



Sustainability Charter for Australia
Submission by Environment Business Australia
May 2006

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House of Representatives
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Why Australia needs a Sustainability Charter

What would a Sustainability Charter look like?

Australia's Sustainability Charter should be a plan to ensure that the country has a healthy and vibrant economy, community and environment in years to come. It should encourage visionary and aspirational yet pragmatic thinking; it should keep our options open; and it should provide a framework for a portfolio of solutions to the challenges ahead.

The Charter should also recognise that Australia's sustainability relies on the sustainable development of other countries and that it is in Australia's enlightened self interest (as well as a moral requirement) to assist the sustainable growth of other economies.

Some immediate targets for a Sustainability Charter

- Draw up a 50 year sustainability plan with backcasted milestones (2006-7)
- Develop a national 'enabling framework' using all Government's powerful tools and levers to effect change (especially in relation to tackling climate change and effecting transition to a carbon constrained economy (2007)
- Create a Federal Government Department for Sustainability with recognition of the environment as a fundamental asset base (2006-7)
- Appoint a Federal Government Minister for Climate Change (2006)
- Commit to reduce greenhouse gas emissions by 60% by 2050 and 80% by 2100 - 2006 commitment (2006)
- Review the National Energy White Paper - increase % and longevity of MRET and introduce a carbon price signal; introduce a national carbon emissions trading scheme (2006)
- Work with other countries to develop a 'War Council' to tackle major environmental, social and related security challenges (2006-7)

Dates are indicative of desired commencement

These are recommended immediate steps which in turn will flesh out the longer-term steps which will need to be achieved.

Why is a Sustainability Charter needed?

Because sustainable development is the single most important challenge of our time. It is something we will either succeed at achieving, or we will face a future diminished in all respects.

The creation of a Sustainability charter for Australia provides an opportunity to address the fundamental question facing policy makers, investors, business people and the community "What is the future we want to live in - either for ourselves or for future generations?"

Vision, determination, perseverance and commonsense must create a different roadway from the one we are on today, which is largely an inheritance of historical imperatives.

A map to the future

A Sustainability Charter is the cornerstone of the map to that future, and while it may attempt to chart a path through unknown territory, the crucial issue of *avoiding the many possible futures we do not want* will be a guiding light to the design and planning we undertake in coming weeks, months and years.

Rather than focus on detail in this submission EBA stresses the importance of a Sustainability Charter being the basic template for transition to sustainable development. This template or

framework could, in turn, become a toolbox for use by other jurisdictions around the world - companies, local authorities, state/provincial/national governments, or investors.

Concerns about terms of reference

EBA applauds the concept of a national Sustainability Charter but voices serious concern at the missing elements in the terms of reference - specifically climate change and waste/pollution. We understand that the terms of reference for this inquiry grew from the Sustainable Cities Inquiry which EBA also made a submission to (see www.environmentbusiness.com.au/policy papers).

Environment Business Australia

Environment Business Australia (EBA) is the peak body for the environment and sustainability industry. The organisation focuses on raising awareness about the scale and relevance of sustainability issues - and in championing both the solutions to key challenges and the opportunities in sustainable development. A number of these solutions are provided by EBA member companies and can help Australia deliver significant reductions in greenhouse gas emissions, waste, and pollution at an affordable cost. These solutions are a key component of the Sustainability Charter that will underpin Australia's role in the new economy and help to provide confidence for long-term investment.

The environment industry is already a \$17-\$20 billion sector of the Australian economy and, rather like the IT sector, provides multiple benefits for virtually all other sectors. The environment industry is also one of the world's fastest growing industries as consumers, investors, insurers, shareholders alike seek 'clean and green'.

The global market for environmental goods and services is estimated to be more than US\$750 billion and growing at 3% per annum while PMSEIC's analysis is that the goods and services to combat climate change would become a \$750 billion market in the near future.

EBA paper "Australia's Choice"

This Environment Business Australia submission is based on a draft discussion paper which EBA released in late 2005 and "Australia's choice - building on national prosperity" is attached as an integral appendix to this submission (Appendix 1).

