mesopotamian cuneiform tablets tell of crop damage due to salts.

In more modern times, this has been certainly true of a wide range of technologies such as adding lead to petrol or CFCs to air-conditioners. Thomas Midgley, the man responsible for these decisions did not appreciate or understand the negative effects that lead would have on public health or the effect that CFCs would have on the ozone layer.¹¹ Thomas Midgley, Jr. (May 18, 1889 - November 2,

(1999) *Climate and Atmospheric History of the Past 420,000 years from the Vostok Ice Core, Antarctica*, Nature, 399, pp429–436

¹⁰ Etheridge, D., Steele, L., Francy, R. and Langenfelds, R. (1998) *Atmospheric Methane Between 1000 AD and Present: Evidence of Anthropogenic Emissions and Climatic Variability*, Journal of Geophysical Research, vol103, 979–993.

¹¹ US EPA (n.d.) *History of Lead*. Available at <http://www.epa.gov/history/topics/perspect/lead.htm>. Accessed 27 January 2008

1944), an American mechanical engineer turned chemist, developed both the tetra-ethyl lead additive to gasoline and chloro-fluorocarbons (CFCs). Midgley died believing that CFCs were of great benefit to the world, and a great invention.¹² While lauded at the time for his discoveries, today he bears a legacy of having engineered two of the most hazardous and destructive inventions ever in human history. Fundamentally, Midgley's failure reflected a more general failure of specialised scientists and professionals to take a whole systems approach to their problem solving and thereby consider the broader system effects of their technological choices. A lack of appreciation of the need to take the broader environmental and social systems approach when addressing problems has not simply been an issue in engineering and technical professions, but also in many other disciplines, i.e. medicine. The following case study illustrates what can go wrong when the whole system is not taken into consideration when designing solutions to problems.

3.3 Why an Understanding of Systems Matters Case Study: Operation Cat Drop

In the 1950s, in Borneo, malaria was a significant health issue. In response to this problem, the World Health Organization (WHO) decided to take measures to significantly reduce the mosquito population, since mosquitoes are carriers of malaria. To achieve this they used the insecticide DDT, which effectively reduced mosquito populations and significantly reduced the incidence of malaria.

However, the WHO failed to appreciate the full scope of their actions. As Hunter and Amory Lovins explain

DDT not only successfully killed mosquitoes - it also attacked a parasitic wasp population, which had previously kept in check a population of thatch-eating caterpillars. So with the unforeseen removal of the wasps, the caterpillar population blossomed, and soon building rooves started falling all over Borneo. Insects, poisoned by DDT, were consumed by geckoes, which were eaten by the cat population. With more cats dying prematurely, rats took over and multiplied, and this in turn led to outbreaks of typhus and sylvatic plague (which are passed on by rats).¹³

At this stage the effects on the health of the people of Borneo was worse than it had been previously with the malaria outbreak. So the World Health Organization (WHO) resorted to the extraordinary step of parachuting live cats into Borneo. The event has become infamously coined 'Operation Cat Drop'.¹⁴

¹² Bryson, B. (2000) *A Short History of Nearly Everything*, Black Swan Publishing, London.

¹³ Lovins, A. & Lovins, H (1997) How not to parachute more cats. Rocky Mountain Institute at http://www.ncsu.edu/project/bio181de/Black/ecosystems/ecosystems_news/ParaCats.pdf

¹⁴ Hawken, P., Lovins, A.B. and Lovins, L.H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London, Chapter 14 Human Capitalism. Available at <http://www.natcap.org/images/other/NCchapter14.pdf>. Accessed 13 August 2007.

The WHO had failed to consider the full implications of their actions on the delicate natural systems of Borneo. Because they lacked understanding of the basic effects of DDT (now banned in many countries) a high cost was paid for this mistake.¹⁵

By considering only the straightforward, first-level relationship between mosquitoes as carriers of malaria and humans as recipients of malaria, the WHO unrealistically assumed this relationship could be investigated or acted upon independently of any other variables or relationships. They considered one tiny aspect of the system, rather than the whole system (the entire ecology).

This example demonstrates the incredible importance of whole systems thinking and analysis. In the real world one relationship strand (e.g. mosquito-human) cannot be separated from the rest of the system. All of the parts of the system are tied together in a complex fabric of inter-relatedness, and changing one part of the system can lead to profound changes throughout the rest of the system, which may not at first glance appear at all connected to the point of action.

Environmental and Systems Engineering, Green Architecture, Green Chemistry and Green Engineering, Cleaner Production, Industrial Ecology and the global appropriate technology movement is a response to this past failure of technologists to adequately consider the whole of system consequences of technological design choices. These new areas of technical practice have evolved out of this understanding of the need to consider and take into account the complex inter-relationships of systems.

These new fields recognise that systems exist throughout the natural and man-made world - wherever there is complex behaviour arising from the interaction between things. This behaviour can only be understood by considering 'complete systems' as they interact within their 'natural' environment. The goal of these new technological fields is to consider the whole-system, in its environment, through its whole life cycle.

The viability of an engineered system/design/product generally relies upon interactions outside of its immediate (product) boundary. These new technical fields simultaneously focus on the specific product to be designed, while considering how that product fits within the context of one or more 'containing systems', including the natural environment, as shown in Figure 3.5.

¹⁵ Ibid

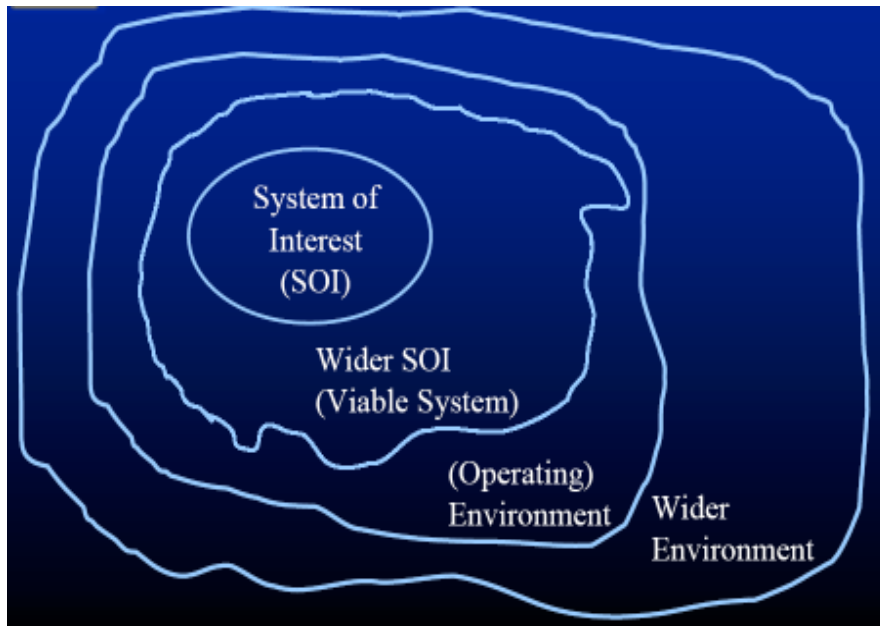


Figure 3.5. The systems engineering goal is to consider the whole system, in its environment, through its whole life. Systems are engineered within the context of one or more 'containing systems'

(Source: Honour, E.C. (2002)¹⁶)

Historically, the failure to understand adequately the environment and its thresholds has led us today to be in the situation where humanity has already overshot many ecological thresholds.

3.4 Vicious Cycles: The Tragedy Of Conflict and War.

Jared Diamond's book *Collapse* shows that once civilisations are beset with environmental failure, reduced crop yields and poorer population health, they are both

- a) weakened and more vulnerable to external enemies and
- b) more vulnerable to conflict within the society for what scarce resources remain.

Diamond shows in *Collapse* that, once weakened by environmental factors, 41 civilisations collapsed partly due to internal or external conflict. In Tainter's view, while invasions, crop failures, disease or environmental degradation may be the apparent causes of societal collapse, the ultimate cause is diminishing returns on investments in social complexity (in contrast, Jared Diamond's 2004 book, *Collapse: Trainter's How Societies Choose to Fail or Succeed*, focuses on environmental mismanagement as a cause of collapse). And as Trainter points out war, conflict and continual conquest of your neighbours is always subject to diminishing returns.

The costs from the diminishing returns of war and conflict have not just negatively effected ancient civilisation. Moving to more modern times, the repercussions of World War 1 (WW1) have been felt

¹⁶ Honour, E.C. (2002) *The Value of Systems Engineering*, Honourcode, Inc. Available at <http://www.incose.org/secoc/0103/ValueSE-INCOSE04.pdf>. Accessed 1 July 2007

for the rest of the 20th century. The financial debt incurred by these wars, the costs of these wars in terms of people's lives, the lives of families left behind, and finally the damage to innocent civilians was immense. Jeffrey Sachs's stated that

“Another great consequence of World War I was the prolonged financial instability it created in Europe after the war. The war created a morass of interlocking financial and economic problems, including the mountain of debt incurred by combatant countries, the destruction and dismembering of the Ottoman and Hapsburg empires and their displacement by small, unstable and feuding successor states, and the Allied claims for reparation payments from Germany, which embittered the next generation of Germans and was one of the rallying points for Hitler's rise to power.....The economic instability that followed World War I led to the Great Depression of the 1930s and then to World War II.”¹⁷

The economic instability, casualties and hardships suffered by Russia during to WW1 plus a very well organised Bolshevik party resulted in a revolution to form the first socialist state. From this evolved the cold war conflict between capitalism and socialism that dominated the second half the 20th century. This caused an escalating arms race that further diverted scarce resources over these years thus reducing the capacity of nations to instead invest in a transition to sustainable development. It is sobering to note that the 20th century saw two world wars, the cold war plus numerous local conflicts and now in the 21st century the global war on terror is already seven years old. Thus it is impossible to underestimate the significance of the decision of the European powers to go to war in 1914.

Any realistic foundation for hope of a world wide resource conservation and environmental commitment envisaged by Theodore Roosevelt in 1908 appears to have evaporated with the world at war from 1914-1918. The diversion of resources – human, capital and material resources – to the war efforts diminished the potential of nations to afford the necessary up front investments to transition to an ecologically sustainable economy.

In Chapter 5 we will discuss how in the past, estimates of the costs of achieving sustainable development have tended to often be grossly exaggerated. On the other hand, historically, governments have tended to underestimate the economic, social and environmental costs of war. When the respective national governments and their militaries began WWI, they and their citizens all believed it would not last for more than 3-5 months. Similarly, the *Coalition of the Willing* assumed that the war in Iraq would only last a short time. Five years later and potentially as many as 600,000 Iraqis¹⁸ and, according to official US data, 4960 coalition soldiers have died. In addition, the war so

¹⁷ Sachs, J. (2005), *The End of Poverty: How Can We Make it Happen in Our Lifetimes*, Penguin Group. New York. p44-45.

¹⁸ Burnham, G. Lafta, R. Doocy, S. Roberts, L (2006) *Mortality after the 2003 invasion of Iraq: a cross sectional cluster sample survey*. The Lancet, October 11, 2006 Available At: <http://www.thelancet.com/webfiles/images/journals/lancet/s0140673606694919.pdf> Accessed 15 February 2007.

far has cost the US alone between US\$1 and US\$3 trillion and counting.¹⁹ The Iraq occupation is the third longest war in US history behind only the War of Independence and the Vietnam war. Almost a century since 1909, it is sobering to reflect that the world had the potential to choose sustainable development instead. Instead there was just four years of relative peace between the WW2 ending and the cold war starting. Between the end of the cold war and now the war on terror there was only twelve years of relative peace for the Western Allies. But since the cold war ended during the 1990s, there has been numerous regional conflicts in different parts of the world.

Historically warfare usually leads to several things, all of which do not help build capacity within society to achieve sustainable development:

Firstly warfare usually leads to the loss of civil liberties. Political philosophers have for centuries recognised this. James Madison stated in 1795:

“Of all the enemies to public liberty, war is perhaps, the most to be dreaded, because it comprises and develops the germ of every other. War is the parent of armies: from these proceed debts and taxes; and armies, and debts and taxes are the known instruments for bringing the many under the domination of the few....No nation could preserve its freedom in the midst of continual warfare.”²⁰

Or from Alexis de Tocqueville:

“...All those who seek to destroy the liberties of the democratic nation ought to know that war is the surest and the shortest means to accomplish it.”²¹

Secondly, war can lead to the a strengthening and the enlargement of the state: by fostering a sense of crisis and suspension of normal social norms; by undermining traditional structures in society; by creating the context within which leaders can begin to repress opposition within the nation; and by enlarging armies and giving the state the option to significantly raise taxes. Thirdly, wars have historically often led to authoritarian rule, whilst undermining civic institutions and reducing and in some cases destroying civil rights.

Fourth, wars have also been the catalyst for ongoing uncertainty and revolution even once peace has been achieved. The French involvement in the American War of Independence helped create the financial problems that helped to precipitate the French Revolution of 1789. The Franco-Prussian War led to the Paris Commune of 1848. Defeat in the Russo-Japanese War led to the uprisings in Russia in 1905. None of these historical lessons seem to have been learnt by the European powers in 1914.

¹⁹ Bilmes, L. Stiglitz, J (2008) The Economic Costs of the Iraq War: An Appraisal Three Years After the Beginning of the Conflict NBER Working Paper No 12054 Available At: http://www2.gsb.columbia.edu/faculty/jstiglitz/download/2006_Cost_of_War_in_Iraq_NBER.pdf Accessed 30 January 2008

²⁰ Madison, J. (1865) *Political Observations, Letters and Other Writings of James Madison*, Vol IV Philadelphia:J.B.Lippincott&Co pp 491-92.

²¹ Tocqueville, A de. (1835) *Democracy in America*, Paris. France.

And fifth, war historically has almost always led to significant national debt and the raising of taxes to meet such debt. Throughout modern history, defence spending has consumed a large percentage of most state budgets and in some instances over 90 per cent.²² The extra money spent on the war is money that will not be spent elsewhere. The war can be funded by either increasing taxes, decreasing spending in other areas, or by borrowing money and increasing the debt. Increasing taxes reduces consumer spending, which does not help the economy improve at all. Decreasing government spending on social programs hurts often those who are the most vulnerable who lose access to vital services and welfare support. The recipients of those programs will now have less money to spend on other items, so the economy will decline as a whole. Increasing the debt levels means higher interest repayments which means governments will either have to decrease spending or increase taxes in the future. This is why wars are not good for the economy.²³

The decision of the European powers to go to war in 1914 was therefore an example of history repeating itself in many respects. What occurred from the decision to go to war in 1914 was utterly predictable for any student of history and war.²⁴

Another of the major consequences of WWI was a shift in the focus of geopolitics. Just as in the 19th century European powers had competed for their colonies and empires, in the 20th and 21st centuries the industrial powers have competed for the best regions of oil. In 1908, Britain started to convert its entire navy from coal to oil powered ships. Western governments followed suit and over the coming decades with their able assistants, the oil companies, vied for control over those states with oil such as Venezuela, Mexico, Sumatra, Borneo and especially the Middle East. Ever since then, OECD nations have become more and more dependant on overseas oil. As a British Official stated about the first world war, “The Allies had floated to victory on a wave of oil” in the first world war.”²⁵ They learnt, as one French diplomat put it, “He who owns the oil will own the world.”²⁶ In a remarkably short space of time at the end of the 19th and the early 20th century oil had moved to the very epicentre of geopolitics. This major shift to oil in the early part of the 20th century has sown the seeds for conflict over increasingly scarce oil resources in the 21st century. Increasingly economies are dependant on oil, largely from the Middle East, for their economic success. By 2000 US oil imports cost US\$109 billion, accounting for a full 25 per cent of the US trade deficit, which has become such a major issue

²² Porter, B.D. (1994) *War and the Rise of the State*. The Free Press

²³ One of the more enduring myths in Western society is that wars are somehow good for the economy. This mistaken belief is an example of what economists call the Broken Window Fallacy. For a succinct explanation see Moffatt, M (2008) Are Wars Good for the Economy? About.Com:Economics. Available At <http://economics.about.com/od/warandtheeconomy/a/warsandeconomy.htm> 17 February 2008. For the original exposition of the Broken Window Fallacy see Bastiat, Frédéric (1848) *Selected Essays on Political Economy*. Paris. Available At <http://www.econlib.org/library/Bastiat/basEss1.html> 17 February 2008.

