



# Australia's Choice

Building on national prosperity –  
opportunities for Australia by pursuing  
a sustainable future

An initial draft discussion paper

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This initial paper poses more questions than it provides answers to and should be read in the light that this is our first step on a journey on which many ecologists, economists, business people, policy makers, parliamentarians and community leaders are also embarking. Our shared ultimate objective is to help plan the future we want for ourselves, as well as for future generations.

# Building a legacy

Australia is a very wealthy country, and a legacy of long-lasting prosperity is almost taken for granted. Yet to make sure that our future is one that we truly aspire to, environmental factors need to be considered alongside economic measures of growth and well-being. This is because many of the goods and services provided by the environment are the fundamental building blocks on which wealth and prosperity are based. If they are eroded through environmental degradation there is the foreseeable likelihood that humans would not be able to substitute eco-system services with technology, financing or new systems.

It is therefore important that the market work to preserve environmental assets. At present however, a number of characteristics of modern economies – most notably the problem of uncoded negative externalities and “short-termism” – are short-circuiting our value system, leading to economic signals that confuse the market and provide little long-term certainty for companies.

This draft discussion paper presents the challenges and opportunities in changing direction to the future we want for ourselves and for generations to come. It looks at an “enabling framework” that will combine the private sector’s innovation and wealth creation skills with the powerful tools that governments can use to carry risk. The key question – and it remains unanswered at this stage – is “what is the cost and risk of change, and what is the cost and risk of not changing?”

Our hope is that our initial work in this area will add constructively to discussions that all levels of government, business, capital markets and community leaders are having about the best way for Australia to move forward in interconnected global markets. Certainly, the size of the environmental problems facing Australia and the world and the need for innovation, creativity and vision require all audiences to be involved.

# The Risks Of Status Quo, The Opportunities In Change

What is in Australia's national interest? This question invariably focuses primarily on economic matters of wealth accumulation or growing national accounts. Yet the context which surrounds economic success is becoming increasingly vulnerable to the stresses being imposed on it, as scientific, ecological and economic studies point to a continuing degradation of Australia's environment<sup>1</sup>. This has a direct impact on our economic wellbeing.

Australia is not alone in this conundrum. There is a continued reluctance at the global level to investigate the costs and risks associated with damage to the environmental commons and to compare these with the costs and risks with continuing along the path we are on<sup>2</sup>. Do we spend in the hope of averting damage now? Or do we hope that a major technological fix will emerge in the future to mitigate, remediate and prevent further damage from occurring?

*The context which surrounds economic success is becoming increasingly vulnerable to the stresses being imposed on it, as scientific, ecological and economic studies point to a continuing degradation of Australia's environment.*

While part of this paper may seem like a litany of green tragedies, the objective is to highlight that there is opportunity in change. Governments, business and the community need to be united in seeking a bridge that can link the environment and the economy. Certainly, even at this draft discussion paper stage, it is clear that a framework of options – policy, technology and financial – is needed to enable transition.

At the crux of the debate is whether there is a better way for the market to operate. The currently accepted system is based on short-term returns, and this results in an increasing tension between environment and economy. We are not suggesting that the market could possibly have all the solutions to the challenges that face us – markets only work where the legal titles are clearly definable, the knowledge just about perfect and the transaction costs and risks of failure are small. Most environmental issues, services and goods do not fit this definition. But the market does have a responsibility to help find the answers by bringing a longer term risk measurement and reward cycle into play. The market is also the 'middle man' both literally and figuratively and, as such, needs to respond to intelligence and signals more quickly and effectively. Without the market there is little hope of building long-term intergenerational equity and a "stronger" form of sustainability and prosperity than we presently practice.

The fundamental premise of this draft discussion paper is that there is tremendous opportunity in transition.

1. See, for example: Department of Environment and Heritage (2005) *Climate Change Risk and Vulnerability Final Report*; Business Council of Australia (2004) "Sustaining Australia – Sustainable Development Issues Facing Australia to 2025" *Research Paper for Business Council of Australia Scenario Planning Project Aspire Australia 2025*; WWF (2004) "Conserving Australia's Biodiversity – Priorities for a Living Continent;" ABS (2004) *Measures of Australia's Progress* "Is Life in Australia Getting Better? Beyond GDP: Measures of economic, social and environmental progress;" Environment Australia (2002) *Are We Sustaining Australia? Report Against Headline Sustainability Indicators*
2. This is pointed out, for example, in the world-first Millennium Ecosystem Assessment (2005) "Ecosystems and Human Well Being: Opportunities and Challenges for Business and Industry" in which 1360 natural and social scientists conducted a 4-year international scientific assessment of the consequences of ecosystem change for human wellbeing.

## Commodities and ecosystem services

The efficiency and productivity of the many layers of commodities that have built Australia's success – such as coal, wheat, sheep, ores – are in many cases reliant on another class of “commodities” which are ecosystem services, such as quality and quantity of water, crop fertilisation or a functioning atmosphere. These ecosystem services are facing unparalleled impacts. The 2005 Millennium Ecosystem Assessment quantified that because two-thirds of the world's ecosystem services are currently being degraded or used unsustainably, services that are freely available today will cease to be available or become more costly in the future<sup>3</sup>.

So far, humans have been fortunate because the environment in its amazing complexity and resilience has managed to absorb our waste, continue to provide food and shelter and regulate temperatures. The foreseeable outcomes of mounting environmental damage, however, could change life on earth as we know it, and some of the current risks are outlined in “The Evidence of Change” below.

The balance of evidence suggests that we are now potentially faced with the “progress trap” of continuing on our current trajectory with increasing environmental problems<sup>4</sup> or committing to changing consumption, production and investment patterns, so that the environment can continue to provide the natural capital on which prosperity is based.

## Prosperity in the modern world

At the heart of the matter is just what is meant by “prosperity.” One measure of prosperity is in wealth – dollars and cents – accumulation, and GDP has become the proxy measurement for the health of the national interest. While GDP gives us some information about the current state of play, it includes negative aspects of society, such as defensive expenditure (for example, pollution control), while not including environmental costs over time<sup>5</sup>.

A much larger set of factors that actually reflect quality of life need to be brought into the equation. A prosperous community is one that looks forward to the future and has confidence that the basic human needs of clean air, quality and quantity of water and food, sanitation, transport, housing, health care and education will be met in a world where stability and security are based on human equity. This pre-supposes that either threats to environmental integrity and biodiversity are not present or that they can be removed or offset so that a diversity of lifestyle choices, constantly improving wellbeing, effective social services, meaningful and secure work and global stability and security do not come at the expense of other societies or species.

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3. Millennium Ecosystem Assessment (2005) “Ecosystems and Human Well Being: Opportunities and Challenges for Business and Industry”

4. Wright, Ronald (2004) *A Short History of Progress* Carroll & Graf Publishers, New York

5. Young, M. (2002) “Economic Aspects of Sustainability” Australian Academy of Science Annual Symposium: Transition to Sustainability

While this definition of prosperity is no doubt a challenge to present thinking, it could nevertheless represent a vision for leadership and legacy building that will help secure a future of value for both current and future generations.

## Bringing sustainability into the debate

Certainly, what is proposed in this draft discussion paper is a more complex approach than is presently discussed on the Australian economic, political and social agenda. However, it must be suggested that with all of Australian society's capabilities and our capacity for ingenuity, surely we can design and plan a sustainable and prosperous future for Australia – and help other countries achieve the same.

While there is immense complexity in trying to manage and balance all forms of capital (human, knowledge, social, natural, physical and financial), it is a capacity challenge of a different nature that is stifling debate and therefore action. Most people have more pressing issues to deal with in the “here and now.” Therefore most people “don't do” sustainability. Their intentions may be good, but there is no direct perception of risk and reward or even consideration of an individual's role in the important planning for future building. This is not to point a finger of blame at anyone – there is no political party, company or industry sector that has caused the problem. It is the result of an “I want it and I want it now” syndrome that has evolved over decades.

But deferring substantial action is like trying to figure out what one piece of a jigsaw puzzle means in isolation – it doesn't deliver very much. Whether our world is becoming more complex than in the past is questionable, but we certainly seem to be reducing our options and, worryingly, we seem to be increasingly reliant on the concept of substitutability. But when one part of an ecosystem breaks down, replacement parts are not necessarily available. This point was made strongly by the U.S. Pentagon's report on abrupt climate change, in which war is a potential outcome of the most dire global warming scenarios<sup>6</sup>.

At present, the evidence suggests that rather than building equity into a vibrant future, we are possibly leaving future generations with a growth curve of cost associated with pollution, resource depletion and degradation of environmental productivity.

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6. Schwartz, P. & Randall, D. (2003) “An Abrupt Climate Change Scenario and Its Implications for United States National Security” The Pentagon, USA

## Choices for the future

Current projections indicate that the global economy will increase by 80% by 2020 and quadruple by 2050<sup>7</sup>. If environmental degradation increases at the same pace, the likely impact is that it will erode integral production and services which in turn will have severe impacts on economies around the world.

To avoid this end game, society needs to give greater credence to the weight of scientific evidence that global production and consumption must be run inside the boundaries of the natural world – and primarily its ability to regenerate renewable resources, assimilate waste and photosynthesise food sources. This is not about going back to an earlier era of village communes. It is about getting smarter about how we make and use things, and finding a way to bring to the table values for all qualities and commodities that make up prosperity.