Many of the submissions to this Inquiry have focused on specific sectors and technology needs and we have not attempted to emulate or debate these in this paper. EBA's focus is on making recommendations for the over-arching framework of a Sustainability Charter.

Australia's choice

Prosperity

We take it for granted that our future standard of living will be as prosperous as today's. But our hard-earned economic wellbeing, quality of life, health, security, environmental amenities and the integrity of eco-systems (and their services) are under the biggest threat that mankind has ever seen. The threat has many forms with the best known and the most serious being climate change.

Vulnerability

We - Australia, our region, the planet - are in a state of deep vulnerability, and an equally deep state of denial. This situation is made all the more difficult as transition to less intensive

and damaging production and consumption processes is perceived to be about short-term cost rather than long-term gain.

Unintended side effects of economic growth - negative externalities

From the 1960s to the 1980s innovation focused on beating the environment into submission - now we understand that that our most urgent need is to assist nature's services and the planet's carrying capacity.

Australia's current economic well-being has been built from our wealth of natural resources. Indeed, our debt free status and recent reductions in tax could be said to be generated by the resources sector and its booming sales to China. Yet, while our dollar economy thanks to tradeable commodities may be balanced, the same cannot be said for our natural economy where support commodities such as eco-system services are being steadily run down.

To be sure this picture is not unique to Australia, but our current economic wellbeing provides the additional imperative as well as the opportunity to address this issue while there is still time.

To date production and consumption that has generated wealth and a comfortable lifestyle has brought about mixed results. The industrial age has certainly provided better housing, transportation, medicines, readily available mass-produced goods, and intensive agriculture. Many countries have seen rapid economic development and improved lifestyles and these are, understandably, aspired to by nations and peoples who have not been so fortunate.

But the comforts which we take so readily for granted have had unintended but severe side effects. Negative impacts on the environment may appear to be slow and insidious, but they are often cumulative and synergistic and have significant impacts on health, quality of life, regional stability and security, and economic wellbeing and competitiveness.

Some well known externalities that are affecting Australia include dryland salinity, acid-sulphate soils, soil erosion, landscape and river system degradation, climate change, coral reef bleaching, disease migration, drought, bush fires, eutrophication, exotic weed infestations, ozone depletion, and pollution.

Cost and complexity

There will be those who criticise any attempt to develop a Sustainability Charter and they have certainly challenged the need to address negative externalities citing the cost and complexity of veering away from the status quo. But the fundamental question which must be asked in return is "What is the cost and complexity of a nation/planet that becomes untenable." And in this regard - what is the corporate liability of those who would allow their companies to inflict harm on the national/regional/global commons?

Prosperity and sustainable development are far more than GDP or short-term returns - nation building; asset protection and enhancement; maintenance of the great Australian lifestyle; and Australia's ability to help other countries are now under the spotlight.

Nature's primary production is largely ignored

Australia is still grappling with the global conundrum that nature's innovation and primary production is not being properly valued and that damage that is inflicted on our ultimate resource base is largely uncosted. Over the early decades of the industrial revolution an economic system developed that rewarded broadscale degradation rather than real wealth creation as the environment became a dumping ground for everything that was unwanted. The result is current estimates that the economic costs of environmental degradation in developing

countries is between 4% and 8% of GDP¹, while in Europe the external damage from fossil fuels costs between 1% and 2% of GDP – and this without factoring in the negative impacts of climate change².

Perverse subsidies

Externalities, outsourced onto the environment, are a hidden and perverse subsidy which in many cases the market is largely unaware of. It is a systemic flaw, developed over many generations and perverse subsidies have created one of the biggest cases of market failure. Instead of a system capable of assisting long-range planning for the changes needed by an economy, subsidies have artificially deflated the cost (and hence the end price) of goods and services while at the same time denying the marketplace the timely and meaningful intelligence it needs to be an effective intermediary. The result is not only seen in asset degradation, rather than inter-generational wealth creation and the protection of our basic capital, but it is also having a severe impact on the environment and sustainability industry where production processes and energy sources which internalise costs or prevent environmental/health damage are seen to be more expensive. At another level this issue is also steadily reducing our options to achieve sustainability and sustainable development.