²⁴ Ibid.

²⁵ Roberts, P. (2004) *The End of Oil: The Decline of the Petroleum Economy and the Rise of a New Energy Order*. Bloomsbury Publishing. New York.

²⁶ O’Conner, H. (1955) *Empire of Oil* Monthly Review Press. New York. p.259

that it is eroding the value of the US dollar which in turn raised the price of oil. Alan Greenspan pointed out that “All economic downturns in the US since 1973 have been preceded by sharp increases in the price of oil.”²⁷ In addition, the US spends two to three times as much to maintain military forces poised to intervene in the Gulf as it pays to buy oil from the Gulf. Al Qaeda stated that the September 11 terrorist attack were partly motivated (but of course not justified) by anger at the US presence in Saudi Arabia. Hence the shift by nations at the start of the 20th century of their military to oil 100 years later has had significant repercussions.

The choice of the world’s powers to go to war in 1914 also accelerated the militarisation of the economy of many nations. War is not simply a transient phenomenon, an unfortunate mistake on the inevitable historical path to progress and enlightenment as Hegelian philosophers would hope. From the Renaissance to World War II, one of the main consequences of war has been the increase in size and power of central national governments. War transforms and builds whole nations and industries. War focuses the government of the day in employing large scale organisation and co-ordination to harness the nation’s resources in nothing else but physical destruction of the enemy. No other national priority requires such significant co-ordination, co-operation and organisation of a nation. By fighting to end war and impose peace the price is often very high, including the loss of political freedoms and weakening of the rule of law. The Swiss economist J.C.L Simonde de Sismondi spoke of this in a letter to a friend in 1835:

“As war becomes more sophisticated it continuously increases government authority and decreases the power of the people.”²⁸

The result is what Harold Lasswell called “garrison states,”²⁹ political systems obsessed with national security, where perpetual war or the perceived threat of war leads to the concentration of all political power in the hands of an elite devoted to protecting their interests through fear, threats and violence. Carried to an extreme, the logical culmination of increasing state power through wars is an authoritarian state.³⁰ This effect of war in the 20th century to sow the seeds for the formation of authoritarian states has been shown over and over again.

In one nation today, the USA, the military-industrial complex has reached unparalleled heights. Military expenditure in the USA in 2006 was roughly equal to the military expenditure of the whole rest of the world combined. President Eisenhower articulated his concerns about how this vicious cycle of war has affected the USA as far back as 1961:

²⁷ Porritt, J (2005) *Capitalism As if The World Matters*. Earthscan Publishing. London.

²⁸ Quoted in Jacoby, H (1973) *The Bureaucratization of the World*, trans. By E.L. Kanes., University of California Press Berkeley. p213

²⁹ Lasswell, H. (1950) *National Security and Individual Freedom*. New York: McGraw-Hill pp23-49

³⁰ Porter, B.D (1994) *War and the Rise of the State*. The Free Press New York..

“We now stand ten years past the midpoint of a century that has witnessed four major wars among great nations...Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions. Added to this, three and a half million men and women are directly engaged in the defense establishment. We annually spend on military security more than the net income of all United States corporations. This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence -- economic, political, even spiritual -- is felt in every city, every State house, every office of the Federal government. We recognize the imperative need for this development. Yet we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society. In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.”

In 2008, Secretary of Defence Robert Gates has asked the US Congress for US\$700 billion to fund the Pentagon and the war in Iraq. If he gets it, he will preside over the equivalent of the 10th-largest economy in the world. In 2003, all the nations of the world spent in total US\$956 billion on the military. To put this in historical perspective, when adjusted to 2007 dollars, spending on the Revolutionary War of Independence was about a hundredth of one percent of total Iraq and Afghanistan war spending since 2003.³¹

Whilst there is recognition post September 11 of the need to address the root causes of terrorism through ending extreme poverty and addressing sustainable development issues, more resources are being spent on security and the military by the US than ever before. After September 11 the then President of the World Bank, James Wolfensohn, wrote that essential to increasing global security was the need to “address some of the root causes of terrorism: those of economic exclusion, poverty and under-development”.³² US President George W. Bush committed the US at the United Nations Financing for Development Conference in Monterey, Mexico, in 2002 to an extra US\$10 Billion in aid and development over three years.³³ Yet the US in 2004 spent over 26 times on military spending than

³¹ Raz, G (2008) *Pentagon Asks Congress for \$700 Billion in Funding*. National Public Radio. Available at <http://www.npr.org/templates/story/story.php?storyId=10098216> Accessed 15.02.08

³² Wolfensohn, J (2002) *Making the World a Better and Safer Place: The Time for Action is Now* Politics: Surveys, Debates and Controversies in Politics The Political Studies Association Vol. 22 Issue 2 pp51-123.

³³ Sachs, J. (2005) *The End of Poverty: How Can We Make it Happen in Our Lifetimes*, Penguin Group. New York p218

it did on overseas development aid.³⁴ The choice between war or sustainable development could not have been more poignant than at the 2002 World Summit on Sustainable Development. Just 11 months after September 11 the Summit would have been an ideal place the Bush Administration to set out a clear dual track strategy to fighting terrorism. Not only did George W. Bush not attend, not only did the US turn its back on the Kyoto Protocol, but during the Summit the US Bush administration began arguing for the Iraq war. Since that point in time the US Bush administration has put almost all of its emphasis, energy and finances to fight terrorism through a single track military approach. Whilst the US debates the wisdom of that policy, 2005 figures show over a third of the world's population was involved with conflict.³⁵ Hence the vicious cycles and opportunity costs of conflict and war are clearly one major factor that has led to lack of progress in achieving sustainable development. The seriousness of this was recognized in December 2001, on the 100th anniversary of the Nobel prize, 100 Nobel laureates issued a brief but dire warning of the “profound dangers” facing the world. The Nobel laureates named two goals: countering a weaponized world³⁶ and mitigating climate change.

But this alone is not sufficient to explain why there has been so little overall progress on sustainable development and why we still have the same sustainability debates 100 years on. In 2006, I got the chance, to interview Jim MacNeil, lead co-author and editor of The Brundtland Commission's *Our Common Future*. In that interview, he volunteered that he and the team involved had failed to adequately discuss the problem of vested interests and anti-sustainable development blocking coalitions. For Jim MacNeil, based on his decades of experience, the biggest barrier to achieving sustainable development are anti-sustainable development vested interests. Hence we explore why this is the case over the next part of this chapter.

3.5 The Problem of Vested Interests

Chapter 2 showed that, as far back as Machiavelli, people have understood that change is often difficult because those that benefit under the current system will resist it. The relative strength of these vested interests helps explain why some societies fail to address obvious problems. Diamond's book *Collapse* shows, for instance, that when many societies have faced the obvious problem of deforestation, some have been able to successfully respond to the challenge - Highland New Guinea, Japan, Tikopia, Germany and Tonga – whilst other civilisations failed - Easter Island, Mangareva, and Norse Greenland and collapsed as a result. How can we understand such differing outcomes? Diamond argues in *Collapse* that

³⁴ Ibid. p330

³⁵ See Ploughshares Available at <http://www.ploughshares.ca/> Accessed 27 January 2008

³⁶ See Ploughshares (2006) *Annual Report Breaking the war cycle* Available at <http://www.ploughshares.ca/what/AnnualRpt2006.pdf> Accessed 27 January 2008

“A society’s responses depend on its political, economic, and social institutions and on its cultural values. Those institutions and values affect whether the society solves (or even tries to solve) its problems.”

Diamond argues that there's a mixture of traits that lie behind these success stories. The success stories tend to be countries that have easier problems to deal with than other countries. It helps if you're in a robust environment like Japan or Germany, which are high-rainfall environments with heavy soil. On average, it helps if you have easier problems. The other things are the social factors—what people do. It helps if you can minimize insulation of the elite, those in power, from the rest of society. If the political elite and vested interests cannot avoid the environmental problems themselves then those societies tend to adapt quickly to at least try to address the problem. One of the main reasons that the Netherlands leads the world in environmental performance is that even economically richest elite was affected by the floods of the 1950s and 60s. Thus the elite and vested interests in the Netherlands know that they cannot escape sea level rises from climate change and thus have proactively pushed for stronger environmental performance. Conversely, Diamond argues

“If the political leaders, (the elite and vested interests) can wall themselves off from the rest of society—for example, here in southern California, if you live in a gated community and drink bottled water, and you've got your private security patrols, and you send your kids to private schools, and you've got your private pension and your private medical insurance, then of course you don't have a personal investment in Medicare, Social Security, public schools, the police force and the public water supply—that's a blueprint for trouble.

Conflicts of interest are another blueprint for trouble, where a small fraction of society can enrich itself by doing things that are bad for the rest of society—like the Enron syndrome, or what mining companies have done, enriching themselves by simply dumping waste into a river. It's cheaper to do that, for them, but it's billions of dollars more expensive for everybody else. Those are some of the ways to achieve success: Minimize conflicts of interest and minimize the insulation of the elite. “

In more modern times, there are still very strong vested interests working against efforts to achieve sustainable development. In Chapter 2, it was shown that scientists had, in many cases, as long as one hundred years ago, sounded the alarm of the dangers regarding the consequences and use of asbestos, PCBs, radiation, benzene, lead, soil degradation and salinity from deforestation, and risks of overshoot from over-fishing and over-harvesting of natural resources. Chapter 2 showed that corporations and their industry group representatives often fought regulation by government that would have forced them to reduce these risks to human health and the environment. Corporations have become significant modern vested interests usually working against the transition to sustainable development, hence it is important to explore why this is so often the case.

3.6 Modern Vested Interests - The Rise of the Corporation and Anti-Sustainability Blocking Coalitions

Since the early 20th century, corporations have grown significantly in size and scale. They are the most common legal vehicle for business activity in Australia and around the world. Governments have legislated to enable corporate structures to be used to carry out business activities.³⁷ They have a separate legal identity and rights afforded to 'natural' persons.³⁸ In addition, corporations have 'perpetual succession' and do not have a defined life span. The financial and legal liability of a company's directors and shareholders are also limited and companies generally operate under tax regimes which are different from and often more beneficial than those that apply to individuals. A traditional view has been that corporations operate for the single purpose of obtaining profits for the company's shareholders. At times this view has carried with it the implication that they can operate without regard to moral values and without regard for environmental and wider social issues. Many corporations have opposed anything that they have perceived may raise costs and reduce profits and reduce their return to shareholders.³⁹ This helps explain why many corporations have historically opposed action on most early warnings of environmental sustainability issues as well as social justice and equity issues. It also explains why many corporations have invested significantly in seeking to oppose pro-sustainable development government policies and regulations either through funding political party campaigns, PR campaigns⁴⁰, political lobbyists, or think tanks.⁴¹

The commonly held belief that a corporation's primary responsibility was to make profits for its shareholders has legal precedent. In the book, *The Corporation*, Bakan⁴² quotes the famous case brought against Henry Ford by the Dodge brothers. Henry Ford, who was one of the earliest proponents of aspects of corporate social responsibility, believed that his company should be more than simply a profit-making machine. He paid his workers substantially more than the going rate at the time and rewarded customers with yearly price reductions on his Model T Ford. 'I do not believe that we should make awful profits on our cars', Henry Ford is reported to have said. 'A reasonable profit is right, but not too much.'" Henry Ford believed that workers should be able to afford the cost of a car.

³⁷ Bakan, J. (2004) *The Corporation: The Pathological Pursuit of Profit and Power*, Viking, Canada.

³⁸ Korten, D 1995 *When Corporations Ruled the World*. Earthscan. London.

³⁹ Harremo, P., Gee, P., MacGarvin, M., Stirling, A., Keys, J., Wynne, B., Vaz S.G., (2002) *Late Lessons from Early Warnings: the Precautionary Principle 1896-2000* Environmental issue report No 22 European Environment Agency. At http://reports.eea.eu.int/environmental_issue_report_2001_22/en Accessed 11.01.08

⁴⁰ Beder, S. (1997) *Global Spin: The Corporate Assault on Environmentalism*, Green Books, Devon, UK,

⁴¹ Beder, S. (2006) *Suited Themselves: How Corporations Drive the Global Agenda*, Earthscan, London, Beder, S. (2003) *Power Play: The Fight for Control of the World's Electricity*, Scribe, Melbourne.

⁴² Bakan, J. (2004) *The Corporation: The Pathological Pursuit of Profit and Power*, Viking, Canada.

John and Horace Dodge invested US\$10,500 in Henry Ford's car company to establish it. They were major shareholders and John Dodge was appointed a director of the company. John and Horace Dodge's decided to build their own car company. John resigned from the board of Ford. They had assumed that they could rely upon their quarterly dividend from their Ford shares to finance their own venture. Henry Ford, however, decided to cancel the dividend and use the money to benefit customers with further price reductions on Model T automobiles. The Dodge brothers sued arguing that profits belong to shareholders and that Henry Ford had no right to give their money away to customers. The judge upheld that argument and re-instated the dividend. He rebuked Ford—who had said in open court that 'Business is a service, not a bonanza'. Dodge vs. Ford has stood as authority for the legal principle that managers and directors of corporations have a legal duty to put shareholders interests above all others and no legal authority to serve any other interests. This has become known as 'the interests of the corporation' principle. This has historically made corporations very sensitive to anything that may add costs to their business and thus reduce profits. Bakan argues that this focus on maximising profits arises because of the unique legal structure of corporations. Whether this is still true or not is addressed in detail in Appendix 4.1.

3.6.1 Party Political Donations

Political contributions can enable corporations to gain political access. Corporate political donations are given on occasions with a view to furthering their immediate commercial interests but sometimes for broader reasons of ideology or policy.

Sometimes the aim will be more generalised; supporting a particular ideology or a range of issues and policies, or winning favour with a particular party. President George W. Bush's election campaigns were paid for by key industries - finance, real estate, communications, fossil fuel, timber, pharmaceutical, tobacco, fast food and the airlines.⁴³ In return for their support, Bush has consistently rewarded these industries with tax breaks, legislative favours and bestowed plum appointments on their executives.⁴⁴

Julian Borger showed that since moving into the White House, George Bush has had only one concern - returning the favours⁴⁵. Real estate developers are permitted to build on wetlands and other sensitive areas, electric and mining companies are allowed to continue emitting carbon dioxide, oil and gas exploration is given the go-ahead on public land including protected national parks, corporate

⁴³ Borger, J (2001) *Special report: George Bush's America: George Bush's favours to big business - All the president's businessmen*. Friday April 27, 2001 -- The Guardian, UK Available At <http://www.georgewalkerbush.net/bigbusiness.htm> Accessed 11.01.08 Accessed 30 January 2008

⁴⁴ Benjamin, R (undated) *Corporate Responsibility and the Environment*. at <http://www.evancarmichael.com/Going-Green/2340/Corporate-Responsibility-and-the-Environment.html>

⁴⁵ Ibid.

executives are given top jobs in the US Interior Department, and the pharmaceutical industry receives the drug legislations it wants.

In the USA donors, of more than US\$200,000, are called Rangers and donors of more than US\$100,000 are called Pioneers. Between them, the Rangers and Pioneers, they raised US\$60 million for George W. Bush's 2004 Presidential election campaign. Businesses contributed nearly three quarters of all political donations. Communication between the State and all sectors of society is necessary for good government, but corporations can enjoy a greater level of influence than others through their donations. Sometimes the leverage they exert borders on corruption.