This initial draft discussion paper submits as its premise for discussion that because prosperity is being undermined by running down the nation's natural capital, and we have a choice to make about the kind of future we want and how we're going to get there (Figure 1).

## Driving change through government, business and society

*It is about getting smarter about how we make and use things, and finding a way to bring to the table values for all qualities and commodities that make up prosperity.*

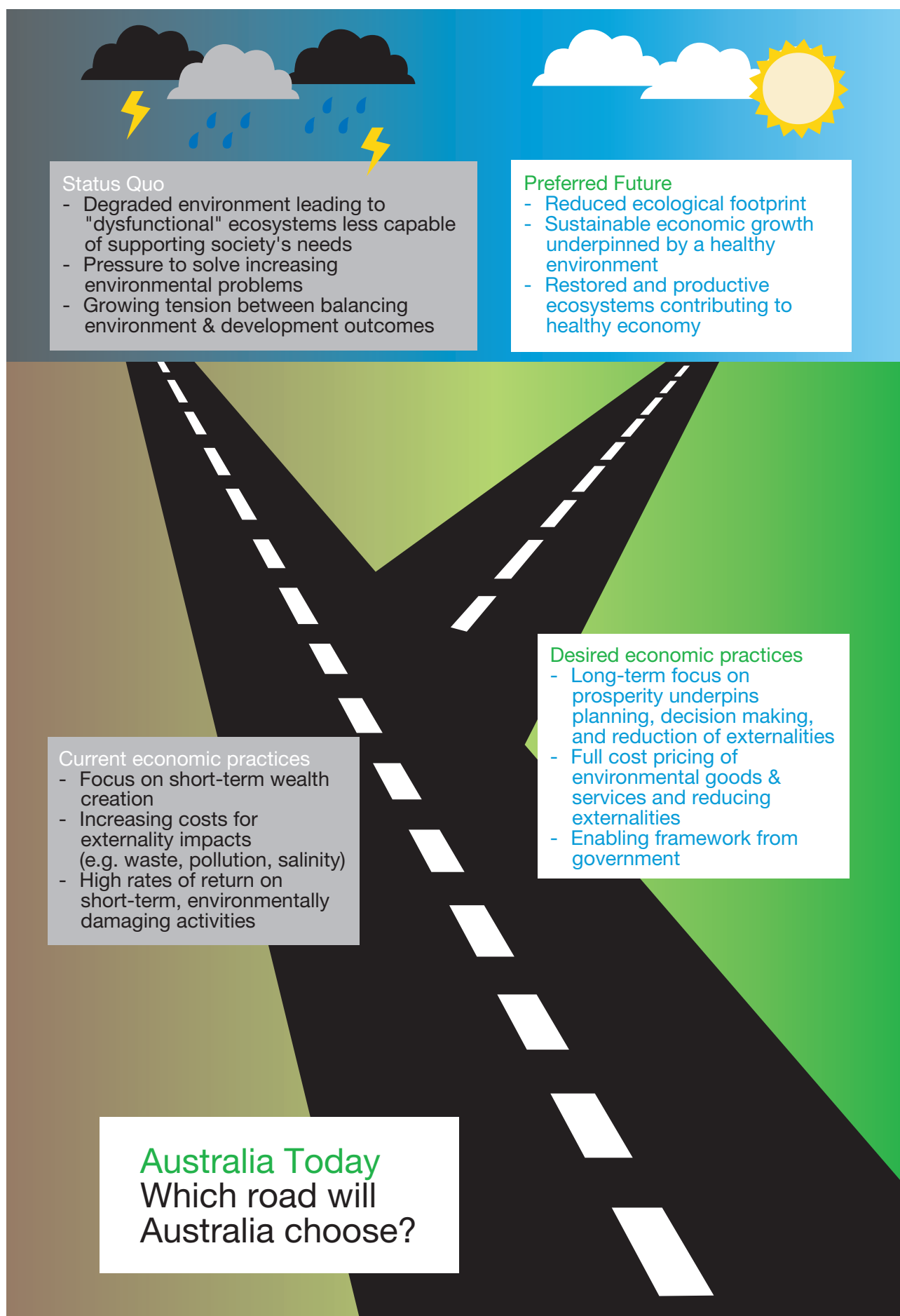
How does public policy deal with these choices? What are the bridges we can build to help change direction? While work in government agencies, scientific bodies, business and industry organisations, conversation groups and the investment and insurance community is part of a widespread push, much of this work still exists in silos. There is, as yet, no box of tools that is readily available and understandable to empower the community and mutually reinforce the work of government and the private sector.

Again, this calls attention to the market. The challenge for traditional market economists will be to embrace a concept of prosperity as proposed in this paper because at its root, it means that decision making would be shared between the marketplace and a society which takes responsibility for patterns of production, as well as its own consumption.

But the traditional market is not necessarily working efficiently because it has no means by which to recognise environment impairment signals and, therefore, no imperative to act other than to maintain the status quo. If this hypothesis is correct, then “the market” effectively becomes entrenched in its own short-term risk and reward system. When markets lack timely and meaningful intelligence in this way, price signals do not function effectively, and the continuing “correlation between the accumulation of wealth and the concentration of power erodes the political basis for a transition.”<sup>8</sup>

7. Speth, G. (2003) Red Sky Morning Yale University Press, Connecticut, USA

8. Foster, J. (2005) “Organising Ecological Revolution” *Monthly Review* Vol. 57, No. 5



**Figure 1 – Australia's Choice:** A possible model for pursuing a sustainable economy and building national prosperity



A new component is therefore required to overcome this short-circuiting. While incremental changes will take place through the market as business and individuals realise the value in sustainability or the efficiency of new technology, the major shifts in thinking and structural overhaul of economic and productivity systems needs to come from a more co-ordinated approach involving government, business and civil society operating in partnership. Only through governments is society in a position to provide a framework capable of promoting long-term and measured accumulation of capital and sustained economic growth with regard to social or ecological costs embodied as part of broader national interests.

### The evidence of change

The more we learn about current environmental trends, the more the unsustainability of our present course is realised. Among the warning signs:

#### Ecosystem Services

The Millennium Ecosystem Assessment quantified that because two-thirds of the world's ecosystem services are currently being degraded or used unsustainably, services that are freely available today will cease to be available or become more costly in the future<sup>9</sup>. Additionally, according to a study published by the National Academy of Sciences in 2002, the world economy exceeded the earth's regenerative capacity in 1980 and by 1999 had gone beyond it by as much as 20 percent.<sup>10</sup>

#### Climate Change

There is now a virtual certainty that the critical threshold of a 2° C (3.6° F) increase in average world temperature above the pre-industrial level will soon be crossed due to the build-up of greenhouse gases in the atmosphere. Scientists believe that climate change at this level will have portentous implications for the world's ecosystems. The question is no longer whether significant climate change will occur but how great it will be<sup>11</sup>. Humans are very adaptable, but the biodiversity and ecosystem services we rely on may not be sufficiently flexible and resilient.

There are growing worries in the scientific community that the estimates of the rate of global warming provided by the United Nations Intergovernmental Panel on Climate Change (IPCC), which in its worst case scenario projected increases in average global temperature of up to 5.8° C (10.4° F) by 2100, may prove to be too low. For example, results from the world's largest climate modelling experiment based in Oxford University in Britain indicate that global warming could increase almost twice as fast as the IPCC has estimated<sup>12</sup>. Experiments at the International Rice Research Institute in the Philippines showed that a 0.7°C increase in the mean daily

9. Millennium Ecosystem Assessment (2005)

10. Wackernagel, M. et al (2002) "Tracking the Ecological Overshoot of the Human Economy" *Proceedings of the National Academy of Sciences*, July 9

11. International Climate Change Task Force (2005) "Meeting the Climate Challenge," January [online] <http://www.americanprogress.org> (accessed 14/9/05)

temperature was associated with a rice yield decrease of 10 per cent, substantially greater than previous estimates<sup>13</sup>.

### Energy

It is now clear that the world is within a few years of its peak oil production (known as Hubbert's Peak). The world economy is therefore confronting diminishing and ever more difficult ways to obtain oil supplies, despite a rapidly increasing demand<sup>14</sup>. All of this points to a growing world energy crisis and mounting resource wars.

### Water

The planet is facing global water shortages due to the drawing down of irreplaceable aquifers, which make up the bulk of the world's fresh water supplies. This poses a threat to global agriculture, which has become a bubble economy based on the unsustainable exploitation of groundwater. Almost all major accessible rivers are dammed; 70% of surface water use is for agriculture; and climate change is already changing rainfall and runoff, e.g. Southern Australian has major reductions in runoff and large cities are on water restrictions. We know that the recent changes in rainfall in Australia are unprecedented in the last 250 years. One in four people in the world today do not have access to safe water<sup>15</sup>. This was highlighted in the US Pentagon's report on Abrupt Climate Change in which water "hot spots" could be the cause of mass migration with resulting security risks<sup>16</sup>.

### Species Extinction

Two thirds of the world's major fish stocks are currently being fished at or above their capacity with 90 percent of large predatory fish eliminated from the world's oceans in the last half-century<sup>17</sup>. Additionally, the species extinction rate is the highest in 65 million years with the prospect of cascading extinctions as the last remnants of intact ecosystems are removed. Already the extinction rate is approaching 1,000 times the "benchmark" or natural rate<sup>18</sup>. Scientists have pinpointed twenty-five hot spots on land that account for 44 percent of all vascular plant species and 35 percent of all species in four vertebrate groups, while taking up only 1.4 percent of the world's land surface. All of these hot spots are now threatened with rapid annihilation due to human causes<sup>19</sup>. Freshwater biodiversity is declining faster than any other major group.