The laws regulating donations and the public funding of political parties and election expenses varies between countries. In the US, donations are an established part of the political process. They are more strictly regulated in the UK. In France they are banned. As a result, the type and extent of lobbying and political influence will vary between countries. In his former role as Clinton's labour secretary, Robert Reich had frequently complained that corporate America seemed to gain the upper hand more often than not in the corridors of power. Now, in the New York Times he says, there is not even a fight

"There's no longer any countervailing power in Washington. Business is in complete control of the machinery of government. It's payback time, and every industry and trade association is busily cashing in. With political resistance gone, the business community can, paradoxically, no longer discipline itself. Every business lobbyist on K Street is under enormous pressure from clients to reap something from the new bonanza. Every trade association must demonstrate to its members large returns from their investments in getting an all-Republican business-friendly government. And the pressure only ratchets upward: Every time one company or one industry receives its reward, other Washington lobbyists, representing other firms or industries, come under even more pressure to score victories."⁴⁶

3.6.2 Corporate Lobbying Against Sustainable Development

The lobbying industry varies in significance around the world. In the USA, US\$2.1 billion was spent by interest groups in 2004 on lobbying, a growth of 30 per cent since 2000.⁴⁷ As Jeffrey H. Birnbaum wrote in the Washington Post in 2005

“The number of registered lobbyists in Washington has more than doubled since 2000 to more than 34,750 while the amount that lobbyists charge their new clients has increased by as much as 100 percent.

⁴⁶ Reich, R. (2001) *Corporate Power in Overdrive*. New York Times.

⁴⁷ Birnbaum, J. H (2005) *The Road to Riches Is Called K Street Lobbying Firms Hire More, Pay More, Charge More to Influence Government*. Washington Post, June 22, 2005; Page A0. Available At <http://www.washingtonpost.com/wp-dyn/content/article/2005/06/21/AR2005062101632.html> Accessed 30 January 2008

Only a few other businesses have enjoyed greater prosperity in an otherwise fitful economy. The lobbying boom has been caused by three factors, experts say: rapid growth in government, Republican control of both the White House and Congress, and wide acceptance among corporations that they need to hire professional lobbyists to secure their share of federal benefits."⁴⁸

In the USA, corporations argue that they should have greater input into the policy process because they are large taxpayers with an obligation to serve the interests of their shareholders, and responsibilities to their employees and customers and so for self-interest. Corporations there have usually lobbied to block or weaken proposed environmental protection legislation and improvements in social equity and justice.⁴⁹

Corporations are clearly the major employer of lobbyists. They may engage them independently or jointly with corporations with the same interests to protect. They create and contribute to industry associations that collectively pull their economic weight together creating politically very powerful bodies.

In Australia, a blocking coalition made up of coal, oil, gas, mineral processing especially aluminium and steel, cement, plastics and chemicals and paper and pulp companies, right wing think tanks and media plus the Howard Government have similarly been widely judged to have effectively blocked action on climate change.⁵⁰ The extent, to which, Australia climate and energy policy was dictated by these vested interests, has been revealed in 2007 publications by Hamilton⁵¹ and Pearse.⁵²

Similarly George Monbiot⁵³ has exposed to what extent the similar networks in the USA of conservative think tanks, organisations, individual scientists and media outlets have systematically worked together to deny climate change science in the USA. Monbiot describes well how effectively this network in the USA has worked to create uncertainty of the climate change science and assist the Bush Administration delay action on climate change and thus on ecological modernisation in the USA. In the USA, the blocking coalition of a range of corporations like Exxon Mobile, the religious right, the right wing media and the Bush administration has not simply held back real action on climate change, they have worked actively to roll back what few advances had been made on the environment in the USA over his term in office. In the first one hundred days in office, President Bush rolled back

⁴⁸ Ibid.

⁴⁹ Kamieniecki, S (2006) *Corporate America and Environmental Policy: How Often Does Business Get Its Way?* Stanford University Press. California.

⁵⁰ Hamilton, C (2001) *Running From the Storm*. UNSW Press.

⁵¹ Hamilton, C (2007) *Scorcher: The Dirty Politics of Climate Change*. Black Ink. Agenda

⁵² Pearse, G (2007). *The Business Response to Climate Change: Case Studies of Australian Interest Groups*. Doctoral Thesis, Australian National University.

⁵³ Monbiot, G (2006) *Heat: Hot to Stop the Planet Burning*. Penguin Press. London.

campaign promises on clean air, reversing Clinton administration initiatives on drinking water, and promoting new oil exploration in previously protected regions such as Alaska whilst also categorically removing the USA from the Kyoto Protocol Process.

Because of their political influence, many corporations are able to promote their narrow interests and cause serious environmental damage around the world.⁵⁴ Corporations and their lobbyists closely inspect the setting of environmental regulations, mining restrictions, competition and anti-trust laws and import quotas. Contrary views to those of corporations and their lobbyists can and will be put by environmental and social justice NGO groups but, they have nowhere near the resources needed to influence policy makers.⁵⁵

In 2004 Janicke⁵⁶ offered a key insight, namely that ecological restructuring compared to ecological modernisation, requires considerably more political, social and industrial change, risk and cost. It is important to distinguish between intrinsically unsustainable industries that would need to be restructured with those industries, which can be modernised ecologically relatively easily. This distinction is important to make as it helps explain why an “environmental problem” for which there is a readily available, marketable and cost effective technical solution is relatively easy to solve (Ozone, Acid Rain etc) compared to where either industries need to be restructured (fishing, forestry, fossil fuel and coal and forestry, unsustainable agriculture, mining, tobacco) or where there are not yet commercially viable or cost effective solutions (geo-sequestration for the coal industry). Those industry sectors that will need significant restructuring, as part of a transition towards environmental sustainability have traditionally lobbied hard against environmental protection and ecological modernization:

- During the 1980s, the oil industry campaigned to keep lead in petrol. In more recent times the oil industry lobbied against the Kyoto Protocol and legislation directed to reducing greenhouse gases. Millions of dollars were contributed by the oil industry to support the election campaign of George Bush. It was allowed to drill for oil in the Alaskan wilderness.⁵⁷
- Most mining companies have lobbied governments to ease environmental regulation, reduce rights of indigenous populations and for increased mining quotas.⁵⁸

⁵⁴ Beder, S. (2006) *Suited Themselves: How Corporations Drive the Global Agenda*, Earthscan, London,

⁵⁵ Beder, S. (1997) *Global Spin: The Corporate Assault on Environmentalism*, Green Books, Devon, UK.

⁵⁶ Janicke, M (2004) *Industrial Transformation between Ecological Modernisation and Structural Change*. In K. Jacob. M. Binder eds. *Governance for Industrial Transformation*. Proceedings of the 2003 Berlin Conference on the Human Dimensions of Global Environmental Change. Berlin: Environmental Policy Research Centre.

⁵⁷ Borger, J (2001) *Special report: George Bush's America: George Bush's favours to big business - All the president's businessmen*. Friday April 27, 2001 -- The Guardian, UK Available At <http://www.georgewalkerbush.net/bigbusiness.htm> Accessed 11.01.08

⁵⁸ See Mineral Policy Institute at <http://www.mpi.org.au/> Accessed 30 January 2008

- Most of the agriculture lobby has argued for a relaxation of policies such as those relating to pesticide and chemical fertilisers and those which protect drinking water and wildlife. It has also lobbied for the promotion of genetically modified (GM) crops and to prevent GM labelling. It has also argued for government subsidies even when this has created vast quantities of unwanted produce that are dumped on developing countries to the detriment of their own struggling agricultural progress.
- The automobile lobby traditionally argues against tighter fuel standards, stricter emissions control, congestion taxes and for fuel prices to be kept low, and for the building of more roads and freeways instead.⁵⁹
- The building industry lobbies against cost elective energy efficient initiatives such as insulation and has argued that land use regulations be relaxed including those relating to green belts and infrastructure. It is also argued for low interest rates.
- Parts of the energy utility sector have lobbied for privatization and relaxation of greenhouse gas reduction targets.⁶⁰
- In Australia, ABC 4 Corners program “City Limits” revealed that there were significant vested interests preventing recycling storm-water and other sustainable water options as they would reduce the bottom line of existing water utilities. Ticky Fullerton, the Four Corners reporter and author of the book "Watershed", asked

“whether the political will exists to make the tough decisions needed to sustainable urban water usage in Australia’s capital cities – especially when hundreds of millions of dollars are made for governments by selling as much water as possible to the public.”⁶¹

- In Australia, ABC Four Corners in 2003 exposed the extraordinary influence of supermarkets, packaging and drink companies on government policies and how these groups have even managed to compromise green campaigns - all to one end - dodging responsibility for the waste these industries produce.⁶²
- The nuclear lobby has argued for the building of nuclear power plants on the basis that they can produce a lot of energy and their waste will not cause global warming. They underplay the incredibly long period that radioactive waste must be stored before it is safe and the related immense financial cost of that storage. Despite the fact that thousands of innocent people are

⁵⁹ Beder, S (2004) *The Public Relations Assault on Transport Sustainability, Towards Sustainable Land Transport*, CD Rom, NZ Institute of Highway Technology.

⁶⁰ Beder, S (2003) *Power Play: The Fight for Control of the World's Electricity*, Scribe, Melbourne.

⁶¹ Fullerton, T. (2003) *City Limits*. ABC 4 Corners. 18/10/2004. Transcript Available at <http://www.abc.net.au/4corners/content/2004/s1222567.htm> Accessed 2.02.2008

⁶² Fullerton, T. (2003) *The Waste Club*: ABC 4 Corners. Monday 8 September, 2003. Transcript Available at <http://www.abc.net.au/4corners/content/2003/transcripts/s941450.htm> Accessed 2.02.2008

killed in the USA each year by guns, the gun lobby in the USA argues for the right of individuals to own guns. Despite the fact that scientific evidence has established that tobacco smoking causes morbidity and mortality on a large scale, the tobacco lobby argues for the right of individuals to smoke in public places.. They have also fought against legislation to hold them liable for the harm caused by their tobacco products.

- The pharmaceutical industry lobby has opposed free national health care programs for all people and has argued for privatised medical markets. It has also argued against proposals to provide cheaper generic medicines to the poor in developing countries with illnesses such as AIDS.⁶³

In addition, corporations and their coalitions of vested interest have lobbied hard against government initiatives to improve genuinely social and economic equity, equal opportunity, and social justice. Whilst most European countries have instituted, enhanced and at least maintained core social democratic values and institutions such as the welfare state with free medical health coverage, taxation to prevent extreme inequity, the same cannot be said for the USA. Professor Paul Krugman's 2007 publication *The Conscience of a Liberal*⁶⁴ is a detailed history of the politics and economics of inequality in the USA. This publication shows the level of corporate and vested interest opposition to efforts to create greater economic and social equity and equal opportunity in the USA. Krugman shows that significant inequality existed in the USA until Roosevelt's New Deal was passed into law during the 1930s. Krugman brings together the latest research, which shows that it was Roosevelt's New Deal, which spelled the end of a long period of significant inequality in the USA and not other factors.

Three decisions by the Roosevelt's government stood out. The first was raising taxes on the rich. The wealthiest Americans went from paying a top rate of 24 percent in the 1920s to 63 percent during FDR's first term and 79 by his second. By the mid-1950s, it was 91 percent (today's top rate is 35 percent). Corporate and estate taxes went up as well. The average federal tax on corporate profits rose from less than 14 per cent in 1929 to more than 45 percent in 1955. The top estate tax rose from 20 per cent to 45, then 60 per cent, then 70 and then 77 per cent. As a result of these changes the ownership of wealth became significantly less concentrated. The richest 0.1 percent of Americans owned more than 20 per cent of the nations wealth in 1929, but only 10 per cent in the mid 1950s. The second decision was to make it easier for workers to unionise: in consequence, union membership tripled from 1933 to 1938, and then almost doubled again by 1947. The third decision was made after Pearl Harbour to use the National War Labour Board to encourage employers to raise the wages of the

⁶³ Krugman, P (2007) *The Conscience of a Liberal*. W.W. Norton. New York. Chapter 11.

⁶⁴ Krugman, P (2007) *The Conscience of a Liberal*. W.W. Norton. New York.

lowest-paid workers. And after the war ended, "the amazing thing is that the changes stuck." Krugman demonstrates that

"These decisions dramatically reduced inequality and, far from having the cataclysmic effects on the economy predicted by conservatives at the time, they led to the post-war boom. [He emphasizes that the rich then were far less rich than they are today, a point to which he returns several times throughout the book] And then, because they were so successful, the decisions he describes became widely accepted after the war."⁶⁵

This demonstrable decline in inequality plus the post-war economic boom, which partly led from it, resulted in a dramatic decline in political polarization. President Roosevelt had not only successfully led the USA out of the Great Depression but also had led the USA well in the WW2. The contrast of the post-war economic boom versus the Great Depression could not have been starker. So when Harry Truman won the 1948 election, the Republican GOP dropped its project of trying to repeal the New Deal. After that election, "the Republican Party survived—but it did so by moving toward the new political centre."⁶⁶ Krugman cites the work of three political scientists—Keith Poole, Howard Rosenthal, and Nolan McCarty—who have studied the different degrees of polarization and cooperation in every Congress since the nineteenth century and who found, sure enough, that the Congresses of the 1950s saw far more ideological overlap between the parties than did the Congresses of the 1920s or the current decade. Things were looking almost too good. In sum, between 1948 and sometime in the 1970s both parties accepted the changes that had taken place. To a large extent the New Deal changed the relative power relations in the USA significantly enough to create the political conditions that sustained this consensus. A highly progressive tax system limited wealth at the top, and the rich were too weak politically to protest. Social Security and unemployment insurance were untouchable programs, and Medicare eventually achieved the same status. Strong unions were an accepted part of the national scene. The New Deal, in the post-war decades of the 1950s and 1960s changed the relative political power of corporate vested interests enabling these progressive reforms to survive. In the 1950s Eisenhower described those in the Republican Party who still opposed the new deal as nothing more than a tiny splinter group.

Krugman shows that this started to change in the 1960s and 1970s. Over the course of the 1970s especially, radicals of the conservative right determined to roll back the achievements of the New Deal by taking over the Republican Party, opening a partisan gap with the Democrats. In 1984, Thomas Edsall of the Washington Post, published *The New Politics of Inequality*, that provided the first detailed analysis of this right wing radicalisation and renewal of the Republican Party, which he argued occurred from the mid to late 1970s

⁶⁵ Ibid.

⁶⁶ Ibid,

“Such previously hostile and mutually suspicious groups as the corporate lobbying community; ideological right-wing organizations committed to a conservative set of social and cultural values, sunbelt entrepreneurial interests, particularly independent oil; a number of so-called neo-conservative or cold war intellectuals with hard-line views on defense and foreign policy...economists advocating radical alteration of the tax system, with tax preferences skewed toward corporations and the affluent- all these groups found that the republican Party offered enough common ground for the formation of an alliance.”⁶⁷

Krugman demonstrates that

“The empowerment of the hard political right in the USA, emboldened US corporations to launch an all-out attack on the union movement, drastically reducing workers' bargaining power; freed business executives from the political and social constraints that had previously placed limits on runaway executive paychecks; sharply reduced tax rates on high incomes; and in a variety of other ways promoted rising inequality.”⁶⁸

Ronald Reagan was the first new radical conservative President. Reagan taught the conservative US movement how to clothe right wing ideology in populist rhetoric leading to election victory. With election victory came the large scale funding of the Republican Party and right wing think tanks by corporate USA. This coalition of vested interests, with the White House as their ally, did their best in the 1980s to roll back the New Deal through cutting taxes, supporting corporations systematic attacks on the rights and conditions of workers and unions, and slashing the budget of Federal Government Agencies like the Environmental Protection Agency. In the US Ronald Reagan invented the myth of a Cadillac-driving Welfare Queen who, of course, did not exist. Reagan used such myths to lead a roll back of social welfare in the USA.

When the Republicans lost the White House and the House of Representatives in 1992, this coalition of vested interests nevertheless actively fought anything that would suggest that governments had a positive role to play in addressing the market failures and helping to improve national well being and the public good. This is best illustrated by the ferocity and systematic way the US conservative movement backed by corporations fought Clinton's health plan in the 1990s. Krugman outlines in detail the obstacles to health reform in the USA due to corporate vested interests and the conservative movement in Chapter 11 of *The Conscience of Liberal*⁶⁹. Mike Moore's 2007 film *Sicko* has done much to raise public awareness of the opposition by vested interests to universal health care in the USA. But Krugman also shows through quoting conservative strategists like William Kristol to what extent right wing conservatives are systematically opposed to anything that may give the people a sense that, through government, their conditions in life could be cost effectively improved. In this

⁶⁷ Edsall, T (1984) *The New Politics of Inequality*. W.W.Norton. New York., p73

⁶⁸ Krugman, P (2007) *The Conscience of a Liberal*. W.W. Norton. New York

⁶⁹ Ibid. Chapter 11.

aspect Krugman's analysis takes the analysis of most others further. Krugman adds to the analysis as follows:

"Let's start with the enduring obstacles, of which the most fundamental is the implacable opposition of movement conservatives (in the USA). William Kristol, in the first of a famous series of strategy memos circulated to Republicans in Congress, declared that Republicans should seek to "kill" the Clinton plan. He explained why in the Wall Street Journal: "Passage of the Clinton health care plan in any form would be disastrous. It would guarantee an unprecedented federal intrusion into the American economy. Its success would signal the rebirth of centralised welfare-state policy."⁷⁰ He went onto argue that the plan would lead to bad results, but his main concern, clearly was that universal health care might work – that it would be popular, and that it would make the case for government intervention. It's the same logic that led to George W. Bush's attempt to privatise Social Security: The most dangerous government programs, from the movement conservative point of view, are the ones that work the best and thereby legitimise the welfare state."⁷¹

After Ronald Reagan left office, the Republican Party has been completely radicalised by the right wing of the Party. Krugman provides the example of the Texas Republican Party's 2004 platform as an idea of what the Republican Party faithful, and their corporate backers really want. It calls for the

"Elimination of Federal Agencies including but not limited to, the Bureau of Alcohol, Tobacco, and Firearms; the position of Surgeon General; the Environmental Protection Agency; the Departments of Energy, Housing and Urban Development, Health and Human Services, Education, Commerce and Labour." The platform also calls for the privatisation of social security and the abolition of the minimum wage. In other words Texan Republicans want to repeal the New Deal completely."

3.6.3 The Rise of the Anti-Sustainability Right Wing Conservative Movement

The rise of the anti-sustainable development right wing conservatives in the USA, the UK and Australia has had significant repercussions for global efforts to achieve sustainability in the last 20 years. The conservative movement in the USA and Australia has often systematically worked to undermine many of the major sustainability and sustainability related global treaties and goals over the last three decades such as the Kyoto Protocol and Agenda 21 at the 2002 World Summit on Sustainable Development. Whilst this is not the focus of this thesis, as it is well covered by others⁷², it is important to discuss briefly this shift politically to the right over the last three decades in the USA, Australia, the UK and other countries and look at the factors that have caused it.

⁷⁰ Kristol, W. (1994) *How to Oppose the Health Care Plan – and Why*. Wall Street Journal. January 11, 1994. pA14.

⁷¹ Krugman, P (2007) *The Conscience of a Liberal*. W.W. Norton. New York. P228

⁷² Leggitt, J. (1999) *The Carbon Wars. Global warming at the end of the oil era*. London: Penguin.

Many experts have described in detail how the shift to the right politically from the late 1970s has occurred in the US, UK and Australia due to a new coalition of corporations, industry groups, intellectuals, economists, media moguls, think tanks, religious conservatives and security experts.⁷³

The individual members of this renewed conservative movement were motivated by different factors-

- The economic recession of the 1970s and phenomenon of stagflation motivated many economists, business leaders and politicians such as Margaret Thatcher, to turn to Nobel Laureates in economics Hayek and Friedman who advocated a rapid shift to neo-classical economics from Keynesian economics.
- Increasing globalisation of the corporation enabled businesses tired of dealing with rising wage pressures, powerful unions and increasing environmental government regulations in the late 1960s and 1970s to invest (or threaten to invest) in developing countries if regulations where not changed in OECD nations.
- Fervent anti-communists and security “hawks” feared the anti-Vietnam movement of the 1960s and 1970s and were motivated to ensure that communism was defeated.
- The New Deal in the USA and social democratic parties in Europe did raise taxes, corporate taxes and estate taxes on the rich from the period of 1935-1950. This inevitably created a backlash. For instance, any CEO could easily report an increased profit results for their corporation, thereafter reductions in corporate tax rates were achieved.
- Higher taxes also led to more people being outraged by the idea of other people receiving public welfare from their hard-earned money, believing that government should be smaller. The success of the New Deal and the Welfare State in both achieving greater social outcomes and enhancing economic growth in the 50s and 1960s nevertheless also created the opportunity for free rider problems – those who don’t “deserve” the benefit but cheat and get it anyway. In the welfare debate there are those who could easily get work but choose not to – “job snobs” preferring to surf all day at Byron Bay. Academic research shows that the conservative movement has played up the phenomenon of welfare cheats to argue for a winding back of the welfare state. As Dr Greg Marston’s, Australia’s leading commentator on the subject comments

“You’d be led to believe reading the press and newspaper reports that it’s very widespread amongst unemployed people, but in fact it’s about 0.01 per cent of the total Centrelink customer

⁷³ Hamilton, C (2008) *Scorcher: The Dirty Politics of Climate Change*. Black Ink. Agenda

Krugman, P (2007) *The Conscience of a Liberal*. W.W. Norton. New York.

Pearse, G (2005). *The Business Response to Climate Change: Case Studies of Australian Interest Groups*. Doctoral Thesis, Australian National University.

Monbiot, G (2006) *Heat: Hot to Stop the Planet Burning*. Penguin Press. London.

Beder, S (2006) *Suited Themselves: How Corporations Drive the Global Agenda*, Earthscan, London.

base actually commits fraud and is convicted of fraud. So that's tiny compared to the attention it gets. " ⁷⁴

The shift to the right politically in the USA, UK and Australia was also enabled by additional factors:

- Allies in the media such as the Murdoch global media empire. The documentary "OutFoxed"⁷⁵ presented significant evidence to demonstrate to what extent there is systematic daily aligning of the main conservative messages and political spin for the day between the Bush administration, the Republican Party and Murdoch media. Monbiot, Hamilton, Burton, and Beder have demonstrated similar linkages in the UK and Australia.⁷⁶
- The nexus of lobbyists and politicians. Krugman demonstrates that in the USA the Republican Party has systematically worked to drive out Democrats from paid lobbyist positions and ensure that all lobbyist's jobs go to loyal Republicans. Until his defeat in 2006, republican Senator Rick Santorum held a meeting every Tuesday with about two dozen top lobbyists. Nicholas Confessore described those meetings in 2003 as follows:

"Every week, the lobbyists present pass around a list of the jobs available and discuss whom to support. Santorum's responsibility is to make sure each one is filled by a loyal Republican - a Senators chief of staff, for instance, or a top White House aide, or another lobbyist whose reliability has been demonstrated. After Santorum settles on a candidate, the lobbyists present make sure it is known whom the Republican leadership favours."⁷⁷

Equally important is the fact that the takeover of the lobbyists jobs created a pool of highly paid jobs through which the Republican Party could reward party loyalty. The Republican Party, however, doesn't just reward those who toe the line, they punish dissenters within their ranks. The Club of Growth is a right wing think tank that focuses on disciplining Republicans who are not sufficiently in favour of cutting taxes. They have given millions to conservative Republican candidates to run campaigns against sitting moderate Republicans.

⁷⁴ See Dr Greg Marston at <http://www.abc.net.au/pm/content/2005/s1419671.htm> Accessed 30 January 2008

⁷⁵ See Outfoxed: Rupert Murdoch's War on Journalism at <http://www.outfoxed.org/> Accessed 30 January 2008

⁷⁶ Hamilton, C (2008) *Scorcher: The Dirty Politics of Climate Change*. Black Ink. Agenda Press, Melbourne.

Pearse, G (2005). *The Business Response to Climate Change: Case Studies of Australian Interest Groups* Doctoral Thesis, Australian National University.

Monbiot, G (2006) *Heat: Hot to Stop the Planet Burning*. Penguin Press. London.

Beder, S (2006) *Suiting Themselves: How Corporations Drive the Global Agenda*, Earthscan, London.

⁷⁷ Confessore, N (2003) *Welcome to the Machine*, Washington Monthly. July/August. 2003. Cover Story.

All of these factors would not have guaranteed success without also the advent and rise of the right wing conservative think tank. A think tank is a research institute providing advice and ideas on problems of policy, commerce, and military interest. They are often associated with military laboratories, corporations, academia, or other institutions. Usually the term “think tank” refers specifically to organizations which support multi-disciplinary theorists and intellectuals who endeavor to produce analysis or policy recommendations, often consistent with a particular political ideology. Think tanks are financed by corporations and individuals who hope to give more credibility to their ideas. They are usually comprised of ex-politicians, academics and industry leaders. They produce reports on various issues and seek to gain large publicity for them.

Until around 1970, there were very few think tanks. After 1970, the number of think tanks grew rapidly with the vast majority of them described as right wing conservatives based on laissez-faire economic theory.⁷⁸ Bob Burton’s work in his book *Inside Spin*⁷⁹ describes how right wing think tanks have acted as the front line shock troops of conservatives. Such think tanks have been extraordinarily successful in the USA, Europe and Australia in changing the debates on numerous sustainability issues. A review of environmental scepticism literature from the past 30 years has found that the vast majority of sceptics, often identified as independent, are directly linked to politically oriented, conservative think tanks. The study⁸⁰ analysed books written between 1972 and 2005 which deny the urgency of the need for environmental protection. The authors of this study concluded that more than 92 percent of the sceptical authors were affiliated to right wing think tanks which promote conservative ideas. Co-author of the study Professor Dunlap states that

“The U.S. conservative movement has led opposition to international environmental regulation since the 1992 Earth Summit in Rio de Janeiro. In the years since, the movement has succeeded in undermining the credibility of many environmental issues, from the [political] right, there's no longer a sense of neutral, objective science - only liberal or conservative - and that's an unfortunate trend.”

Many sceptics say that they form their opinion despite their affiliation to think tanks or industry. The authors say environmental sceptics have every right to voice their opinion. But the statements of a few think tank-supported experts should not be regarded as equal to scientific findings that have been vetted through an intense peer-review process. The co-authors stated that

⁷⁸ Abelson, D. E. (2002) *Do Think Tanks Matter? Assessing the Impact of Public Policy Institutes*. Montreal: McGill-Queen's University Press.

Lakoff, G. (1996) *Moral Politics: What Conservatives Know That Liberals Don't*. Chicago: University of Chicago Press.

Stone, D, Denham, A eds. (2004) *Think Tank Traditions: Policy Research and the Politics of Ideas*. Manchester: Manchester University Press.

Morgan, Dan.(2001) *Think Tanks: Corporations' Quiet Weapon*, Washington Post (29 January 2001):

⁷⁹ Burton, B (2007) *Inside Spin. The Dark Underbelly of the PR Industry*. Allen & Unwin (Australia),

⁸⁰ Jacques, P; Dunlap, R, Freeman, M. (2008) *The Organisation of Denial: Conservative Think Tanks and Environmental Scepticism*. Environmental Politics, Volume 17, Issue 3 June 2008 , pages 349 – 385 Available at <http://www.informaworld.com/smpp/content~content=a793291693~db=all~order=page>

“We want to allow a cacophony of voices in public policy. Where we get into problems is where we fail to evaluate the voices; we fail to evaluate the merit of the claim.”

They have been greatly assisted in this by the nature of the media. As Peter Jaques, lead author of the study states,

“The popular media often regard environmental sceptics as independent experts, despite their connection to industry-funded campaigns that seek to de-legitimize sound environmental science reports, especially on climate change.”

3.6.4 The Nature of the Media

A significant obstacle to sustainability debates maturing and being resolved is the nature of the media. The media wants debate, argument and conflict. The TV media industry views the idea of people agreeing as “boring” television. TV based arguments allow little room for consensus or shared frameworks. Though great for ratings, such media-devised wrangling ignores the possibility that innovative, pragmatic solutions might exist that can satisfy the vast majority and make these media debates irrelevant.

Historically, there has been a very clear pattern that plays out in the media. Firstly, science discovers another negative human impact on the environment or chemical that could harm human health. Secondly, business and their representatives - whether as industry bodies, think tanks, or lobbyists – counter this disputing the veracity of the scientific claims, arguing that action would cost jobs and harm the economy. Thirdly, the media reports both sides in such a way as it often leaves audiences confused in the name of “balanced” coverage.

By definition there is always uncertainty in the science of complex systems such as nature, ecosystem thresholds, risks to human health and modelling to assess how actions will affect the economy. So, even if business and their representatives cannot effectively argue that there is uncertainty in the science, they can easily raise uncertainty about the cost-benefit analysis to the community of acting on a scientific warning. They can raise concerns and fears in the community about whether action will harm economic growth and jobs, because there is always inherent uncertainty in modelling complex systems. The modelling of such complex systems as the economy inevitably involves making assumptions which can significantly influence the conclusion of the modelling. Voters are increasingly sensitive to issues of how economic growth and jobs will be effected because, due to market and competition orientated policy, people are less secure about their future employment. With mortgages also having increased significantly over the last two decades in most OECD countries, voters are very concerned about whether economic growth and employment rates are going up or down. Some think tanks play on these fears and concerns in the media.

The media also is happy to feature the representatives of these think tanks because they provide much needed “debate” to ensure lively higher rating television. The media wants debate, even if an issue is resolved amongst all independent scientists and economists. This has been seen with climate change. Now that there is overwhelming consensus within the independent scientific and economic community concerning human induced climate change the media increasingly has to go to think tanks, often funded by industries responsible for significant greenhouse gas emissions, to find anyone who is willing to “debate” the issue. Such debates in the media make good fodder for reporters and while they can help expose gaps in knowledge, it does not help to move forward and resolve debates. It also presents a false impression to citizens that there is still significant debate in the independent environmental questions such as the basic science of climate change. Studies reviewing the peer reviewed climate science literature show that

“1,372 climate researchers and their publication and citation data to show that the overwhelming majority of the climate researchers most actively publishing in the field support the tenets of anthropogenic climate change as outlined by the Intergovernmental Panel on Climate Change.”⁸¹

The rest of the literature on atmospheric and climate science simply does not take a position one way or the other usually because it is irrelevant to the research focus of their paper. Despite this level of scientific consensus in the peer reviewed literature, “a survey of 636 articles from four top United States newspapers between 1988 and 2002 found that most articles gave as much time to the small group of climate change doubters as to the scientific consensus view.”⁸²

The commitment, in the media, to allow both sides of an argument equal time is very important most of the time. However as the late IPCC lead author Professor Stephen Schneider explains

“In science, it’s different. A mainstream, well-established scientific consensus may be ‘balanced’ (by the media) against the opposing views of a few extremists, and to the uninformed, each position seems equally credible.”⁸³

Extreme examples help to make the point. Is it appropriate to give equal time on the media to one scientist arguing for the existence of gravity versus some arguing that gravity does not exist? Is it valid or appropriate for the media to give equal time to those that do not think AIDS exists, to those that do and wish the public to be informed so they can take appropriate steps to avoid contracting the disease?

⁸¹ Anderegg W.R.L., Prall J.W., Harold J., Schneider S.H. (21 June 2010). "Expert credibility in climate change". *Proc. Natl. Acad. Sci. U.S.A.* 107 (27): 12107–9. and Oreskes, N (2004). "Beyond the Ivory Tower: The Scientific Consensus on Climate Change". *Science* 306 (5702): 1686..