12. Hopkin, M. (2005) "Internet Project Forecasts Global Warming" *Nature* Vol. 433, January 27

13. Pearce, F. (2004) "Rice Yields Plunging Due to Balmy Nights" *New Scientist* June 29

14. Deffeyes, K. (2005) *Beyond Oil: A View from Hubbert's Peak* Farrer, Straus and Giroux, New York

15. McKibben, B. (2003) *New York Review of Books*, September 25

16. Schwartz, P. & Randall, D. (2003) "An Abrupt Climate Change Scenario"

17. Myers, R. & Worm, B. (2003) "Rapid worldwide depletion of predatory fish communities" *Nature* Vol. 423, p. 280-283, May 15

18. Pimm, S. & Jenkins, C. (2005) "Sustaining the variety of life" *Scientific American* September

19. Myers, N. et al. (2000) "Biodiversity hotspots for conservation priorities" *Nature* Vol. 403, p. 853-858, February 24

## Environmental asset atrophy

Crucial to providing this framework is a recognition that Australians cannot continue to believe that the outsourcing of the negative externalities of production and consumption onto the environment is beyond our influence or control. While commercial production cannot cease, and wealth creation, jobs and quality of life depend on the commodities and industries driven by Australia's natural resource base, a way has to be found to pay for cleaner production, transportation and consumption. If this is not achieved, what was once seen as wealth creation could be tipped into a different category of wealth degradation – a functioning environmental asset base begins to atrophy.

With a global economy and over 6 billion interconnected people, we are doing things to global financial, social and environmental resilience that we have never done before. We have set up a global complex system the likes of which is unprecedented in the history of the planet. The interconnection of the global multiple capitals (and their inter-conversions) is a unique experiment that at times seems like a teenager behind the wheel of a very powerful car determined to show how fast he can go.

There is an element of erroneous belief about the fundamental underpinnings of economic growth in OECD countries. The market prices achieved for coal, oil, gas, wheat, housing starts and car sales reveal evidence of economic churn, but they reveal little about the sustained robustness of an economy. GDP, for example, is boosted by activity at crash repairers and by the sale of replacement cars and even by paid medical activity to deal with accident victims, yet nobody would suggest that car crashes are good for the community. And so it is with damage to the environment.

## Considering solutions to “short-termism”

One of the most serious issues is that our current evaluation of prosperity and wealth is driven by “short-termism,” which constantly defers decisions about long-term equity building to some “more preferential” point in the political or financial cycle. Since returns in these cycles are currently measured in months, quarters or at best one or two years, rather than, for example, decades, it becomes difficult to realign the well established reward systems and to plan on a generational level. However, by applying a long-term view to the impacts of short-term wealth creation and comparing that with a vision of the future, new ideas begin to emerge on how markets, products or societies could function:

- The insurance/re-insurance sector has highlighted the need to curb outputs that have negative impacts on society—either direct impacts or outcomes likely to carry latent liability. This sector is also very active in investigating how action that will have future benefits can be monetised now, recognising that the gap between “now” and “then” carries significant risk exposure.

- The creation of markets for international environmental commodities, such as water or carbon, is beginning to create catalysts for new processes, systems and technologies. Intermediate offsets – such as forestry carbon sinks – provide incentive mechanisms for companies and industry sectors to embark on retooling plants or to provide a suite of services where once they provided a product.
- The design of products themselves can change, for example, if waste streams can be turned into the raw materials for new products. But again, this requires the market to recognise the need and prospective demand for new goods and services, which unless capable of undercutting market prices may not impress sufficiently to become commercially viable.

What is needed is a policy, technology, financial, and institutional framework that pulls in every possible tool and lever, combined with an Australian community resolve, to build far greater resilience, flexibility and efficiency into the overall system.

## A call to action

*Sustainability is not about impeding economic growth. It is about realising that environmental degradation is an economic cost, as well as a social one, and then doing something to reverse the trend.*

This discussion paper may highlight some important and disturbing symptoms that have developed over many decades, but rather than promoting “doom and gloom” the intent is to inspire a call to action. Sustainability is not about impeding economic growth. It is about realising that environmental degradation is an economic cost, as well as a social one, and then doing something to reverse the trend. This means action to conserve, protect or enhance the environment must be seen as an economic gain. It does not propose that one form of capital can replace another, but it does propose that financial capital can catalyse better performance which in turn protects environmental capital or the equity of the commons.

This sets the context for one of the most fundamental deliberations for the future and the central concern of this discussion: What happens if we continue with a business as usual approach? The answer to this question needs further evaluation, but the crucial items for consideration include the following:

- **The risk of inaction is greater than the risk of change.** The costs of adapting to a future with decreased natural capital and ecosystem services are unpredictable but clearly immense. Already billions of dollars are spent in Australia each year to remediate environmental damage caused by economic processes. In just one of many examples, CSIRO's Land and Water Division estimates that dryland salinity, acidification and soil erosion impose direct costs of \$1.7 billion per year with two-thirds of land managers reporting that they will suffer

reductions in property values of up to 25 percent over the next three to five years from resource degradation<sup>20</sup>. What could be of even greater concern is the cost to Australia of adapting to environmental changes associated with climate change and the impacts this will have on agricultural productivity, coastal land values, the tourism industry, amenities, as well as health and quality of life.

- **There may be an opportunity cost for Australia as other nations build a competitive edge based on clean and green production and consumption.** Sustainability could be the basis for this country's next competitive edge (discussed in detail in Appendix A) and the "next industrial revolution."<sup>21</sup> However, it is not clear that the majority of Australian companies, analysts, brokers, investors and policy makers understand the potential that could accrue to Australia from this next evolution. Certainly some far-sighted enterprises are investing in innovation at technology and institutional levels, and those that are doing so see significant gains from waste reduction, efficiency gains and reputation benefits. BP is an example, and the Global Choice program developed in Australia is providing significant offsets for greenhouse gas emissions.

What possibility is there that companies may lose reputation, market share and future opportunities and also be held accountable for damage to global common resources if they do not respond to this opportunity? The potential latent liability exposure is a serious issue for boards of directors.

- **Government is in a key position to drive change through an "enabling framework."** Industry is at its best in innovation and wealth creation but needs clear price signals and a framework that will help weave in new technologies and systems, and this is where the role of governments is crucial. Government is in a unique position to provide the enabling framework and necessary flexibility to re-write detrimental short-term approaches and to galvanise action that will lead to sustainable outcomes. This framework should deliberate on the efficacy of a portfolio of tools including: invigoration of competition policy reform that ensures competitive neutrality; broader regulation based on best practicable technology and systems, national standards, rating systems and eco-labelling; taxation that provides both penalty and incentive systems and hypothecates "galvaniser" funds, as well rewarding beneficial commercial success through re-investment tax concessions; economic studies of externalities and full cost price recovery to internalise the costs of collateral damage; market-based instruments such as carbon trading that act as catalysts to new technologies; and overt government procurement and investment funds to provide "friendly markets" and promote the civic ideal<sup>22</sup>.

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21. Hawken, P., Lovins, A. & Lovins, H. (1999) *Natural Capitalism* Little Brown and Company, New York

22. Stigson, B. (2004) President, World Business Council for Sustainable Development (WBCSD) speaking at the Tenth Conference of Parties (COP 10) UNFCCC, Buenos Aires, Argentina, December 6-17

# Status Quo or Leaping Forward?

Transition is never easy. There is no denying that changes such as the ones proposed in this draft discussion paper require significant leaps forward in institutional and policy approaches. Yet there is much in favour of early action. Choices become more difficult the longer action is delayed and the more that options are deleted in the process.

Subsequently, the first step is identifying the current characteristics of modern economies that inhibit a shift to more sustainable thinking and action – and considering how to move past them. While not an exhaustive list, we identify and discuss some of the most dominating and detrimental characteristics and thoughts on improving them:

- Environmental externalities and perverse subsidies
- Wealth, GDP & the role of consumerism
- Short-term financial and political cycles and lack of transparency
- Lack of timely and meaningful intelligence that the market can translate into signals
- The “technology will fix it tomorrow” syndrome
- Society in conflict with itself

## Environmental externalities and perverse subsidies

Economic theory defines externalities as impacts made when those taking a decision do not bear all the costs of their actions<sup>23</sup>. For example, it may make sense for a farmer to convert his land to a citrus farm based on his private costs and benefits, but that conversion can have external effects on water flows, fish stocks and soil quality. Those costs are not taken into consideration in the decision making process and are, thus, left to society to bear.

The relative abundance of natural resources on a per capita basis has meant that there has been little impetus to categorise soil, water and ecosystems as economic assets. With unperceived economic value, these ecosystems and the services they provide have been utilised by market forces that favour turning resources into immediate-term bankable products. This paper does not argue that ecosystem services should not be appropriately used; rather, it postulates that there is an urgent need to become much more efficient in our use of natural capital.

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23. *The Economist* “Are You Being Served? Environmental Economics” April 23, 2005

The economic modelling on which current decision making is based calculates use values for natural resources stocks and flows but does not account for the total economic costs associated with use. Nor does it investigate the potential value of international natural commodities – such as freshwater – or the value of dealing with “anti-commodities,” such as excess carbon and waste, which a functioning ecosystem can absorb or eliminate if not over-stressed and overloaded.

For example, oil has a current price and a futures price. Yet water, which is one of the most essential ecosystem services, has an artificially deflated price in today’s market and virtually no forward price. A functioning atmosphere has no current price at all, and although the “value” of it is starting to emerge, there is still not enough incentive for analysts, investors, consumers and governments to bring new trading systems, technologies and infrastructure into play.

An additional consideration for correcting market externalities is full cost recovery pricing. Unlike measures taken in other countries, the need for full cost pricing of services has not been extensively considered in Australia. In the European Union (EU), the ExternE study quantified the socio-environmental costs of electricity production and concluded that the cost of all externalities, excluding those attributable to global warming, are between 1% to 2% of the EU GDP. As in Australia, this huge unproductive but real cost is not presently factored into the account that electricity consumers pay.

In the past the difficult part in full cost pricing has been in establishing a causal linkage between stresses on the environment and the ensuing diminution of longer term wealth generating capacity. However, our present science-based knowledge is certainly sufficient to trigger the application of the precautionary principle and to investigate more efficient ways of developing and maintaining value in infrastructure and production and consumption patterns. Further, as we learn more about ecosystem functioning – of a catchment, a forest or the atmosphere – there is no longer a justification for arguing they are unquantifiable<sup>24</sup>. The complexity of variability and inter-connectivity give greater reason rather than less for developing a value system capable of protecting the robustness of the whole.

Externalities tie into the issue of perverse subsidies, which again is complex. Certain sectors currently receive direct and indirect subsidies, (which are unlikely to be unbundled in the immediate future) allowing them a form of income and market dominance. Could a tangential approach, where subsidies underpin low cost energy, below market cost water or cheap milk, be re-allocated to ensure sustainable and positive outcomes with no detrimental side impact? For example, increasing an accelerated depreciation approach in which companies would be rewarded for retrofitting plant to new performance standards maintains employment while helping a company build its next competitive edge in markets demanding “clean and green.” Or assistance could be given to maintaining major manufacturing production in Australia predicated on a company agreeing to produce benchmark efficiency goods and services.

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24. *The Economist* (2005) “Are You Being Served?” Bell, A. (2005) “Taking Externalities Seriously – An Economic Analysis of the Precautionary Principle” (online) <http://annmariabell.com/research/summary.html> (accessed 15/8/05)



## Thinking about solutions

The existence of externalities has long been one of the key rationales for government intervention in the economy<sup>25</sup>. Government intervention is required to ensure that the external costs of production are reflected in the market price and, more specifically, to ensure that polluters and others who benefit from ecosystem services pay enough to ensure that those services are conserved and maintained<sup>26</sup>. Social costs should, of course, include prevention of future problems and mitigation, remediation and where possible reversal of harm already done. The difficulty and the high costs associated with repair should provide sufficient signals that prevention is far less costly.

For example, New York City discovered how externalities can skew decision making by favouring the status quo as opposed to environmentally and economically rational regulation, financing and systemic approaches that internalise the costs of externalities. The city was faced with the problem of declining water quality caused by changed agricultural practices in the catchment zone. The initial reaction was to install new water filtration plants at a capex cost of \$6 billion, until it was realised that protecting the catchment's natural flows could achieve the same purpose. This timely intervention of common sense saw the government pay a relatively paltry \$250 million to buy land to prevent water-side development and \$100 million a year to pay farmers to minimise water pollution. Other American cities considering similar problems estimate that every dollar vested in environmental protection saves \$7.50 to \$200 on the cost of what would otherwise have to be spent on water treatment<sup>27</sup>. Thus, maintaining efficiency of the natural systems can be synergistic with new technology and allow for significantly lower chemical use in the water supply.

One strategy for dealing with externalities is to provide incentives and penalties that direct the potential efficiency of markets toward environmental goals. New environmental market tools are emerging which are capable of providing valuation of protection of the environment as an asset base and which could bring new offsets into play while new technologies and efficiencies are being developed. Carbon trading and biodiversity banking pursue this strategy, and the potential of these and other market-based mechanisms are discussed further below.

## Wealth, GDP and the role of consumerism

While an effective measure of short-term benefit, GDP is a poor measure of costs accrued, and its continued primary influence in economic decision making is arguably outmoded. As stated earlier in this paper, GDP has long been used as a proxy for national wealth and, by inference,

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25. Bell, A. (2005) "Taking Externalities Seriously – An Economic Analysis of the Precautionary Principle" (online) <http://annmariabell.com/research/summary.html> (accessed 15/8/05)

26. Willett, K. (2002) "Managing Australian Mineral Wealth for Sustainable Economic Development" International Institute of Environment and Development, London, p. 7

27. Ibid



a replacement for broader measurement and valuation of prosperity. Reliance on GDP in this way arguably reinforces a disconnect between economic performance and sustainable prosperity. Indeed, it is so systemic that it encourages the very behaviour that exacerbates the problem – unsustainable consumption. Even with countries achieving some successes decoupling economic growth from resource use and emissions, patterns of consumption and populations growing in size and wealth could reduce efficiency gains.

Additionally, the economic activities that contribute to GDP do not evidence the incorporation of the true cost values of the environmental resources and services that drive the economic system. Approximately \$58 trillion of free ecosystem services are not factored into market economics – the size of the global economy<sup>28</sup>. Also, as mentioned earlier, activities that represent negative aspects of society, such as car accidents or oils spills, are recorded as contributing to positive economic growth.

## Thinking about solutions

*The challenge is the disconnect between what Australians consume and how it affects either our own lifestyle or the lifestyle of others. Who thinks about the environmental impacts of driving to the local store for a can of soft drink or the supply chain of raw materials and energy that deliver the drink and its container?*

Discussing the role consumption plays in this discussion is complex. It is practically a defining attribute of Western culture, and there is much to recognise and acknowledge in having the ability to live life comfortably with a variety of choices. The challenge is the disconnect between what Australians consume and how it affects either our own lifestyle or the lifestyle of others. Who thinks about the environmental impacts of driving to the local store for a can of soft drink or the supply chain of raw materials and energy that deliver the drink and its container? Or questions why a carton of milk is sold for less than the value of the water that produced it?

Policy that empowers Australian consumers, investors, taxpayers and employees to make informed choices has to be part of the forward strategy. One way this could be achieved is to consider the ways which efforts have been made to decouple wealth from GDP. A number of indexes have emerged internationally that attempt to measure prosperity more holistically. One index created by The World Bank measures Genuine Savings as the net result of investments and disinvestments involving natural resources, human capital and built capital (now called Adjusted Net Savings). Measured for more than 100 countries from 1997-1999, most developed countries achieved a positive per capita Genuine Savings, indicating a sustainable economy. Australia did not<sup>29</sup>.

There is evidence already that GDP is slowly uncoupling from, say, energy consumption as the trades in knowledge and services grow. Also the decoupling of energy production from greenhouse gas emissions, while still in its infancy, is revealing major leaps in thinking and technology development. The trick will be to make sure that electricity demand does not increase and nullify the effects.

28. Costanza, R. (1997) "The Value of the World's Ecosystem Services and Natural Capital" Nature May 15

29. Willett, K. (2002) "Managing Australian Mineral Wealth," p. 13

In a similar vein, the Dow Jones Sustainability Index has consistently outperformed the market<sup>30</sup>. Maybe this is because the companies are simply more efficient, but there is also the likelihood that a culture of sustainability within a company leverages its entire performance and increases its likelihood of institutional investors seeing it as a company with long-term potential<sup>31</sup>.

## Market intelligence and the “technology fix” syndrome

The argument that as a nation's wealth grows, so does its ability to provide environmental protection is based on notions that as per capita income increases, public demand for environmental quality rises and “the environment is a luxury people will demand more of.”<sup>32</sup> This thinking has been used to argue that technology will be the panacea because innovation will outpace environmental change as the markets of wealthy nations demand a clean environment.

There is also a school of thought which promotes the concept that human intellect will always be capable of inventing new technologies to avert disaster. But human ingenuity often relies on market demand, and as noted above markets fail the system completely when they cannot respond quickly to threats that are perceived as slow and insidious.

In order for technology to provide solutions to environmental challenges two things must happen:

- The market must receive signals that relate to current challenges, the need for change and the value of innovation
- The market must then pull that innovation through by championing its value; this in turn attracts investment and creates the longer term framework for amortisation and profit which in their turn encourage further R&D and benchmarking.

The current absence of interpreted data shields the market from knowledge about:

- The cost of negative externalities to:
  - consolidated revenue
  - the irreplaceable eco-system services, currently treated as a “free” commodities
- Lower than optimum efficiency, productivity and competitiveness
- The waste of resources, energy, human intellect and time
- The real cost basis which will determine the competitiveness of technologies

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30. Dow Jones Sustainability Indexes (2004) “50th License Agreement Signed for the DJSI” Press Release, January 9

31. UTS Corporate Sustainability Project (2001) “Does the market value sustainability?”

32. McHugh, A. (2005) “Measure Our Welfare” Australian Financial Review Aug. 15

## Thinking about solutions

Capital markets therefore have the critical role of identifying financial risk and potential liability and then changing investment, lending and insurance patterns. The issue at stake is how to monetise action today that will pay future dividends. At present R&D, full scale demonstration and the commercialisation of a number of technologies is deferred to the future in the hope that “a better mousetrap” will become available at lower cost. In other words, the price of averting problems has seemed high in the immediate- and short-terms compared with continuing status quo activities. But if we take a long-term perspective of 50 years and back-cast from a vision of the future we want at that point, it quickly becomes apparent that 2050 is not so far away, and milestones that would need to be achieved by 2020 and 2010 require very rapid changes in technology and infrastructure (especially with the long lead time required to design and construct major plant). There is very little, if any, currency to be gained from deferring action to the future.