⁸² Boykoff, M.T.; Boykoff, J.M. (2004). "Balance as bias: Global warming and the US prestige press". *Global Environmental Change*, (14): 125–136

⁸³ Edwards, Schneider, S (2001) Chapter 7. Self-Governance and Peer Review in Science-for- Policy: The Case of the IPCC Second Assessment Report In Clark Miller and Paul N. Edwards, eds., *Changing the Atmosphere: Expert Knowledge and Environmental Governance* (Cambridge, MA: MIT Press, 2001 at http://stephenschneider.stanford.edu/Publications/PDF_Papers/ipccpeer.pdf

Just as there is a significant and remarkable level of consensus on the science of anthropogenic climate change and the economics of action on climate change in the peer reviewed literature, this thesis will show, in chapters 4-8, that there is a growing consensus on many of the other broad sustainability issues and debates within academia, scientists and increasingly amongst economists who publish in the peer reviewed literature. However, it remains to be seen whether the general public will ever know this because of both the nature of the media and the fact that there are now hundreds of well funded neo-conservative neo-classical think tanks willing to represent relentlessly anti-sustainability positions without basis in the peer reviewed scientific literature.

Until around 1970, there were no more than several dozen think tanks. This number has exploded since 1970 and the vast majority of the new think tanks, that have formed, would be described as conservative based on simplistic interpretations of neo-classical economic theory.⁸⁴ Krugman has shown that such think tanks oppose any form of government intervention that in any way could be construed as helping to rebuild the welfare state or improving workers rights and conditions. Monbiot, Beder, Burton and Hamilton have shown that such right wing think tanks and vested interests also oppose most attempts to address the market failure of environmental degradation. But many right wing think tanks go further and argue that there is no market failure and hence dispute the role of government intervention more broadly. Such is their fundamental belief in the market as the best means to address most problems, they disagree that government investment and policy changes are needed to achieve a better world. They argue against the fact that there is any scientific evidence or ethical foundation for the need for new paradigm of sustainable development as was outlined in detail in Chapter 1. As long as corporations fund such right wing think tanks and they have allies in the media they will systematically work to ensure that the sustainability debates are never truly resolved. Hence next, in this chapter, we consider in more detail whether there is a basis for market fundamentalism.

After that, in this chapter, we begin to discuss the great sustainability debates namely whether a transition to sustainable development will help or harm economic growth, jobs and business competitiveness. It is widely acknowledged that the upsurge in interest and commitment in sustainability in the late 1980s and early 1990s, thanks in large part to the Brundtland Commission's *Our Common Future*, failed to realize its early promise in the 1990s globally. There are different theories on why this is the case. But most acknowledge that one factor in this has been the success of a concerted campaign by the conservative movement globally against sustainable development based

⁸⁴ Abelson, D. E. (2002) *Do Think Tanks Matter? Assessing the Impact of Public Policy Institutes*. Montreal: McGill-Queen's University Press.

Lakoff, G. (1996) *Moral Politics: What Conservatives Know That Liberals Don't*. Chicago: University of Chicago Press.

Stone, D. Denham, A. eds. (2004) *Think Tank Traditions: Policy Research and the Politics of Ideas*. Manchester: Manchester University Press.

Morgan, D. (2001) *Think Tanks: Corporations' Quiet Weapon*, Washington Post (29 January 2001):

on the argument that sustainable development would harm jobs, business competitiveness and economic growth. These largely corporate vested interests working with conservative think tanks, politicians and allies in the media have been extraordinarily effective at convincing many citizens that a transition to sustainable development is going to increase costs to business and the community and therefore is anti-economic growth, anti-jobs and anti-business competitiveness. This is one of the major reasons why this thesis focuses on these sustainability debates here in chapter 3 and then in more detail in chapters 4-8. Underpinning conservative right wing conservative claims about the costs of a transition to sustainable development is their faith in the “invisible hand” of the market and their belief that government intervention will not assist and be costly.

Hence, before discussing some of the classic sustainability debates in the rest of the thesis (Chapters 3-8), it is important to recognise that the debates about the role of market and state also have significant implications for the progress of sustainable development in general. Is the market the best way to allocate scarce resources. Can markets fail? Is there a role for government intervention to assist a transition to sustainable development or should it all be left to the market? Debates have continued on these fundamental questions for over a century. Hence this debate about the role of market and state is considered next.

3.6.5 The Rise of Market Fundamentalism

Already this thesis has outlined some of the core assumptions and beliefs that have prevented the successful operationalising of sustainable development. Another important reason why so little progress has been made on sustainable development has been rise of influence of market fundamentalism and the right think tanks that have promoted it. Up until the 1970s, government intervention based on Keynesian economics had proved remarkably successful at helping economies to grow and smooth out the extremes of the traditional boom bust cycle. But in the 1970s, through a range of factors including the OPEC oil crisis, Western economies were faced with a serious challenge. By the late 1970s and early 1980s many economies were faced with both a stagnant economy and high inflation. This phenomenon was called stagflation. Many saw this as a failure of government intervention and Keynesian economics. The crisis of stagflation in the 1970's, and the fall of Soviet Empire in 1989 has led economic policy to shift to more laissez-faire approaches which have idealized the market whilst belittling the role of government and the need for regulation. This sentiment was summed up by Bill Clinton in 1996 in his January 27 radio address on CNN when he said that *'The era of big government is over.'* The most ardent free market proponents believe that the market is the best way to address environmental degradation, unemployment and issues of social inequity, arguing that the market and innovation on their own will solve these problems and that governments would best get out of the way as much as possible. Behind this is a belief in unfettered or unregulated markets. Adam Smith, in 1776, crystallized this view when he wrote about an invisible hand that works through the markets. No idea has had more power than that of Adam Smith's

invisible hand. It is said that free markets, as if by an invisible hand, lead to the most efficient, and fair, allocation of scarce resources and that each individual in pursuing his or her own self-interests, advances the greater good. The relevant passage is probably the most famous (and selectively cited) passage in Smith's classic *An Inquiry into the Nature and Causes of the Wealth of Nation*.⁸⁵

"But the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry, or rather is precisely the same thing with that exchangeable value. As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to rend the annual revenue of the society as great as he can. He generally indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security, and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By promoting his own interest he frequently promotes that of the society more effectually than when he really intends to promote it."

Thus, what he in fact said was that each individual, pursuing his or her own self-interest, led by an invisible hand, frequently promotes the interests of society. Markets do bring enormous benefits. They have been responsible for lifting more people out of poverty faster than any other economic mechanism in history. In a well-functioning market, prices provide information about the demand and supply conditions in that market, both buyers and sellers can observe and act upon the information embodied in the price. The economist Friedrich Hayek described the interconnectedness of markets as follows:

"Suppose that someone has found a new use for tin, so that the demand for tin increases and its price rises. Then the effect will rapidly spread throughout the whole economic system and influence not only all the uses of tin but also its substitutes and the substitute of these substitutes, the supply of all things made of tin, and their substitutes and so on; and all this without the great majority of those instrumental in bringing about these substitutions knowing anything about the original causes of these changes. The whole acts as one market, not because any of its members survey the whole field, but because their limited individual fields overlap so that through many intermediaries the relevant information is communicated to all."⁸⁶

⁸⁵ Smith, A (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations*, p 572. 1st, The University of Chicago Press, Chicago, IL.

⁸⁶ Hayek, F. (1949) *The Uses of Knowledge in Society*, in Hayek, F., *Individualism and Economic Order*, Routledge and Kegan Paul, London

It would be foolish in the extreme, therefore, for any government to seek to even attempt to replace this role of the market. Actually, it is extreme folly to suggest that even the most benevolent of centrally-planned states could acquire the amount of information necessary to replace the market. We saw in the Soviet's case the disastrous results of such a policy. Some strongly influenced by Hayek concluded that for the most part the market is best and formed think tanks to promote such beliefs.⁸⁷ But one of the great intellectual achievements of the mid-twentieth century (by Gerard Debreu of the University of California at Berkeley and Kenneth Arrow of Stanford, both of whom received Nobel prizes for this achievement) was to establish the conditions under which Adam Smith's 'invisible hand' did in fact work⁸⁸:

- information had to be either perfect, or at least not affected by anything going on in the economy
- whatever information anybody had, others had the same information; and
- competition was perfect and, for instance, one could buy insurance against any possible risk.

Arrow and Debreu's Nobel Prize winning work also showed that for Smith's invisible hand to apply it implicitly assumed that information is fixed, costless and perfect. We know that information is not fixed, costless, or perfect. The amount, nature and distribution of knowledge within a society change over time. Individuals and organisations must invest time and money in order to acquire new information. Even though everyone recognized that these assumptions were unrealistic, it was hoped that the real world did not depart too much from such assumptions and that Adam Smith's invisible hand theory would still provide a good description of the economy. Subsequent Nobel Prize winning work has shown that this was a hope based on faith not science. Sometimes, knowledge lies with parties who have an incentive to conceal it, so that information is unevenly or 'asymmetrically distributed' between buyers and sellers. Economists such as George Akerlof, Joseph Stiglitz and Carl Shapiro have emphasised that the kinds of assumptions economists make about information is important, because changing these assumptions results in significantly different economic models. In the 1970s and 80s, these and other pioneering economists set about including information distribution in their models. Rather than producing more complicated models making essentially the same predictions, the explicit inclusion of information distribution resulted in models capable of predicting and explaining behaviour in many different markets.

⁸⁷ Abelson, D. E. (2002) *Do Think Tanks Matter? Assessing the Impact of Public Policy Institutes*. Montreal: McGill-Queen's University Press.

Lakoff, G. (1996) *Moral Politics: What Conservatives Know That Liberals Don't*. Chicago: University of Chicago Press.

Stone, D, Denham, D eds. (2004) *Think Tank Traditions: Policy Research and the Politics of Ideas*. Manchester: Manchester University Press.

Morgan, D. (2001) *Think Tanks: Corporations' Quiet Weapon*, Washington Post (29 January 2001):

⁸⁸ Arrow K. J. and G. Debreu (1954). "The Existence of an Equilibrium for a Competitive Economy" *Econometrica*, vol. XXII, 265-90

Importantly, in these and other new models, the market mechanism was shown to be inefficient in the face of imperfect information. Bruce Greenwald and Joseph Stiglitz⁸⁹ analytically demonstrated in 1986 that this conclusion is a general one. Differences in the levels of access to information within the market will affect the distribution of resources, and better information may actually lead to a more efficient distribution. Greenwald and Stiglitz found that these asymmetries of information are pervasive throughout the economy and found them to be endemic, and especially in developing economies, where the market for information does not work as well. In fact, these advances in economics show that the invisible hand of Adam Smith is termed ‘invisible’ for good reason, as it does not exist in the real world.⁹⁰ Moreover, in simple situations involving a market with a single informational problem, there is in many cases a government intervention which could make everybody in the market better off. In more complicated settings involving complex multiple informational problems it may be the case that clear opportunities for government interventions to improve welfare will not necessarily exist. In addition to providing a better picture of the economy, the work of Greenwald and Stiglitz also has recast the old debate about whether or not there is a role for government in a market economy in a new light. The theorem shows that market failure is endemic and that there is indeed a role and that the relevant debate is not the existence of this role but its precise nature.⁹¹ As Common *et al* write

“Rational Expectations Models assume that all market participants have the same information and act perfectly rationally. Stiglitz comments that the fact that such models were for many years the received wisdom in neoclassical economics, and “especially in America’s graduate schools”, “ bears testimony to a triumph of ideology over science.”⁹²

3.6.6 Market, Informational and Institutional Failures – Drivers in Unsustainable Development.

These economic results are profound because they analytically demonstrate that laissez faire market fundamentalism no longer has any foundation in modern economics. Their results provide a foundation from which it will be possible to re-frame the market versus state debates.

Their results significantly weaken the argument of those economists in think tanks which believe that information failures and market failures are insignificant compared to government failures. The World Bank released the World Development Report 1997: *The State in a Changing World*⁹³ incorporating

⁸⁹ Greenwald, B. and Stiglitz, J. (1986) *Externalities in Economies with Imperfect Information and Incomplete Markets*, Quarterly Journal of Economics, vol 101, no 2

⁹⁰ Stiglitz, J. (2001) Nobel Laureate Acceptance Speech Available At <http://nobelprize.org/economics/laureates/2001/stiglitz-lecture.pdf> Accessed 30 January 2008

⁹¹ Ibid.

⁹² Common, M. Stagl, S. (2005) *Ecological Economics: An Introduction*. Cambridge University Press

⁹³ World Bank (1997) *World Bank Development Report 1997: The State in a Changing World*, Oxford University Press, Oxford.

this new understanding of market and informational failures. The report argues that an “effective state” is the cornerstone of successful economies. World Bank Group President James D. Wolfensohn said "Many have felt that the logical end point of all this was a minimalist state. Such a state would do no harm, but neither could it do much good. The report explains why this extreme view is at odds with the evidence of the world's development success stories."

This result is also profound as it shows that market and information failures are endemic and significant. Hence this enables the sustainability “growth” debates to be reframed on a much stronger foundation.

Using these results from modern economics this thesis proposes that the current unsustainable nature of economic growth could be a symptom of more fundamental causes of un-sustainability. This thesis, using the current literature for support, proposes that the current form of economic growth is unsustainable due to market, informational and institutional failures, rebound effects, a failure to mainstream sustainable design, rising global population a rapid expansion of unsustainable western consumption patterns globally and a lack of sufficient global co-operation. This thesis argues that, only by recognising this and focusing on the necessary sustainability design, policy and institutional changes to address these barriers to sustainability can the current unsustainable forms of development be turned around to become sustainable. Once it is understood that economic growth per se is not the problem then this helps to clarify what market, information and institutional failures government, business and society needs to focus on to achieve the goal of sustainable development. The conservative right wing movement’s main arguments against sustainable development initiatives are that

- a) the problems sustainable development seeks to address are not caused by market informational or institutional failures and hence should be left to the market
- b) that government intervention will only make such problems worse
- c) that government intervention will significantly harm economic growth

This thesis proposes that this is one of the key reasons why reframing of the “growth” debates is vitally important. This thesis proposes that those that previously assumed that economic growth is the main cause of unsustainable development have played into the hands of the conservative movements agenda and the very vested interests that they are seeking to overcome. To date right wing conservative think tanks, politicians and media have been able to use quotes and reports by the environment movement itself to argue both that economic growth is the cause of environment degradation and a transition to sustainable development would harm the economy. Environmentalists and right wing conservatives have not agreed on much historically, but many have agreed that there are fundamental trade offs between economic growth and the environment and this has provided conservative think tanks with one of their main arguments to stop progress on sustainable development.

A relative failure by the environment movement to pay attention to and see the state versus market debates and discourses as important has also played into the hands of vested interests and right wing think tanks.

These results from Stiglitz *et al* that show that market and information failures are endemic and significant and have profound implications also to what steps are needed to change the current drivers of unsustainability into drivers for sustainability.

Modern economics now demonstrates on a rock solid footing, that governments have a role to address externalities as the market tends to produce too little of positive externalities like education and R&D whilst producing too much of negative externalities like pollution and environmental degradation. The literature to date also shows that to achieve decoupling of economic growth from environmental pressures, purposeful government policy and actions are essential. Another area where government intervention will be required is to drive the next waves of innovation in sustainability. Modern economics shows that governments can greatly assist firms lead new waves of innovation through their unique position in society to help co-ordinate the multiple initiatives needed, often over decades.

This thesis argues in Chapters 4-8 that to achieve the goal of sustainable development governments, business and society need to focus on overcoming market failures through good governance to address the tragedy of the commons, advanced eco-efficiency/design for sustainability approaches supported by purposeful sustainability policy, economic incentives, regulatory and institutional reforms, corporate law reform plus sustainable consumption and lifestyle changes. All of these initiatives will require differing degrees of government intervention.

Neo-classical economists represented by many think tanks globally argue against such measures.⁹⁴ They strongly oppose unnecessary government intervention. They argue that government failure is almost always worse than market failure. So strong is their conviction that they oppose efforts by governments to recognise and address market failures of many sorts such as negative environmental externalities or inequality of income. This core belief in the idea that market failures do not exist or if they do they are not as bad as government failures underlines the role taken in the sustainability debates by most of these conservative neo-classical think tanks. Hence to understand the sustainability debates we need to also understand market fundamentalism. If we are to move the

⁹⁴ Abelson, D. E. (2002) *Do Think Tanks Matter? Assessing the Impact of Public Policy Institutes*. Montreal: McGill-Queen's University Press.