As an example, life-cycle cost-benefit analyses could allow for more effective pricing throughout the supply chain. This could lead to the transfer of funds from a highly efficient “product end” to pay for the prevention, mitigation and/or reversal of environmental damage at resource extraction, processing and manufacturing stages. Increased capital for R&D and accelerated depreciation to upgrade plant to benchmark environmental status would remove some of the financial pain for companies. For example, aluminium and magnesium smelting have considerable greenhouse gas emissions associated with them. However, the gains from lightweight metal vehicles using less fuel and the ability of lightweight metals to be recycled are positive offsets not currently sufficiently valued and certainly not adequately traded.

## Society in conflict with itself

Are we seeing irreconcilable differences attempting to drive various agendas due to the increasing conflict in consumption patterns?

There are some very interesting inconsistencies in each of us:

- Consumers seek out lowest possible prices but still want diversity of choice
- Shareholders seek highest possible short- and long-term returns and have come to expect a virtual guarantee of security in investments
- Future pension fund recipients want both economic return on investment and quality of life for retirement
- Taxpayers regularly demand tax cuts but want social services maintained or even enhanced
- Employees want secure jobs

- Property owners expect land and house values to increase and insurers to continue to cover for every eventuality
- Parents want to think their children and grandchildren will have as high a quality of life as their own
- Global citizens hope for stability and security
- Holidaymakers expect environmental amenities for weekends and vacations

These inherent conflicts make it difficult for the Australian community to give their elected members a clear message of what is expected in policy development. More importantly it makes it difficult for governments to undertake structural reform of environment, economic and fiscal approaches. The result is that environment policy is limited to aspects that have strong electoral appeal.

## Thinking about solutions

*This cycle of thinking and agenda setting needs to be rethought and possibly renewed, so that governments know they will be supported if they institute changes that deliver on longer term goals. To do this, there needs to be a way for governments to help absorb some of the short-term shocks of change.*

This cycle of thinking and agenda setting needs to be rethought and possibly renewed, so that governments know they will be supported if they institute changes that deliver on longer term goals. To do this, there needs to be a way for governments to help absorb some of the short-term shocks of change. Some simple levers can be put into place, for example rebalancing the real cost of energy and water to increase efficiencies and lower consumption. The end balance could well be no net rise in electricity or water bills.

Evidence of how society's interests can be realigned toward sustainable outcomes is starting to emerge. For example, the European based Carbon Disclosure Project stated aim is to move away from investment in carbon heavy companies to avoid exposure to latent liability associated with carbon pollution. Representing \$US 21 trillion of funds and 155 investment firms, this is arguably no small or token effort<sup>33</sup>. What it appears to indicate is how public demand for action on climate change prompted government and then the private sector to reconsider the risks and opportunities associated with their investment decisions.

33. Carbon Disclosure Project (2005) <http://www.cdproject.net/>

# Tools For Building on National Prosperity

How Australia chooses to engage with this change and the new balance sheet of risk and opportunity that it creates will determine how it builds proactively on the prosperity that it has today. This is the first time the modern world has had to deal with strategy development of such immense proportions. Just as education is pursued as a long-term investment to improve Australia's competitive advantage, so should environmental issues must be envisaged in the same way.

There are already tools to begin this journey and with an enabling framework from government, Australia can begin to consider how to best create sustainable advantage. For example, Australia's economic growth has been underpinned by lower energy costs, which contribute to 50% of industrial growth (compared to labour, capital and technological innovation) but represent just 5-10% of the costs of production<sup>34</sup>. As markets develop that internalise unaccounted costs (including future carbon trading schemes or taxes), how does Australia deal with the dilemma of maintaining competitiveness in the "carbon-constrained global economy" that policy makers and economists are predicting? Could avoiding proactive strategies to deal with the coming carbon shock reduce Australia's export options or perhaps leave the country exposed to sudden shifts in price signals and adverse reactions from investors and insurers?

A number of tools exist to begin discussing how these challenges are going to be addressed including:

- Market-based instruments, i.e. tradeable permits and caps
- Markets for ecosystem services
- Government regulatory reform
- Certification and labelling
- Government procurement and investment
- Tax reform
- Removal or re-allocation of perverse subsidies

The general application of these tools is discussed below. The need for a further investigation into these and other mechanisms and how they can help Australia achieve long-term growth is one of the main conclusions of this discussion. Some initial thoughts specific to Australia are offered in Appendix A.

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34. Foran, B. & Poldy, F. (2002) "Chapter 5 The future of energy" *Future Dilemmas: Options to 2050 for Australia's population, technology, resources and environment* Report to the Department of Immigration and Multicultural and Indigenous Affairs

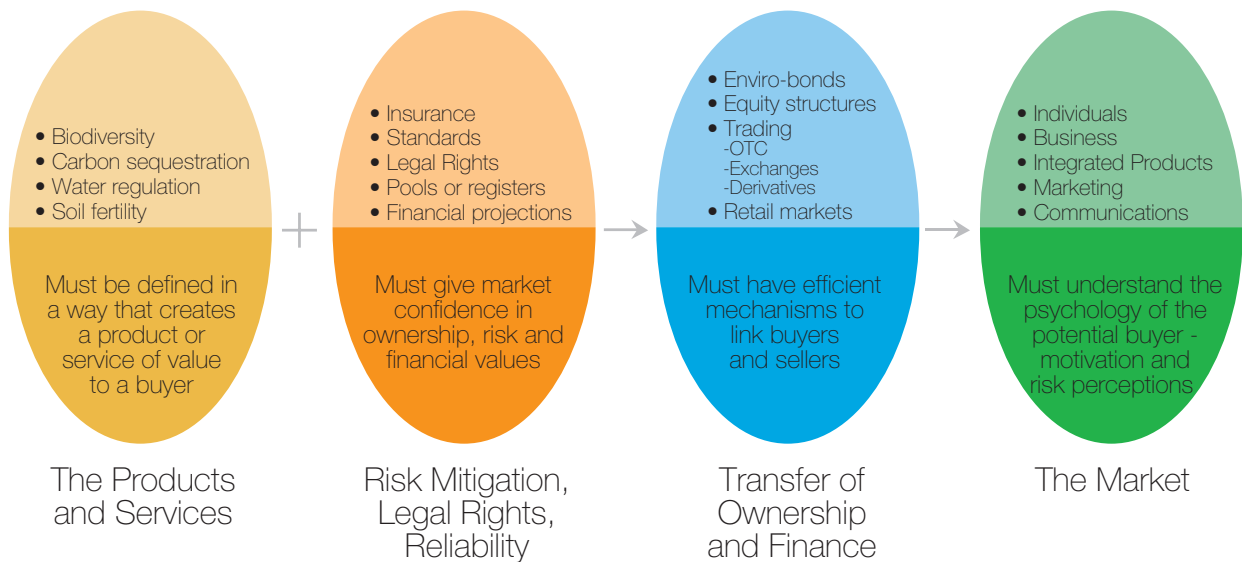
## Market-based instruments

The potential and need for engagement in market-based instruments (MBIs) in Australia is well researched, debated and supported, having been a part of the environmental management agenda for over the last decade and in particular in the last five years<sup>35</sup>. MBIs can be effective because they “direct resources in a cost-effective manner at a lower overall cost while maintaining environmental quality.”<sup>36</sup>

MBIs such as carbon trading are not seen as a solution in themselves but they are highly effective catalysts that can pull through new technologies and institutional approaches. They also bring offsets into play which can help cover the “time lag” in needed transition. Some examples of market based instruments and their potential applications, including emissions trading, biodiversity conservation permits and pollution permits, are discussed in Appendix B.

## Markets for ecosystem services

A potentially innovative way for considering Australia's opportunities is through the creation of environmental markets. Environmental markets act to connect the supply of environmental services with the marketplace, where environmental offsets or credits can create value for consumers and businesses (Figure 2)<sup>37</sup>.



**Figure 2 – The value chain of environmental markets**

35. See: Environmental Economics Seminar Series: Taxation and the Environment, Department of Environment, Sport and Territories, March 1996; Environmental Incentives: Australian Experiences With Economic Instruments for Environmental Management, Environmental Economics Research Paper No. 5, Environment Australia, 1997; Talking to the Taxman about Nature Conservation: Proposals for the introduction of tax incentives for the protection of high conservation value native vegetation, CSIRO, 1999; Salinity Experts Group Report to the NSW Government on Market-Based Instruments, September 2000; Creating Markets for Ecosystem Services, Staff Research Paper, Productivity Commission, 2002; Making Farm Forestry Pay – Markets for Ecosystem Services, January 2000/2 A Report for the Rural Industries Research and Development Corporation Market-based tools for environmental management, Proceedings of the 6th annual AARES national symposium 2003; Developing income streams for farmers: NSW Environmental Service Scheme, NSW Government, 2003; Managing Our Natural Resources: Can Markets help? Investigating Market Based instruments in NRM, Natural Heritage Trust; A Tradable Rights Instrument to Reduce Nutrient Pollution in the Port Waterways: feasibility study, SA Environmental Protection Agency, July 2005.

36. Lyster, R (2002) “(De)regulating the Rural Environment” *Environmental and Planning Law Journal* Vol. 19, No. 1, p. 34-57

37. Brand, D. (2004) “Forest Investment and Emerging Environmental Markets” Second Annual Green Trading Summit TM, New York, NY, April 7-8, 2003

For example, in order to safeguard the environmental attributes of a functioning forest (i.e. soil quality or carbon sequestration), markets can be created for soil and carbon credits that are separate from the use values of trees and timber.

State initiatives such as, BushBroker (Vic), Biodiversity Incentives Tender (Qld) and Catchment Care (SA) are all important first steps to encourage and improve conservation incentives amongst private landholders through markets for ecosystem services. What is arguably needed, however, is a broader based environmental trading system so that those who profit from the use of ecosystem services are able to reward those who maintain them through the sale/purchase of environmental credits.

At present, no enabling framework exists in Australia to provide market confidence or substantial and lasting opportunities for creating environmental markets. In order to have a viable market in the future, consideration needs to be given to how environmental services may be commercialised to create an efficient market. Could this best be achieved through input at the Federal Government level where the economic development policy lies and so provide greater overall efficiency and potential for market based instruments, as distinct from state by state schemes? Early work is being taken along these lines by the Federal Government under the Intergovernmental Agreement on a National Water Initiative.

## Government regulatory reform

Part of this enabling framework requires regulatory reform. Regulatory tools have been utilised by successive Australian governments to drive the institutional and individual change needed for a sustainable future. A significant example is the reforms that have been put in place through the National Water Initiative and the Murray-Darling Basin Agreement. In addition, new environmental law both proposed and introduced in 2005 demonstrates the need for a legislative regime that advocates the principles of ecologically sustainable development<sup>38</sup>. An example of this is the New South Wales government drive to mandate eco-efficiency principles into business operating costs through the Energy Administration Amendment (Water and Energy Savings) Act 2005. The new Act aims to stimulate investment in innovative water and energy saving measures through a water and energy savings funds and action plans for the top 200 non-residential water customers and energy users.

Command-and-control regulation that imposes uniform regulatory practices has an important part to play in encouraging businesses to change their standard operating practices by providing some investment security. The legislation highlighted above demonstrates that governments have begun to wave the stick and not the carrot, in the form of rebates

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38. An example of legislation and bills introduced in 2005 include the Sustainability Victoria Bill 2005, *Geothermal Energy Resources Act 2005* (Vic), *major reforms in the Protection of the Environment Operations Amendment Bill 2005* (NSW), and the *Water Efficiency Labelling and Standards Act 2005* (Cth).



and funding, when it comes to changing business behaviour<sup>39</sup>. For the sake of lowering business compliance costs, however, such initiatives must be Australia wide and harmonised.

## Certification and labelling

And what about brand awareness and the potential power of eco-labelling? Eco-labelling was first introduced in Europe in the late 1970s, and at present Australia is the only OECD country without a formal national environmental labelling scheme. While the government has facilitated efforts for energy efficiency and general guidelines for self-declared environmental claims in advertising and selling, adoption of a national unified program would do much to assist business and consumers.

A significant legislative tool enacted at the Federal level in 2005 is the Water Efficiency Labelling and Standards Act 2005 (Oth). Could this new legislation, which establishes a scheme for labelling and minimum performance standards for certain water-use products and appliances, establish a trend towards future eco-labelling legislation in Australia?

## Government procurement and investment

Further to elevating the purchase of environmental goods and services through eco-labelling, stronger regulatory requirements for green procurement, particularly by government bodies can pull through change. This has already commenced in Victoria with the adoption of the Office Accommodation Guidelines 2005<sup>40</sup>, requiring all new offices built or leased by the government to meet guidelines for environmental sustainability. The buying power and major market force of government procurement is particularly needed to support new and innovative environmental products, which in turn will work to reduce higher production costs that are often associated with new market products.

Government spending directed towards a particular area is sometimes referred to as a “taxpayer grab.” But in considering the need to lower greenhouse gas emissions and looking at the carbon footprint from automobiles (over 20% of greenhouse gases on the global scale), it's reasonable for all three levels of government to consider procurement or leasing for the public sector fleet based on benchmarks of fuel efficient/ low emission vehicles. This could have four key outcomes:

- The size of the government fleet would provide a solid market for new generation vehicles potentially allowing for lower unit costs to the consumer

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39. Numerous government programs have provided financial incentives for industries to meet the costs of eco-efficiency assessments and retro fits by providing case study examples of the potential economic benefits that may be made with a relatively short pay back period. Yet, the success of these programs in demonstrating and influencing other business to move towards sustainable development has not caused a measurable change in business activity by non-participants.

40. While other states have introduced guidelines, such as the Queensland government's Ecologically Sustainable Development Office Fitout Guideline and the Energy Conservation Management Manual for Government Departments, there is no requirement for compliance.



- The second-hand market would be able to take advantage of cleaner vehicles as fleets are retired
- Air quality would improve in urban areas reducing the negative impacts on health and productivity
- Greenhouse gas emissions would be reduced

The aggregated benefits should therefore provide a “taxpayer gift” and other major projects could be instigated in this way, using existing government spending to leverage performance in a number of areas.

## Tax reform

*Taxes provide economic signals that change consumption patterns, encourage efficiencies and facilitate technological innovation, potentially enabling a particular target to be achieved at least cost. This can be applied specifically to achieve environmental targets.*

Can taxation be employed to reward sustainable practices, penalise unsustainable ones and provide incentives for a sustainable future? Taxes provide economic signals that change consumption patterns, encourage efficiencies and facilitate technological innovation, potentially enabling a particular target to be achieved at least cost. This can be applied specifically to achieve environmental targets.

Reports indicate that environmental taxes in particular offer a “double-dividend” by providing an opportunity to not only account for the price of environmental externalities but also to fund cuts in expenditure and to provide ways to lower other levies<sup>41</sup>.

The relative role and effectiveness of the tax system and expenditure programs in delivering assistance to industry has most recently been recognised by the Federal Minister for Revenue with the announcement of a review of the taxation of plantation forestry<sup>42</sup>. Among other things, the review will address the commercial viability and current tax treatment of plantation investments, whether current laws hinder investment in longer term forest rotations which produce higher value products and the extent to which existing tax policies can be adopted to achieve a greater integration of plantation and natural resource management policies to improve the water quality and salinity.

Tax reform could also be explored in the following areas:

- Tax incentives for factory upgrades that incorporate cleaner production technology, where the pay-back period does not often match most business short-term planning horizons
- Expanding on current tax incentives and support for natural resource management

41. Iloudet, J (2004) “Trends in Environmental Tax Reform – A Review” National Environmental Law Review No. 3, September. 33-40

42. Federal MP Mal Brough and MP Ian MacDonald (2005) “Review of the Taxation of Plantation Forestry” Press Release, Federal Department of the Treasury

- Tax breaks for “environmentally friendly products” which meet specific criteria or consideration of tax deductions for their purchase to create an incentive-based system, rather than a punitive one, such as lower taxes on hybrid fuel efficient cars and removal of the lower tax on 4WDs used solely in urban areas
- Tax breaks on research and development focused on sustainable development and reinvestment of tax concessions that reward commercial success of innovation
- Introducing a pollution tax based on taxing emissions from all sources at a rate per unit equal to marginal external costs<sup>43</sup>

Taxes could be put to work to reward early movers and help to avoid corporate cognitive dissonance. Could they also be used to penalise consistent poor performance? Data such as that from the National Pollutant Inventory could be applied to raise tax levels to a sufficient level to pay for mitigation and clean up work. Taxing emissions may prove to be a more effective and immediate pollution deterrent than pollution fines applied by State and Territory environmental regulatory agencies. An example of approach for consideration is the NSW load-based licensing system, where the cost of a licence rises and falls dependent on a company’s own efforts to limit pollution.

## Removal or re-allocation of perverse subsidies

It is becoming increasingly clear that economic growth can no longer be sustained by providing subsidies that both directly and indirectly negatively impact on ecosystems. While subsidies may be intended to support businesses, perverse subsidies in fact have the effect of sending price signals that “convey fundamentally incorrect information about the real environmental and social costs of production, extraction and resource scarcity.”<sup>44</sup>

For example, existing subsidies that permit pollution from energy resource extraction or combustion could be re-allocated to support energy efficiency, emissions abatement and renewable energy R&D, demonstration and commercialisation.

43. Common, M. (1996) “Background Paper, Environmental Economics Seminars Series Taxation and the Environment” Department of the Environment, Sport and Territories, March

44. Ibid, p. 36

# Conclusions

While the solutions are complex, the problem is simple at its most basic level. **Environmental change is impacting Australia's present and future prosperity** by limiting options for economic growth, quality of life and general wellbeing.

The most fundamental question for the future and the central concern of this draft discussion paper is what happens if we continue with a business as usual approach? We have concluded that **the risks of inaction are greater than the risks of considering how to change** the practices that have landed us in the predicament we face today.

A number of market characteristics – environmental externalities, short-termism, and the “technology fix” approach and the competing self-interests within the Australian society – have contributed to this quandary.