Lakoff, G. (1996) *Moral Politics: What Conservatives Know That Liberals Don't*. Chicago: University of Chicago Press.

Stone, D. Denham, D eds. (2004) *Think Tank Traditions: Policy Research and the Politics of Ideas*. Manchester: Manchester University Press.

Morgan, D. (2001) *Think Tanks: Corporations' Quiet Weapon*. Washington Post (29 January 2001):

sustainability debates forward it is vital that we understand that they are occurring in the context of other debates such as debates about the role of the market and the state.⁹⁵

Stiglitz's recent popular books⁹⁶ have been largely polemical and have not taken the time to explain the basics of market efficiency and failure to the layperson so that they can fully understand the significance of these results. These results put much of Keynesian economics on the solid theoretical footing that Keynes, not being a gifted mathematician, was unable to do.

These results, for which the economists responsible won the 2001 Nobel Prize in Economics, reframe these old debates about market and state forever.⁹⁷ Few publications have appreciated the significance of these results. For instance major publications on this old debate of state versus the market such as *The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World*⁹⁸ and the PBS documentary series based on this book missed completely these recent developments in economics. Professor Michael Common and Sigrid Stahel's *Ecological Economics: An Introduction* is one of the few economics text books that has recognised the importance of these results for the economics of sustainable development.

These important economic results demonstrate that market fundamentalism, which underpins the global conservative movement, and right wing think tanks arguments, no longer has any foundation in modern economics. The rest of this thesis now is an analysis of whether their claims about the prohibitive costs of a transition towards sustainable development have any foundation either? Chapters 6-8 in particular look at whether the costs of action outweigh the costs of inaction on sustainable development.

3.7 The Perception That Environmental Sustainability Will Always Increase Costs To Industry Or Any Organisation.

One of the main reasons for inaction on warnings on ecological sustainability issues has been the perception of increased costs to industry or for that matter any organisation. Repeatedly corporations have argued that the costs of acting on early warnings would be prohibitive. This has been a key factor in many of the early warnings, and even some of the loud and late warnings, being deliberately

⁹⁵ Stanislaw, J., Yergin, D. (1998) *The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World* Simon & Schuster. New York. PBS in the USA has made a significant documentary series based on this book called *The Commanding Heights*. (www.pbs.org/wgbh/commandingheights/)

⁹⁶ Stiglitz, J. (2002) *Globalization and its Discontents*, Allen Lane, London

Stiglitz, J. (2003) *The Roaring Nineties: A New History of the World's Most Prosperous Decade*, Allen Lane, London

⁹⁷ Stiglitz, J. (2001) Nobel Laureate Acceptance Speech Available at <http://nobelprize.org/economics/laureates/2001/stiglitz-lecture.pdf> Accessed 30 January 2008

⁹⁸ Stanislaw, J., Yergin, D. (1998) *The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World*. Simon & Schuster. New York. PBS in the USA has made a significant documentary series based on this book called *The Commanding Heights*. (www.pbs.org/wgbh/commandingheights/)

ignored by decision makers, governments and politicians. The EU study “Late Lessons from Early Warnings: the Precautionary Principle 1896–2000”⁹⁹ states that

“Information [about asbestos, PCBs, radiation, benzene, lead, soil degradation and salinity from deforestation, and risks of overshoot from over-fishing and over-harvesting of natural resource] was not used, or ignored: or we were all taken by ‘surprise.’ In many of the case studies, adequate information about potential hazards was available well before decisive regulatory advice was taken, but the information was either not brought to the attention of the appropriate decision-makers early enough, or was discounted for one reason or another. It is also true that in some of the case studies, early warnings — and even ‘loud and late’ warnings — were effectively ignored by decisionmakers because of short-term economic and political interactions..”¹⁰⁰

If problems are addressed early on then the costs involved can be significantly reduced. But in many cases business and government have not acted early to address sustainability issues. Instead, by the time governments decide they have to act, the scale and speed required of industry to change practices to solve these problems may have grown significantly. Whether it be phosphate fertilisers and algae blooms in the northern hemisphere lakes, sulphur dioxide and acid rain, CFC’s and the destruction of the ozone layer, or greenhouse gases and climate change, the scale and speed required of industry to change practices to solve these problems has and will require significant reductions of these pollutants. Industry has historically time and again argued that the cost of addressing the sustainability issues outlined in Table 1.4 would cost too much and harm competitiveness.¹⁰¹ Is this true? Or have initial cost estimates by industry and business been incorrect or biased? Estimates about the cost of environmental regulations are used in analyses to set public policy, and they influence the public sentiment that in turn influences political decisions. If estimates are biased and overstate the costs, the public may conclude that the regulations are too expensive when, in fact, the actual cost might be acceptable. Or policy analysts may decide that the benefits do not justify the costs, when the benefits may actually exceed the costs ultimately paid. It is therefore critical to explore how effective past efforts have been in forecasting regulatory costs.

Hodges has undertaken a detailed economic analysis of past projections of environmental regulatory costs as they relate to a variety of industries.¹⁰² (See Table 3.1) His examples range from asbestos to vinyl, and in all but one instance the estimated cost flowing from regulatory change was at least double the actual cost paid, while in some cases the estimates were wildly exaggerated. This inflation

⁹⁹ Harremo, P., Gee, P., MacGarvin, M., Stirling, A., Keys, J., Wynne, B., Vaz S.G., (2002) *Late Lessons from Early Warnings: the Precautionary Principle 1896-2000* Environmental issue report No 22 European Environment Agency. At http://reports.eea.eu.int/environmental_issue_report_2001_22/en Accessed 11.01.08

¹⁰⁰ Ibid p168

¹⁰¹ Ibid.

¹⁰² Hodges, H. (1997) *The Costs of Complying with Environmental Regulations Almost Always Costs Less Than Advertised*. Economic Policy Institute, Washington DC. <http://www.epi.org/page/-/old/briefingpapers/bp69.pdf>

of estimated costs holds regardless of whether industry itself or an independent assessor did the work, which suggests a systematic source of error.

Table 3.1. Industry original estimates of the cost of particular forms of environmental protection versus the actual costs. (In \$US)

Pollutant	Ex-Ante Estimate	Ex-Post or Revised Ex-Ante Estimate	Overestimation as a Percent of Actual Cost
Asbestos	\$150 million (total for mfg. and insulation sectors)	\$75 million	100%
Benzene	\$350,000 per plant	Approx. \$0 per plant	Infinite
CFCs	Early 1980s: Predicted financial catastrophe. Dupont had stopped undertaking research for alternatives in 1980 due to there being no "cheap" alternatives.	Total cost globally of implementing the Montreal Protocol - 235 billion US (1997) dollars. ¹⁰³	
CFCs-Auto Air Conditioners	\$650-\$1,200 per new car	\$40-\$400 per new car	63%-2,900%
Coke Oven Emissions OSHA 1970's	\$200 million – billion	\$160 million	29%-1,500%
Coke Oven Emissions EPA 1980s	\$4 billion	\$250-400 million	900%-1,500%
Cotton Dust	\$700 million per year	\$205 million per year	241%
Halons	1989: phase out not considered possible	1993: phase out considered technologically and economically feasible	n/a
Landfill Leachate	Mid-1980's: \$14.8 billion	1990: \$5.7 billion	159%
Sulphur Dioxide	1980s \$1,000–1,500 per tonne of sulphur dioxide	1996: \$90 per tonne of sulphur dioxide	~750% ¹⁰⁴
Surface Mining	\$6-\$12 per ton of coal	\$0.50-41 per ton	500%-2,300%
Vinyl Chloride	\$109 million per year	\$20 million per year	445%

Source: Hodges, E. (1999)¹⁰⁵

¹⁰³ Bornman, J.F. van der Leun, J.C (1998) *Frequently asked questions. Journal of Photochemistry and Photobiology B: Biology* 46 (1998) I–IV. Available At <http://www.gcric.org/ozone/toc.html> Accessed 15.02.2008

¹⁰⁴ Lovins, A. Lovins. H (1997) *Climate: Making Money, Making Sense*. Available At http://stephenschneider.stanford.edu/Publications/PDF_Papers/LovinsLovins1997.pdf Accessed 15.02.2008.

The reason for this discrepancy, Hodges argues, is that business groups and economists find it nearly impossible to predict the innovative ways in which industry goes about complying with new regulations. In some instances, they dump the old processes altogether and adopt new, cost-effective ones, while in others they radically transform their entire business.

The projections, in contrast, generally assume a business-as-usual approach that must directly absorb the burden of costs. The Stern Review explains Hodges result as follows,

“When such numbers (Hodges’ work) come to light, companies are often accused of inflating initial cost estimates to support their lobbying efforts. But there is a more positive side to the story. The dramatic reduction in costs is often a result of the process of innovation, particularly when a regulatory change results in a significant increase in the scale of production. And the process of complying with new policies may reveal hidden inefficiencies which firms can root out, saving money in the process.”¹⁰⁶

In a curious corollary to this, Goodstein¹⁰⁷ analysed projected versus actual costs for environmental clean-ups, and discovered that they were almost always underestimated—in some instances grossly so—which shows a systematic anti-environment bias. Goodstein has shown, therefore, that environmental regulations have not caused massive costs to business nor job losses, nor have they caused companies to flee to pollution havens. His book also shows that efforts to control global warming will probably have little impact on the total number of jobs.

Again and again, as Goodstein¹⁰⁸ has shown, companies have responded to proposed environmental rules by threatening either moving off-shore, huge layoffs, foreign inroads into domestic markets, and these impacts have not eventuated. Part of the problem has been that historically business has taken a reactive, rather than a proactive, approach to environmental management. This reactive approach has resulted in corporations and businesses generally focusing on end-of-pipe approaches to pollution control and waste clean-up *which do add to costs*. The key point here is that this reactive approach to environmental management does add to costs and is the reason why traditionally corporations and business have associated *all* environmental initiatives as increasing costs. But as Professor Michael Porter and Claus Van Der Linde¹⁰⁹ explain a proactive approach to pollution prevention can open up ways to reduce costs rather than add to costs

¹⁰⁵ Hodges, H. (1997) *The Costs of Complying with Environmental Regulations Almost Always Costs Less Than Advertised*. Economic Policy Institute, Washington DC. <http://www.epi.org/page/-/old/briefingpapers/bp69.pdf>

¹⁰⁶ Stern, N. (2006) *The Stern Review: The Economics of Climate Change, Executive Summary* Cambridge University Press, Cambridge, p10. Available at. http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf Accessed 14 April 2007

¹⁰⁷ Goldstein, E. (1999) *The Trade Off Myth: Fact & Fiction About Jobs and the Environment*, Island Press, Washington D.C., p 29

¹⁰⁸ Ibid.

¹⁰⁹ Porter, M. and van der Linde, C. (1995) ‘*Green and Competitive: Ending the Stalemate*’, Harvard Business Review, September–October, pp121–134; Porter, M. and van der Linde, C. (1995) ‘*Toward a New Conception of the Environment–Competitiveness Relationship*’, Journal of Economic Perspectives, vol IX-4, Fall, pp97–118.

“Environmental improvement efforts have traditionally overlooked these [whole] systems costs. Instead, they (corporations) have focused on pollution control through better identification, processing, and disposal of discharges or waste – costly approaches. In recent years, more advanced companies and regulators have embraced the concept of pollution prevention, sometimes called source reduction, which uses such methods as material substitution and closed-loop processes to limit pollution before it occurs. But, although pollution prevention is an important step in the right direction, ultimately companies must learn to frame environmental improvement in terms of resource productivity. Today, managers and regulators focus on the actual costs of eliminating or treating pollution. They must shift their attention to include the opportunity costs of pollution – wasted resources, wasted effort, and diminished product value to the customer. At the level of resource productivity, environmental improvement and competitiveness come together.”

Some of businesses’ most significant costs are capital and inputs, such as construction, raw materials, energy, water and transportation. Other significant costs to some business include pollution control and waste management. The chemical industry sector in many countries now spends more on pollution and waste management than on R&D. It is therefore in businesses’ interests to minimise these costs, and hence the amount of raw materials and other inputs that they need to create their product or provide their service. Business produces either useful products and services or unsaleable waste. How does it assist a business to have plant equipment and labour tied up in generating waste? The wise implementation of resource efficient and pollution prevention strategies can be cost-effective in both the short and longer terms. By reducing, remanufacturing, recycling, and reclaiming or on-selling, businesses can realise immediate cost savings. In addition to providing new ways to cut costs and improve productivity, the challenge of improving resource productivity also provides firms with a new opportunity to differentiate their products and gain market share, based on the environmental attributes of their products and processes. Efficiency gains can either come from energy, water and resource efficiencies. The word 'efficiency' was first used by the World Business Council for Sustainable Development (WBCSD) in their 1992 publication 'Changing Course'. It sought to encapsulate the idea of using fewer resources and creating less waste and pollution whilst providing the same or better services. According to the WBCSD¹¹⁰, efficiency entails the following:

- A reduction in the material intensity of goods or services
- A reduction in the energy intensity of goods or services
- Reduced toxic materials
- Improved recyclability
- Increased durability of products, and

¹¹⁰ See World Business Council for Sustainable Development’s seven success factors for eco-efficiency at <http://www.iisd.ca/consume/unep.html> accessed Feb 02 2008

- Greater service intensity of goods and services.

As the Stern Review commented

“An increasing number of private and public sector organisations are discovering the potential to reduce the cost of goods and services they supply to the market through energy efficiency. A study of 74 companies drawn from 18 sectors in 11 countries including North America, Europe, Asia, and Australasia revealed gross savings of US\$11.6 billion from reducing greenhouse gas emissions through energy efficiency.”¹¹¹

Such energy-efficiency savings can be equal to a company’s current profit margin. When viewed with this perspective, the value of such savings suddenly becomes attractive to busy CEO’s. Governments increasingly are running eco-efficiency¹¹² programs or providing incentives to encourage business to invest in such measures. The Australian Federal Government’s Eco-Efficiency Program¹¹³ involved over 200 businesses, all demonstrating significant eco-efficiency and financial savings.

Now also numerous studies¹¹⁴ and empirical evidence¹¹⁵ has demonstrated that firms can achieve further competitive advantage through greater eco-design of products (reducing process costs) to produce ‘cleaner and greener’ goods and services (product/service differentiation).¹¹⁶ Porter *et al* feature a number of examples of this in their papers.¹¹⁷

¹¹¹ The Climate Group (2005) *Carbon Down, Profits Up*. The Climate Group. Available At www.theclimategroup.org/ Cited in Stern, N. (2006) *The Stern Review: The Economics of Climate Change, Executive Summary* Cambridge University Press, Cambridge, p10. Available at. http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf Accessed 14 April 2007.

¹¹² WBCSD (2000). *Eco-Efficiency: Creating more value with less impact*. World Business Council for Sustainable Development.

WBCSD (2000). *Measuring Eco-Efficiency: A guide to reporting company performance*. World Business Council for Sustainable Development.

¹¹³ See Department of Environment, Water Resources, Heritage and the Arts at <http://www.environment.gov.au/settlements/industry/corporate/eecp/industry.html> Accessed 13 January 2008

¹¹⁴ Hart, S., and G. Ahuja (1996) ‘Does it Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance’, *Business Strategy and the Environment* 5: 30-37

Schaltegger, S., and F. Figge (1997) *Environmental Shareholder Value* (WWZ/Sarasin Basic Research Study No. 54; Basel: WWZ). Schaltegger, S. and T. Synnestvedt (2002) ‘The Link between “Green” and Economic Success: Environmental Management as the Crucial Trigger between Environmental and Economic Performance’, *Journal of Environmental Management* 65: 339-46.

Waddock, S., and S.B. Graves (1997) ‘The Corporate Social Performance–Financial Performance Link’, *Strategic Management Journal* 18.4: 303-19.

Schmidheiny, S. (1992) ‘*Changing Course: A global business perspective on development and the environment*’, Boston: MIT Press. Halliday, C.O., Schmidheiny, S., Watts, P. (2002) ‘*Walking the Talk, The Business Case for Sustainable Development*’, World Business Council for Sustainable Development. Greenleaf Publishing.