We are headed in an unsustainable direction, and now need to focus on where we would rather be heading – and how to get there. This requires visionary leadership from business, government and the community. It means not being afraid to ask the hard questions, being prepared for complex answers and remaining true to the big picture – ensuring a prosperous Australia for ourselves and for future generations. Tackling some sacred mythologies will be necessary and rethinking and restructuring some of our economic “norms” will be key if we are to maintain a resilient and robust environment, which as this paper has attempted to emphasise, is our most precious asset because it is irreplaceable.

**We suggest that the following actions are needed to move both discussion and action forward:**

- Setting a vision for the future we want for Australia
- Defining a roadmap for achieving the future we aspire to and detailing the milestones and goals that must be achieved
- Determining and committing to the enabling framework of policy, economic and regulatory tools that will guide Australia forward without being hostage to short-term political and financial cycles
- Economic analysis of market failures that lead to environmental externalities and how policy and other tools could correct this
- Assessment of the risks and opportunities to the country's major industrial sectors

The authors of this paper will be pursuing some of this work in the year ahead and we invite business, government and community leaders to join us in making sure that transitional leaps add value to our strong economy and our enviable lifestyle.

# References

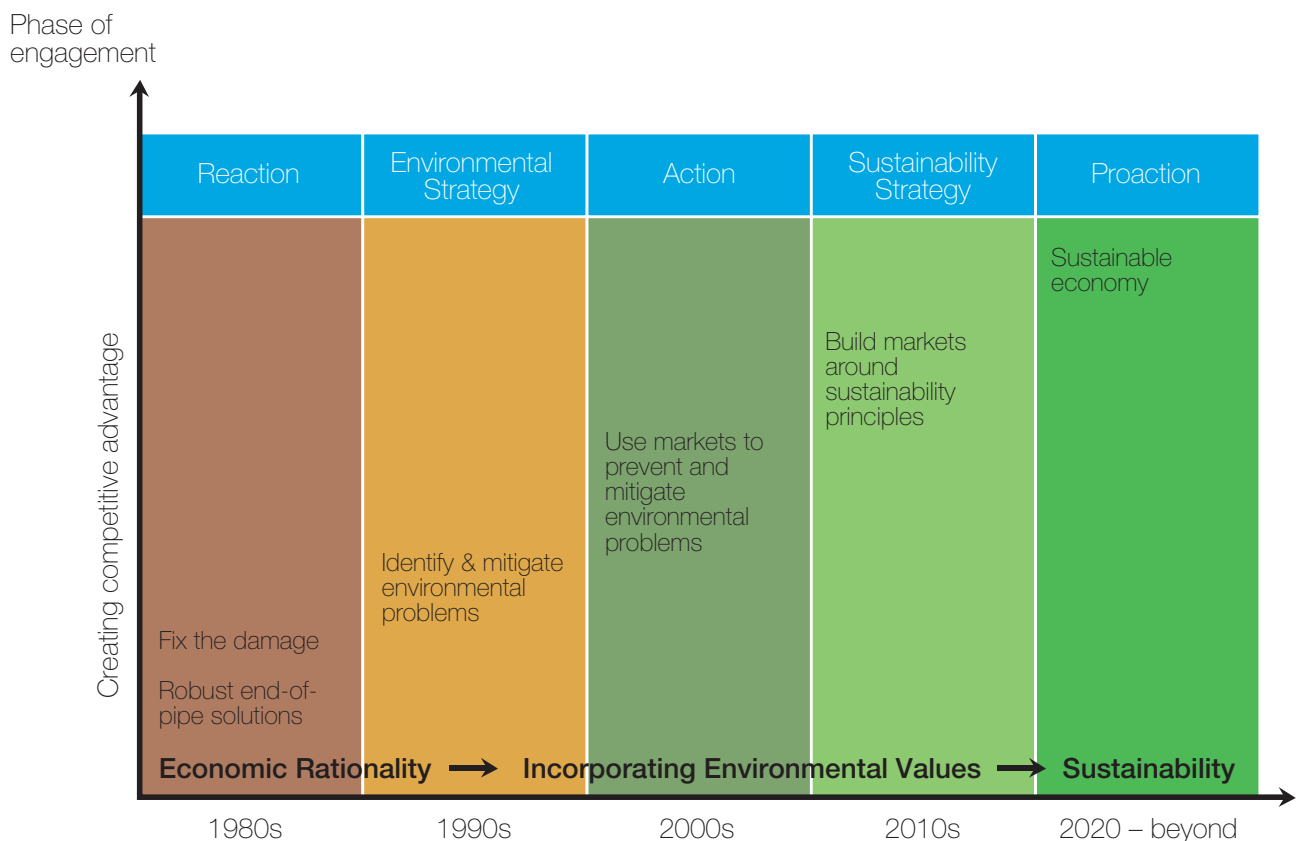
- ABS (2004) "Is Life in Australia Getting Better? Beyond GDP: Measures of economic, social and environmental progress" *Measures of Australia's Progress* [online] <http://www.abs.gov.au/Ausstats/abs@.nsf/0/5988025C0A0C3441CA256F720083304E?Open> (accessed 10/9/05)
- The Allen Consulting Group (2001) "Repairing the Country – Leveraging Private Investment" Australian Conservation Foundation [online] [http://www.acfonline.org.au/uploads/res\\_private\\_investment.pdf](http://www.acfonline.org.au/uploads/res_private_investment.pdf) (accessed 25/9/05)
- Beder, S. (2001) "Trading the Earth: The politics behind tradeable pollution rights" *Environmental Liability* Vol. 9, No. 2, p. 152-160
- Bell, A. (2005) "Taking Externalities Seriously – An Economic Analysis of the Precautionary Principle" (online) <http://annmariabell.com/research/summary.html> (accessed 15/8/05)
- Binning, C. et al. (2002) "Making Farm Forestry Pay – Markets for Ecosystem Services" Rural Industries Research & Development Corporation (Australian Government)
- Brand, D. (2004) "Forest Investment and Emerging Environmental Markets" Second Annual Green Trading Summit TM, New York, NY, April 7-8, 2003
- Business Council of Australia (2004) "Sustaining Australia – Sustainable Development Issues Facing Australia to 2025" *Research Paper for Business Council of Australia Scenario Planning Project Aspire Australia 2025*
- Carbon Disclosure Project (2005) [online] <http://www.cdproject.net/> (accessed 30/8/05)
- Common, M. (1996) "Background Paper, Environmental Economics Seminars Series Taxation and the Environment" Department of the Environment, Sport and Territories, Australian Government
- Costanza, R. (1997) "The Value of the World's Ecosystem Services and Natural Capital" *Nature* May 15
- Deffeyes, K. (2005) *Beyond Oil: A View from Hubbert's Peak* Farrer, Straus and Giroux, New York
- Department of Environment and Heritage (2005) "Climate Change Risk and Vulnerability Final Report" [online] <http://www.greenhouse.gov.au/impacts/publications/pubs/risk-vulnerability.pdf> (accessed 12/9/05)
- Dow Jones Sustainability Indexes (2004) "50th License Agreement Signed for the DJSI" Press Release, January 9 [online] [http://www.sustainability-indexes.com/djsi\\_pdf/news/PressReleases/DJSI\\_PressRelease\\_040109\\_50Licenses.pdf](http://www.sustainability-indexes.com/djsi_pdf/news/PressReleases/DJSI_PressRelease_040109_50Licenses.pdf) (accessed 5/10/05)
- The Economist* (2005) "Are You Being Served? Environmental Economics" April 23
- Environment Australia (2002) "Are We Sustaining Australia? Report Against Headline Sustainability Indicators" [online] <http://www.deh.gov.au/esd/national/indicators/report/> (accessed 15/8/05)
- Federal MP Mal Brough and MP Ian MacDonald (2005) "Review of the Taxation of Plantation Forestry" Press Release, Federal Department of the Treasury, Australian Government
- Foran, B. & Poldy, F. (2002) "Chapter 5: The future of energy" *Future Dilemmas: Options to 2050 for Australia's population, technology, resources and environment* Report to the Department of Immigration and Multicultural and Indigenous Affairs
- Foran, B., Lenzen, M. & Dey, C. (2005) *Balancing Act: A Triple Bottom Line Assessment of 135 Sectors of the Australian Economy* CSIRO and Sydney University [online] <http://www.cse.csiro.au/research/futures/balancingact/index.htm> (accessed 1/9/05)
- Foster, J. (2005) "Organising Ecological Revolution" *Monthly Review* Vol. 57, No. 5

- Hawken, P., Lovins, A. & Lovins, H. (1999) *Natural Capitalism* Little Brown and Company, New York
- Hopking, M. (2005) "Internet Project Forecasts Global Warming" *Nature* Vol. 433, January 27
- Iloudet, J. (2004) "Trends in Environmental Tax Reform – A Review" *National Environmental Law Review* No. 3 September 2004, p33-40
- International Climate Change Task Force (2005) "Meeting the Climate Challenge" January [online] <http://www.americanprogress.org> (accessed 14/9/05)
- Kemp, D. (2004) former Minister for the Environment and Heritage, opening speech for the Fenner Conference on the Environment, Canberra, May 24
- Lyster, R (2002) "(De)regulating the Rural Environment" *Environmental and Planning Law Journal* Vol. 19, No. 1, p. 34-57
- McHugh, A. (2005) "Measure Our Welfare" *Australian Financial Review* Aug. 15
- McKibben, B. (2003) *New York Review of Books*, September 25
- Millennium Ecosystem Assessment (2005) "Ecosystems and Human Well Being: Opportunities and Challenges for Business and Industry"
- Myers, N. et al. (2000) "Biodiversity hotspots for conservation priorities" *Nature* Vol. 403, p. 853-858, February 24
- Myers, R. & Worm, B. (2003) "Rapid worldwide depletion of predatory fish communities" *Nature* Vol. 423, p. 280-283, May 15
- Pearce, F. (2004) "Rice Yields Plunging Due to Balmy Nights" *New Scientist* June 29
- Pimm, S. & Jenkins, C. (2005) "Sustaining the variety of life" *Scientific American* September
- Schwartz, P. & Randall, D. (2003) "An Abrupt Climate Change Scenario and Its Implications for United States National Security" The Pentagon, United States of America
- Speth, G. (2003) *Red Sky Morning* Yale University Press, Connecticut, USA
- Stigson, B. (2004) President, World Business Council for Sustainable Development (WBCSD) speaking at the Tenth Session of the Conference of Parties (COP 10) UNFCCC, Buenos Aires, Argentina, December 6-17
- UTS Corporate Sustainability Project (2001) "Does the market value sustainability?" [online] [http://www.csp.uts.edu.au/csn/sbf\\_archive/sbf\\_july01.html](http://www.csp.uts.edu.au/csn/sbf_archive/sbf_july01.html) (accessed 10/10/05)
- Wackernagel, M. et al (2002) "Tracking the Ecological Overshoot of the Human Economy" *Proceedings of the National Academy of Sciences*, July 9
- Willett, K. (2002) "Managing Australian Mineral Wealth for Sustainable Economic Development" International Institute of Environment and Development, London
- Wright, Ronald (2004) *A Short History of Progress* Carroll & Graf Publishers, New York
- WWF (2004) "Conserving Australia's Biodiversity – Priorities for a Living Continent" [online] [http://www.wwf.org.au/News\\_and\\_information/Features/priorities\\_for\\_a\\_living\\_continent.pdf](http://www.wwf.org.au/News_and_information/Features/priorities_for_a_living_continent.pdf) (accessed 30/8/05)
- Young, M. (2002) "Economic Aspects of Sustainability" *Australian Academy of Science Annual Symposium: Transition to Sustainability* [online] <http://www.science.org.au/sats2002/young.htm> (accessed 11/10/05)

# Appendix A – Transitioning Australia's economy

One way of thinking about how Australia may progress toward more sustainable practices is through a consideration of how nations generally engage with the process of sustainable development in different phases (Figure 3). These phases can be characterised by the dominant strategies used for considering environment-economy challenges.

The logic of this progression does not make it either spontaneous or inevitable. Vision and leadership in Australia will ensure it does not get left behind, as transitional leaps forward are being taken now by those who would be the leaders tomorrow. Australia is primarily in an action phase, defined by state and sector driven sustainability reforms aimed at eco-efficiency and trial environmental markets. Moving along the continuum toward a “sustainability strategy” phase will allow Australia to pursue the “proaction” needed to build a sustainable economy. The logic of this progression does not make it either spontaneous or inevitable. Vision and leadership in Australia will ensure it does not get left behind as transitional leaps forward are being taken now by those who would be the leaders tomorrow. Australia is primarily in an action phase, defined by state and sector driven sustainability reforms aimed at eco-efficiency and trial environmental markets. Moving along the continuum toward a “sustainability strategy” phase will allow Australia to pursue the “proaction” needed to build a sustainable economy.



**Figure 3 – National levels of engagement for transitioning to a sustainable economy**

Global trends to reduce material inputs and waste generation have driven eco-efficiency gains in every sector over the past decade. More complete solutions, such as co-locating firms to maximise the use of materials and energy<sup>45</sup> and improving supply chain efficiencies, are now being pursued. Additionally, the service sector is expanding. As three-quarters of the manufacturing labour force is involved in the production phase (versus raw material extraction) and extracting raw materials requires three times as much energy as reusing already manufactured materials, a service-oriented economy offers opportunities for increased jobs and decreased energy use<sup>47</sup>.

These principles can be applied to entire industrial sectors. As resources and environmental quality become increasingly limited, industries that can provide the services enjoyed by their goods rather than the goods themselves may realise a competitive advantage. There may also be opportunities to make a return on the non-use values of sectors that are currently providing free goods to society, such as the agroforestry farm of the future discussed above.

Applying this thinking to Australia's major industrial sectors reveals value-add opportunities. For example, farmers are the stewards of many natural attributes that provide social benefit. Yet they are not compensated to preserve this benefit they provide. Thus it is misused, as common pool resources economic theory explains. This results in a value-add component to the sector that reflects the net social benefits provided by industry but unpriced in market terms. If these value-adds drive the sustainable economy, with use values decreasing in real cost terms as productivity increases, entire sectors could transition to a service provider model (Table 1).

These ideas need further exploration, but it is this level of thinking that will deliver sustainable practices and a prosperous future. Asking the right questions and thinking through how to turn problems into opportunities is the first step.

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45. Foran, B., Lenzen, M. & Dey, C. (2005) *Balancing Act: A Triple Bottom Line Assessment of 135 Sectors of the Australian Economy* CSIRO and Sydney University, p. 11

46. Ibid

47. Hawken, P., Lovins, H. & Lovins, A. (1999) *Natural Capitalism*

Sector	Today – Use Value	Future – Value-Add
Mining	Minerals	→ Closed cycle systems
Agriculture	Crops & Produce	→ Ecosystem Services and super-production systems
Coal	Coal	→ Energy Provider and leader in biomass based economy
Forestry	Timber & Pulp	→ Natural Infrastructure and renewable materials
Fisheries	Seafood	→ Ecosystem Services and aquaculture
Manufacturing	Goods	→ Services and component recycling (zero waste systems)
Textiles	Clothing & Fabric	→ Sustainable fashion, certification of materials, eco-supply chains
Infrastructure	Transportation & Utilities	→ Services and super efficient transport water and energy systems

**Table 1 – Potential value-adds to traditional use values of major Australian industries**



# Appendix B – Market-based instruments

The potential and need for engagement in market-based instruments (MBIs) in Australia is well researched, debated and supported, having been a part of the environmental management agenda for over the last decade and in particular in the last five years. MBIs can be effective because they “direct resources in a cost-effective manner at a lower overall cost while maintaining environmental quality.”<sup>48</sup>

## Tradeable permits or caps

Some of the most widely applied MBIs are tradeable permits or caps, which are quantity based market instruments used in environmental regulatory schemes to regulate, in most instances, pollutant sources. At the state level we have already seen the emergence of tradeable carbon sequestration credits, tradeable water permits, salinity trading scheme and tradeable discharge rights. The growing recognition of markets for environmental services in Australia has been followed by the recognition of legal rights and market mechanisms that support the trading systems and create value in natural capital.

The introduction of the world’s first greenhouse gas market in NSW in 2003 and Australia’s much modelled framework for water resource management demonstrates the potential for Australia to become a world leader in the adoption of cap and trade market tools. Three specific needs that have been identified nationally and internationally are needed in Australia:

### 1. Emissions trading regime

At the international level, the International Energy Agency has encouraged the Australian government to consider an emissions trading regime as an effective means of introducing a price signal into the market and to strengthen the National Framework for Energy Efficiency. The independence of state-based trading systems, as exists in NSW, limits business opportunities for national companies who are only able to benefit from participating in state based schemes rather than gaining the same market incentive by trading in permits regardless of where their operations are based.

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48. Lyster, R (2002) “(De)regulating the Rural Environment” *Environmental and Planning Law Journal* Vol. 19, No 1, p. 37

## 2. Biodiversity conservation permits

In addition to the current trading mechanisms that are already in existence or in trial stages, there exists a need to create markets for biodiversity conservation and enhancement. The lack of incentive and loss in monetary terms for private landholders to preserve uncultivated land has led to wide scale land clearing. The property rights debate has to date failed to adequately reward land owners who preserve native vegetation, which provides both economic and environmental benefits to the wider community.

## 3. Pollution permits

Consideration should be given to expanding current emission trading schemes and develop trading schemes as tools to manage both water and air pollution. Successful schemes that allow firms to trade the right to emit specific pollutants were originally developed in the USA to cut costs to industry and enable economic growth to continue in highly polluted areas<sup>49</sup>.

## Farm of the future?

An example of how these ideas could work in the future was prepared in a scoping study by the Rural Industries Research and Development Corporation. The study presented the scenario for a future farm in which 25% of income was sourced not from commodity production but from carbon credits, salinity credits, water filtration credits and biodiversity credits<sup>50</sup>.

Commodity	Share of Business	Potential Client
Wheat	35%	World Market
Wool	15%	World Market
Timber	25%	Speciality & World Market
Carbon Credits	10%	Steep Company
Salinity Credits	5%	Catchment Management Authority
Water Filtration Credits	7.5%	Urban Water Authority
Biodiversity Credits	2.5%	Philanthropic Trust

**Table 2 – Potential business values and buyers in an agroforestry farm of the future**

49. Beder, S. (2001) "Trading the Earth: The politics behind tradeable pollution rights" Environmental Liability Vol. 9, No. 2, p. 152-160

50. Binning, C. et al. (2002) "Making Farm Forestry Pay – Markets for Ecosystem Services" Rural Industries Research & Development Corporation (Australian Government)



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