¹¹⁵ Innovest Strategic Value Advisors (2004) *Corporate Environmental Governance: A study into the influence of Environmental Governance and Financial Performance* Prepared November 2004 p10

McDonough, M. and Braungart, M (2002) *Cradle to Cradle – Remaking The Way We Make Things*, North Point Press, NY
Hawken, P., Lovins, A.B. and Lovins, L.H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

¹¹⁶ The Department of Environment and Heritage (2001) *Product Innovation: The Green Advantage: An Introduction to Design for Environment for Australian Business*. The Department of Environment and Heritage

¹¹⁷ Porter, M. Kramer, M (2006) *Strategy and Society: The Link between Competitive Advantage and Corporate Social Responsibility*. Harvard Business Review, December 2006. Harvard. Porter, M. and van der Linde, C. (1995a) ‘*Green and*

Several authors have studied the relationship between productivity and eco-efficiency and have found a direct relationship using different methodologies and datasets.¹¹⁸ Productivity gains can come in a variety of ways, including lower capital costs and operating costs, increased yields, and reductions in resource and energy use. Eco-Efficiency improvements lead to productivity improvements for companies through achieving lower capital costs and operating costs, increased yields, and reductions in resource and energy use. Any eco-efficiency improvement will incorporate one or more of these improvements. Some eco-efficiency improvements may primarily be aimed at one goal, but also generally include beneficial impacts on other aspects of a production process. For instance, certain technologies that are identified as being ‘energy-efficient’ because they reduce the use of energy will bring a number of additional enhancements to the production process. These improvements, including lower maintenance costs, increased production yield, safer working conditions, and many others, are collectively referred to as ‘efficiency benefits’ or ‘non-energy benefits’ because in addition to reducing energy, they all increase the efficiency of the firm.

Further significant opportunities to cost effectively to reduce environmental impact have been missed by business through not taking a more proactive approach to the design of technologies, buildings and infrastructure, products and services. As Hawken *et al* wrote in *Natural Capitalism*

“by the time the design for most human artifacts is completed but before they have actually been built, about 80–90 percent of their life-cycle economic and ecological costs have already been made inevitable. In a typical building, efficiency expert Joseph Romm explains, "Although up-front building and design costs may represent only a fraction of the building's life-cycle costs, when just one percent of a project's up-front costs are spent, up to 70 percent of its life-cycle costs may already be committed. When seven percent of project costs are spent, up to 85 percent of life-cycle costs have been committed." That first one percent is critical because, as the design adage has it, "All the really important mistakes are made on the first day."

Designs such as infrastructure, buildings, cars and appliances have long design lives. The size and duration of infrastructure and building developments for instance means that the most cost effective leverage point to reduce environmental impacts is during their design phase. Senator Robert Hill, when talking about the new Parliament House, sums the lost of opportunities from a lack of a design for environment approach

Competitive: Ending the Stalemate, Harvard Business Review, September–October, pp121–134 Porter, M. and van der Linde, C. (1995b) ‘*Toward a New Conception of the Environment–Competitiveness Relationship*’, *Journal of Economic Perspectives*, vol IX-4, Fall, pp97–118

¹¹⁸ Boyd, G.A. and Pang, J.X (2000) ‘*Estimating the Linkage between Energy Efficiency and Productivity*’, *Energy Policy* 285, pp289–296; Kelly, H.C., Blair, P.D. and Gibbons, J.H. (1989) ‘*Energy Use and Productivity: Current Trends and Policy Implications*’, *Annual Review, Energy Policy* 14, pp321–352; US Department of Energy, Office of Policy and International Affairs and Office of Energy Efficiency and Renewable Energy (1997) *The Interrelationship between Environmental Goals, Productivity Improvement, and Increased Energy Efficiency in Integrated Paper and Steel Plants*, DOE/PO-0055, Washington, DC.

“Across Lake Burley Griffin is one of Australia’s most famous houses - Parliament House. Built at considerable cost to the Australian taxpayer, it was officially opened in 1988. Since 1989, efforts have been made to reduce energy consumption in Parliament House, resulting in a 41 per cent reduction in energy use with the flow-on effect of reducing greenhouse gas emissions by more than 20,000 tonnes annually. This has also brought about a saving of more than AUD\$2 million a year in running costs. But the new wave of environmental thinking would have us question why these measures were not incorporated in the design of the building in the first place and what other opportunities for energy saving design features were missed? It is a simple example of how the environment is still considered an add-on option as opposed to being central to the way we do business.”¹¹⁹

Currently significant opportunities are being missed at the design phase of projects of reducing negative environmental impacts significantly. There are significant opportunities here for business and government to reduce process costs, and achieve greater competitive advantage through greener product design. As a previous Former Minister for Environment, Senator Robert Hill stated:

“Building construction and motor vehicles are two high profile industry sectors where producers are utilising Design for Environment (DfE) principles in their product development processes, thereby strategically reducing the environmental impact of a product or service over its entire life cycle, from manufacture to disposal. Companies that are incorporating DfE are at the forefront of innovative business management in Australia. As the link between business success and environmental protection becomes clearer, visionary companies have the opportunity to improve business practices, to be more competitive in a global economy, and increase their longevity.”¹²⁰

Many of the top companies in the world are investing significantly in the better environmental design of their products as they know that this will help to make their products more appealing to customers. In May 2005, General Electric announced ‘Eco-magination’, a major new business driver expected to double revenues from cleaner technologies to US\$20 billion by 2010. In May 2006, the company reported revenues of US\$10.1 billion from its energy efficient and environmentally advanced products and services, up from US\$6.2 billion in 2004.

Why is it then that despite eco-efficiency and design or environment strategies making companies a good return on investment, the environment is seen as overall as cost to most businesses? To call money spent on the environment a cost, when spending that money results in even more money coming back to you, is wrong. Could it be that such arguments are consciously seeking to hide this truth from the general public to protect vested interests? As this thesis will show in Chapters 5-8 the

¹¹⁹ Hill, R. (2000) An address to The International Society of Ecological Economists, by the Federal Minister for the Environment and Heritage Senator the Hon Robert Hill Australian National University Canberra July 6, 2000,

¹²⁰ Department of Environment and Heritage (2001) *Product Innovation. The Green Advantage An Introduction to Design for Environment for Australian Business*, www.deh.gov.au/industry/finance/publications/producer.html (accessed December 2006).

world is now brimming with evidence that very many expenditures to keep our environment cleaner, help prevent climate change, and provide a good return on investment and thus can help profits in the long run.

Despite the evidence in Chapters 5-8 the perception that ecological sustainability issues will increase costs goes wider than simply for business. Many people still associate better environmental outcomes with increased costs and therefore often in their organization do not even consider investing in them. This applies to government, schools, universities, churches, and even people's homes.

Of all these sectors perhaps the university sector overall has been one that has significant and competing financial pressures. Universities have many financial demands from their staff, research budgets and teaching requirements. In addition in this sector funding has often been reduced over the last 20 years by governments and hence there has been not a dollar to spare. Ironically, because of this, many universities have finally started to address broad environmental impacts of their campus operations not because of a moral duty but because they need to explore every cost saving option possible. Recent studies suggest that an average university can save between AU\$1-\$3 million through a wide range of environmental initiatives. The first comprehensive report analyzing financial savings from environmental initiatives in Universities was released in by the National Wildlife Federation (NWF).¹²¹ NWF President Mark Van Putten stated that

"This study proves that you don't have to choose between a healthy environment and healthy bottom line. The fact is, the actions being taken on these campuses are actually improving the environment and the financial condition of the institution, often in very dramatic ways."¹²²

Green Investment, Green Return, sponsored by NWF's Campus Ecology program, highlights 23 cost-saving conservation initiatives at 15 public and private post-secondary institutions across the United States. Savings per project ranged from little more than US\$1,000 to an impressive US\$9 million. As shown in Table 3.2, the savings across the 23 individual best practice projects covering energy, water, waste and transport issues from 23 universities totaled together amounted to US\$16.8 million. In principle, for one large university in the US existing programs prove that it may be possible to achieve up to US\$16.8 million per annum in savings from environmental initiatives.

Table 3.2: List of Actual Greening of University Projects across the USA and their Annual Revenues and Savings.
(Source: *Green Investment, Green Return*, National Wildlife Foundation, 1998)

Conservation Projects	Annual Revenues and Savings
-----------------------	-----------------------------

¹²¹ National Wildlife Federation (1998) *Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses*. National Wildlife Federation. Washington. DC.

¹²² Ibid.

Transportation	
Getting Students and Staff Out of the Car at Cornell University, NY	\$3,123,000
Creating a Bus-Riding Campus at the University of Colorado-Boulder, CO	\$1,000,000
Energy Conservation	
Creative Strategies for Saving Energy at SUNY-Buffalo, NY	\$9,068,000
Lighting and Equipment Retrofits at Elizabethtown College, PA	\$247,000
A Four-Campus Energy Reduction Strategy at Brevard Community College, FL	\$2,067,000
Laboratory Renovations and More at Brown University, RI	\$15,500
Burning Better Lights in Dorm Rooms at Dartmouth College, NH	\$75,000
Solar Panels Generating Savings at Georgetown University, Washington, DC	\$45,000
Water Conservation	
New Toilets and Water Fixtures at Columbia University, NY	\$235,000
Cleaning Up with Water-Saving Showerheads at Brown University, RI	\$45,800
Dining Services	
Washable Cups in the Freshman Union at Harvard University, MA	\$186,500
Saving on Refillable "Red Mugs" at the University of Wisconsin-Madison, WI	\$11,400
Re-Use	
Sale of Surplus Property at the University of Wisconsin-Madison, WI	\$241,800
Maintaining Vehicles with Re-Refined Motor Oil at the University of Illinois-Urbana-Champaign, IL	\$3,500
Second Time Around for Chemicals at the University of Washington, WA	\$14,400
Management of Hazardous Chemicals Cutting Out the Weed-Killers at Seattle University, WA	\$1,300
Chemistry Classes with Fewer Chemicals at the University of Minnesota, MN	\$37,000
Composting	
Creating Fertilizer with Kitchen Food Waste at Dartmouth College, NH	\$10,000
Composting Landscape Waste and Scrap Wood at the University of Colorado-Boulder, CO	\$1,300
Recycling	

Award-Winning Materials-Recovery Program at the University of Colorado-Boulder, CO	\$107,000
Dining Services Recycling at Harvard University, MA	\$79,000
Getting Top Dollar from Paper Recycling at the University of Wisconsin-Madison, WI	\$120,000
Analysing Wastes to Cut Costs at the University of Wisconsin-Madison, WI	\$21,000
Total	\$16.8 Million

While serving on the Australian National University's (ANU) Environmental Planning and Management Committee I showed that ANU could save up to AUD\$3 million per annum in 2000.¹²³ In the process of developing this, I developed a similar table of fully costed Australian University programs. Whilst these Australian programs (See Table 3.3), to date, have yet to yield as large savings as the USA data, progress to date was promising.

Table 3.3: List of Actual Australian Greening of University Projects and their Annual Actual or Potential Revenues and Savings.¹²⁴ (Source: Smith, M., Waldron, L.(2001)¹²⁵)

Calculated savings are either reported potential(P) or actual (A) depending on the maturity of the program. \$ in AUD.	Calculated actual (A) or potential (P) savings per annum.
Energy Conservation:	
University of Wollongong: Audit showed potentially 30% of energy usage could be saved.	\$420,000 (P)
UNSW:Turning off half of the campus computers at night.	\$60-70,000 (P)
Water Conservation	
ANU 1996 Water Audit showed that there were significant potential savings.	\$255,000 (P)
Chilled water for process cooling at RSC placed onto closed loop.	\$25,000 (A)
Electric diaphragm pumps replacing water aspirators to generate vacuums in laboratories. (Across Campus)	> \$60,000 (P)
Reuse:	
UNSW 1996 Paper Audit. Encouraging photocopying and printing double sided, and minimising paper usage generally.	> \$100,000 (P)
UNSW: Purchasing recycled toilet paper campus wide rather than non-	\$70,000 (A)

¹²³ Smith, M. (2000) *How ANU Can Save Up to \$3 Million per annum through Environmental Initiatives* Discussion Paper.

¹²⁴ National Wildlife Federation (1998) *Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses*. National Wildlife Federation. Washington. DC

¹²⁵ Smith, M., Waldron, L.,(2001) *The Research School of Chemistry: Significant Cost Savings Through Environmental Initiatives*. Conference Paper ATEM-AAPPA annual conference

recycled.	
ANU: Research School of Chemistry. Recycling of precious metals	\$20,000 (A)
Transport	
ANU. Encouraging usage of public transport and bicycles could potentially prevent/delay vertical car parks needing to be built.	>\$100,000 per annum .

In addition, a broader strategy to water conservation on campus¹²⁶, and retrofitting the campus's old brown science buildings can be shown to provide significant returns on investment.¹²⁷ Yet, despite this evidence still on most university campuses globally such environmental initiatives are not being pursued because those in charge still perceive the environment as a cost. Why is this belief so strong? The reason is this arises not simply from a misconception between the terms "investment" and "cost." The reason that sustainable development is associated with increased costs is that there will be areas where costs to government and the tax-payer increase such as structural adjustment packages for unsustainable industries and their workers. Clearly there will be areas where significant up front investment is needed to rapidly achieve sustainable development globally. Just some of the significant up front investments needed to achieve sustainable development include investments in

- Ending extreme global poverty
- Ensuring all have access to clean water
- Ensuring all have access to universal health care and education
- Ensuring access to immunisation
- Rebuilding democratic institutions
- Avoid dangerous climate change
- Protect biodiversity and restore ecosystem resilience
- Ensure global water availability
- Reduce oil dependency rapidly.

One of the significant government failures in Australia and many nations is that governments have never calculated how much this will cost but we will assume for this thesis that the up-front investment cost even for a relatively small economy like Australia is likely to be significant. Chapters 5-8 will look at strategies to reduce these up-front investment costs and also outline strategies to help finance the required global investment in sustainable development. To date, lack of adequate finance

¹²⁶ Smith, M (2001) *ANU's Whole System Approach to Water Management. From Science Buildings to Stormwater to Sullivans Creek*. Conference Paper Available at www.ehs.uts.edu.au/sections/sustconf/susconf.html Accessed 30 January 2008

¹²⁷ Smith, M., Waldron, L.,(2001) *The Research School of Chemistry: Significant Cost Savings Through Environmental Initiatives*. Conference Paper ATEM-AAPPA annual conference.

to enable the required investment in a transition to sustainable development has been a significant barrier to achieving sustainable development.

3.8 The Jobs and Economic Growth Trade Off Debates

In re-assessing why it is that so little progress has been made in the last 100 years, it is also vital to note that the environmental debates today are still largely debates about whether sustainable development will help or harm jobs and economic growth just as they have been for over 100 years.

Perhaps the single most significant barrier to the mainstream acceptance of sustainable development has been the predominance of the belief that the more one does to help the economy the worse off the environmental and social outcomes will be, and the more one does for the environment or society the worse off the economy will be. This debate has special relevance to not just the USA and Australia but all countries. As Frances Cairncross, recently retired editor of *The Economist* magazine, wrote in her book *Green Inc.* in 1995:

“Traditionally many leaders of developing countries have been reluctant to embrace sustainability because they fear it will slow development, growth and business investment in their country ... [The assumption that an inevitable] compromise [is needed between sustainability and economic growth] is especially important in the case of developing countries, where the trade-off between economic growth and greenery often seems particularly stark. Not only are their people the poorest; their numbers are growing the fastest. Their governments are unlikely to welcome policy proposals that appear to deprive them of the chance to improve living standards.”¹²⁸

Whilst for much of the last century businessmen/economists and environmentalists/social commentators have not agreed on much, many of them have at least shared this belief. Many have assumed that significant trade-offs between economic growth and social and environmental outcomes are inevitable. This thesis challenges this assumption in detail in chapters 5-8 because these beliefs which still dominate debates about achieving ecological and social sustainability. Consider, for instance, the climate debates. In late 2005, Tony Blair has stated that he does not think nations will sign up to a Post Kyoto Framework because he believes that it will significantly harm nation's economic growth.¹²⁹ George Bush has blamed the effect on the economy and jobs for his decision not to ratify Kyoto: ‘You know, look, there was a debate over Kyoto, and I made the decision - as did a lot of other people in this country, by the way - that the Kyoto treaty didn't suit our needs. In other words, the Kyoto treaty would have wrecked our economy, if I can be blunt’. Similarly at the UN Summit in Bali in late 2007, the USA, Australia and others were not ready to commit to legally binding short term greenhouse gas targets due to concerns over how these targets would effect economic growth. In

¹²⁸ Cairncross, F. (1995) *Green Inc.*, Earthscan Publishing, London, p. 2.

¹²⁹ Adam., D. (2005) *Blair Signals Post-Kyoto Shift Over Climate Change*, The Guardian Weekly

2008, these concerns in the USA are real and important to address as there are real concerns the US economy is heading into a recession. What do the economists say now in the 21st century? Chapters 5-8 of this thesis will show that the debate amongst economists on sustainable development issues has shifted significantly in the last thirty years.

Consider also the lack of progress on the environment versus jobs trade off debates. In the 21st century, politicians and business leaders can still simply tell the electorates that large trade-offs exist between jobs, business competitiveness and the environment with no further explanation needed. During the Australian 2004 federal election campaign, when Prime Minister John Howard stated that he was not going to sacrifice timber jobs ahead of saving the environment, it resonated with many Australians. A 1990 nationwide poll, conducted in the USA found that 33 per cent of those polled felt themselves “likely” or “somewhat likely” to lose their job as a consequence of environmental regulation.¹³⁰ Studies show that most people still believe that higher environmental standards and tougher environmental regulation and penalties have led to many companies fleeing to developing countries to escape these tougher environmental regimes.¹³¹ Many believe that at the macroeconomic level, higher environmental standards and environmental regulation has contributed to long term unemployment. It is a common perception that environmental protection has been responsible for plant shutdowns and layoffs in certain industry sectors such as coal mining, forestry, fishing, chemical and manufacturing industries. It is a common belief amongst workers that they may lose their jobs in the future as a result of environmental protection.

Goldstein has studied the jobs-environment debates in detail.¹³² He concludes that virtually all economists who have studied the jobs-environment debate over the last thirty years agree that the three propositions identified above are false.¹³³ In reality, at the economy wide level, Goldstein concludes that there has simply been no trade off between jobs and the environment¹³⁴. “And at the local level, in

¹³⁰ Goldstein, E. (1999) *The Trade Off Myth: Fact & Fiction About Jobs and The Environment* Island Press. Washington DC. p5.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Organization for Economic Cooperation and Development. (1978) *Employment and Environment*. Paris: OECD.

Haveman, R. (1978) *The Results and Significance of Employment Studies*. In *Employment and Environment*. Paris: Organization for Economic Cooperation and Development.

Data Resources Inc. (1979) *The Macroeconomic Impacts of Federal Pollution Control Programs: Assessment*. Washington, D.C.: U.S. Environmental Protection Agency.

Data Resources Inc. (1981) *The Macroeconomic Impacts of Federal Pollution Control Programs: Assessment*. Washington, D.C.: U.S. Environmental Protection Agency.

Wendling, R. and Bezdek, R. (1989) *Acid Rain Abatement Legislation: Costs and Benefits*. OMEGA International Journal of Management Science, Vol. 17, No. 3, pp. 251-61.

Meyer, S. (1992) *Environmentalism and Prosperity: Testing the Environmental Impact Hypothesis*. Cambridge, Mass.: MIT Project on Environmental Politics and Policy.

Meyer, S. (1993) *Environmentalism and Prosperity: An Update*. Cambridge, Mass.: MIT Project on Environmental Politics and Policy.

¹³⁴ The real economy wide effect of environmental regulation is to shift jobs without increasing the overall level of unemployment. Globally there are now significant numbers of people who work in the “environmental industry sector”.

sharp contrast to the conventional wisdom, layoffs from environmental protection have been very, very small. Even in the most extreme cases, such as protection of forests or closing down fisheries or steps to address acid rain, job losses from environmental protection have been minute compared to more garden-variety layoff events.”¹³⁵ The real economy wide effect of environmental regulation is to shift jobs without increasing the overall level of unemployment. Globally there are now significant numbers of people who work in the “environmental industry sector” as a result of these regulatory changes. In fact, regulation-induced plant closings and layoffs are very rare. Goldstein shows that in the USA, about one million workers are laid off each year due to factors such as import competition, shifts in demand, or corporate downsizing. In sharp contrast, annual layoffs in manufacturing due to environmental regulation are in the order of one hundred to 3000 per year.¹³⁶

There is significant evidence to suggest that a transition to ecological sustainable economy can help create significantly higher employment. Employment (a social good) is currently taxed in a variety of ways, such as payroll taxes, whilst environmental pollution (a social bad) receives almost no taxation in OECD countries. In 1994, DRI and other consultancies commissioned by the European Commission modelled a scenario where all the revenues from pollution taxes were used to reduce employer’s non-wage labour costs, such as social security payments, superfund payments, and payroll tax. The study showed that employment in the United Kingdom would be increased by 2.2 million through such tax shifting.¹³⁷ Goldstein has covered the jobs versus environment debate in detail and how this relates to the climate debates already.¹³⁸ So this thesis does not devote a whole chapter on the jobs versus environment debate. However, since the jobs versus environment debates are very important in the context of moving these sustainability debates forward they are addressed further in a sub section in Chapter 6. In Chapter 6 we investigate issues such as the need for structural adjustment and retraining packages to help enable industry leaders and workers to leave unsustainable industries with dignity. The chapters that follow focus in more detail on:

- a) the business competitiveness versus sustainable development
- b) and economic growth versus social and environmental sustainability debates to compliment and build on from Goldstein’s work.

¹³⁵ Ibid.p15

¹³⁶ Ibid,p46.

¹³⁷ DRI, *et al.* (1994) *Potential Benefits of Integration of Environmental and Economic Policies*, Graham and Trotman and the Office for Publications of the European Communities, Brussels.

¹³⁸ Goldstein, E (1999) *The Trade Off Myth:Fact & Fiction About Jobs and The Environment* Island Press. Washington DC. Goldstein, E (1994) *Jobs and the Environment The Myth of a National Trade-Off* Economic Policy Institute. 1730 Rhode Island Avenue, NW, Suite 200, Washington, D.C. 2003 Available at www.epinet.org/studies/jobs_environment_study_1994.pdf Accessed 30 January 2008

3.9 The Business Competitiveness versus Sustainable Development Debate.

Since the mid-1990's, business corporations have constituted the majority of the 100 largest 'economies' in the world.¹³⁹ It will be impossible, therefore, to achieve sustainable development without their involvement. Since the late 1980s many have put forward a compelling case that businesses can gain competitive advantage from pursuing sustainable development. This has become known as the "Business Case for Sustainable Development."¹⁴⁰ Numerous others have argued this case over the last two decades.

Counter to this has been the argument that environmental regulation and labour costs are a significant cost and therefore it is inevitable that corporations will pursue globalization to 'get around them', and have no choice but to move to countries, with the lowest labour and regulatory costs, known as 'pollution havens'.¹⁴¹ Similarly the argument has gone that nations have no choice but to offer tax exemptions and lower labour and environmental costs to attract corporate investment. If the majority of companies in a sector were doing this then to be competitive many business people have wondered if they would have a real choice not to seek lowest cost locations. There are many within governments today who assume that if OECD nations tighten their environmental regulation, then companies will be compelled to move operations to countries with the lowest regulatory costs. Furthermore the argument goes; if developing nations were 'burdened' with environmental regulation then this would hinder their development and remove opportunities for achieving competitive advantage. This perceived dilemma is emerging as the crux of the debate regarding sustainable development: namely, can businesses be both competitive and achieve sustainable development in an increasingly globalised, competitive world? Can nations attract investment and jobs and create higher labour and environmental standards?

Chapter 4 of this thesis is dedicated to this topic. Clearly, sustainability debates are part of broader debates on globalisation, and it would be negligent to discuss sustainability debates in isolation from globalisation debates. In Braithwaite and Drahos's *Global Business Regulation*¹⁴² they argue that globalisation debates revolve around three central questions - will nations and companies raise standards in accordance with the principle of best practice or will nations and companies lower them? Do nations and companies want a race to the top based on the principles of world's best practice,

¹³⁹ Anderson, S. and Cavanagh, J. (1996) *The Top 200, The Rise of Global Corporate Power*, The Institute for Policy Studies, Washington, DC

¹⁴⁰ WBCSD (World Business Council for Sustainable Development) (1992) *Changing Course: A Global Perspective on Development and the Environment*, MIT Press, Boston

¹⁴¹ Braithwaite, J. (1980) *Inegalitarian Consequences of Egalitarian Reforms to Control Corporate Crime*, Temple Law Quarterly, vol 53, pp1127-1146

Castleman, B. (1979) *The Export of Hazardous Factories to Developing Nations*, International Journal of Health Services, vol 9, pp569-606

Castleman, B. (1981) *More on the International Asbestos Business*, International Journal of Health Services, vol 11, pp339-340

¹⁴² Braithwaite, J. and Drahos, P. (2000) *Global Business Regulation*, Cambridge University Press, Cambridge

continuous improvement, wise economics and adoption of best available technologies? Or will the principles of lowest-cost location and reluctant compliance (multinationals investing in regions with the lowest standards) dominate and lead to a race to the bottom? Braithwaite and Drahos show that the most important contest (debate) is between the principles of Lowest Cost Location (including regulatory, labour costs) vs. World's Best Practice. If firms and nations adopt the principle of lowest cost location then firms in relocating to these lowest cost states set in motion a race to the bottom. Nations reduce standards in the hope of attracting investment and a vicious cycle ensues. Alternatively, nations can pursue best practice and virtuous cycles. Whilst it is true that companies in certain sectors such as manufacturing have been moving to locations with lower labour costs, as I will show in Chapter 4, this is not ideal and certainly not the only way for companies to achieve competitive advantage. In addition, there is absolutely no significant evidence or trend to show that companies are moving to pollution havens to avoid environmental protection. The assumption that it is inevitable that business will have to relocate to lowest regulatory cost havens, is disputed by mounting evidence to the contrary.¹⁴³ Few firms are fleeing industrial countries for instance to take advantage of loose environmental regulations in poor countries. As Eban Goodstein states

"Economists have been looking quite hard for exactly this effect for some twenty years....Beyond a couple of high profile cases, firms have not been fleeing the developed world to escape environmental regulations. The reasons? Regulatory costs, even in heavily regulated industries are a small percentage of total sales for companies (ie., only rarely rising above 2 per cent); costs are only one factor affecting a location decision; and much of pollution control technology is embedded in plant design."¹⁴⁴

Since the 1980's, there has been a rapidly growing body of work showing that win-win outcomes are not just possible, but are already happening.¹⁴⁵ Evidence is also mounting that demonstrates that companies and nations which pursue best practice in sustainable development wisely, far from reducing the productivity and competitive advantage of their firms, can in fact improve it. As Michael Porter wrote

¹⁴³ Leonard, J. (1988) *Pollution and the Struggle for World Product*, Cambridge University Press. Cambridge.

Wheeler, D. and Mody, A. (1992) *International Investment Location Decisions: The Case of US Firms*, Journal of International Economics August, pp57–76

Jaffe, A., Adam, B., Peterson, S., Portney, P. and Stavins, R. (1995) *Environmental Regulation and the Competitiveness of US Manufacturing: What does the Evidence Tell Us?*, Journal of Economic Literature, vol 33, pp132–163

¹⁴⁴ Goldstein, E (1999) *The Trade Off Myth: Fact & Fiction About Jobs and The Environment* Island Press p4

¹⁴⁵ Porter, M. and van der Linde, C. (1995a) 'Green and Competitive: Ending the Stalemate', Harvard Business Review, September–October, pp121–134. Porter, M. and van der Linde, C. (1995b) 'Toward a New Conception of the Environment–Competitiveness Relationship', Journal of Economic Perspectives, vol IX-4, Fall,

pp97–118 Schmidheiny, S. (1992) *Changing Course: A Global Perspective on Development and the Environment*, The MIT Press, Boston, MA

"[Countries should] establish norms exceeding the toughest regulatory hurdles or product standards. Some localities [or user industries] will lead in terms of the stringency of product standards, pollution limits, noise standards and the like. Tough regulatory standards are not a hindrance but an opportunity to move early to upgrade products and processes. [And that firms should] find the localities whose regulations foreshadow those elsewhere. Some regions and cities will typically lead others in terms of their concern with social problems such as safety, environmental quality and the like. Instead of avoiding such areas, as some companies do, they should be sought out. A firm should define its internal goals as meeting or exceeding, their standards. An advantage will result as other regions and ultimately other nations modify regulations to follow suit. Firms like governments are often prone to see the short term cost of dealing with tough standards and not their long term benefits in terms of innovation. Firms point to foreign rivals without such standards having a cost advantage. Such thinking is based on an incomplete view of how competitive advantage is created and sustained.¹⁴⁶

In Chapter 4 of this thesis there are many examples provided of where such an approach can lead to greater competitive advantage. The most elegant example of this is the story of the Montreal Protocol, and how it achieved the phasing out of ozone destroying chemicals internationally. Early adoption, in the USA, of regulations to reduce the emissions of ozone depleting chemicals, had given American based firms a head start on the rest of the world in innovating alternative chemicals. Rather than resisting the US regulations, companies harnessed their innovation to develop alternative chemicals to those that destroy the ozone layer. Dupont and other leading US companies then successfully lobbied the Reagan administration to take the lead in establishing the Montreal Protocol. The Reagan administration could see the moral, scientific and economic benefits for the USA in the globalisation of their legislation, and played a significant role in generating the political will for the Montreal Protocol's establishment. Sixty US embassies were instructed to lobby for a strong ozone Protocol, firstly by issuing information and media kits to convince other nations of the validity of the science and the risks.¹⁴⁷ At the 1987 G-7 Summit in Venice, President Reagan successfully influenced the meeting to make protection of the ozone layer the highest priority environmental issue. Through the adoption of the Montreal Protocol, Dupont achieved a significant increase in global market share for its alternative ozone friendly chemicals.

In a globalised world, where nations and firms are seeking lowest cost locations and regulation, companies who then simply comply with that lowest common denominator regulation, reinforce the race to the bottom. On the other hand, in a world where firms and nations recognize the competitive advantage benefits of being ahead of the next waves of innovation and seek best practice, a philosophy

¹⁴⁶ Porter, M. (1990) *The Competitive Advantage of Nations*, The Free Press, New York (reprinted in 1998) p648

¹⁴⁷ Braithwaite, J. and Drahos, P. (2000) *Global Business Regulation*, Cambridge University Press, Cambridge

of continuous improvement leads to standards rising, not falling. Companies like Dupont, for instance, are committed to building plants in developing countries to at least the same standard as that in the USA whether the developing country requires this high standard or not. Overall the work of Braithwaite and Drahos shows that, contrary to what some would assume with globalization, the principle of best practice is more prevalent than the principle of lowest cost location.¹⁴⁸ Braithwaite and Drahos's book also outlines in detail strategies for NGOs to help improve wise regulation and standards globally. Braithwaite and Drahos's research therefore provides a key part of the overall argument for the business case for sustainable development.

3.10 Conclusion

Their work shows that, more often than not, the business case for sustainable development that pursues best practice is currently valid in the context of the globalisation debates. Chapter 4 of this thesis will show why this is. Chapter 4 shows why firms can achieve greater and more sustainable competitive advantage from pursuing the principle of best practice than from pursuing the principle of lowest cost location. Chapters 5-8 show that the economic and jobs growth benefits of nations pursuing the principle of best practice rather than the principle of lowest cost location are immense.

¹⁴⁸ Ibid.