Cheaper to prevent harm

The costs of preventing harm are significantly lower than the costs of cleaning up, mitigating, or offsetting - dryland salinity provides a good example of this. Failure to address this issue will result in our legacy to future generations being little more than the afore-mentioned exponential growth curve of cost - but it may be far worse than that.

International security and stability

A further reason why EBA believes that sustainability should be a prime focus of the Federal Government is the need to take the effects of environmental degradation on international security and stability far more seriously. It has been said that climate change is a far more dangerous threat to humanity than terrorism and this was highlighted in the Pentagon Report - Abrupt Climate Change, published in 2003. The Lowy Institute is to release a report by Dr Alan Dupont in mid June 2006 on this topic.

The impacts of drought, severe weather events, rising sea levels, bushfires, heat waves, ocean acidification and disease migration are already being seen and the net security effects are unlikely to be benign. The economic cost alone of managing climate change in East Asia will be substantial, particularly if a rise in the sea level forces large numbers of urban dwellers to relocate and fertile coastal strips, crucial to cropping and grazing, are rendered unuseable by salt water intrusion.

Competitive neutrality

Industry and investors require the surety of a legal framework to ensure that the equity they put into transition will not be undermined by lower - and less costly - performance from competitors. Competitive neutrality is being compromised because the companies who invest in positive change - those who are at the forefront of sustainability - are in competition with companies - or in some cases government entities - who do not base their decision making or their future competitive edge on sustainability. These entities do not internalise costs, and get a free ride by outsourcing the unwanted side effects of their business onto the environment.

Sorting out the issues of competitive neutrality and risk are fundamental to sustainable development and only Government intervention has sufficient power to deal with this. Risk is currently being side-stepped and left to an unadvised, under-equipped, and ill-informed marketplace to deal with. This has occurred because historically the price of averting

¹ Frank Dixon, Managing Director, Innovest

² ExternE Study (EU and USA)

problems has seemed high compared with continuing status quo activities, but if we continue to defer action to some more preferential date in the future - one that doesn't interfere with short-term financial returns or electoral cycles, the opportunity for positive change will be lost.

Monetising tomorrow's value

And unless the issues of externalities and competitive neutrality is addressed there will be little hope of addressing the next challenge which is how to monetise tomorrow's value to galvanise action today. A regulatory incentive and penalty system where the environment industry, the finance and insurance sector, science, can work with governments is required.

New role for innovation

Australia's sustainable development policies therefore need to reach much further than before. A very broad suite of commodities and support services which are fundamental to our wellbeing can no longer be taken for granted. The longer that we refrain from protecting and enhancing our natural assets (for example the environment and public health), the less chance there is that human ingenuity will have the capacity to replace goods and services such as clean air, readily available drinking and irrigation water, crop fertilisation, building materials, or the lifestyle amenities such as forests and reefs which also provide the basis of part of the tourism industry.

Innovation is required but not just in the domain of technology - it is also about political will, policy development, education, financing options, defence and security. Most importantly it is about developing new trajectories that tap into 'multiple layers of value' and avoid collateral harm.

Key systemic questions

There are several critical questions which need to be addressed and answered if a Sustainability Charter is to have maximum long-term benefit at acceptable short-term cost:

- What system will help monetise today benefits that will accrue in the future
- What needs to done to empower the community to overcome the contradictory demands they place on governments (consumer - lowest prices; taxpayer - lower tax rates but full suite of services; shareholder - increasing returns and security of investment; parent - safe and secure life for children and future generations; home owner - security of investment and local environmental stability; etc.)
- What policy(ies) can overcome the short-termism in markets and political approaches?
- How best to provide "intelligence" (as opposed to data dumps) that the market can read as timely and meaningful signals

A Government enabling framework is needed

Industry's wealth generation and innovation is fundamental to developing the technology and systems that will be necessary to tackle climate change and other current and inter-generational sustainability issues. But for technology to be effectively commercialised and deployed, an over-arching and enabling framework is needed and, realistically, only governments can control the powerful tools and levers capable of reducing risk and maintaining the asset of the global commons.

The concept of an enabling framework is that new technologies and processes would be woven into the marketplace rapidly as needed and equally - outdated technologies would be woven out.

Governments can use the taxation system more effectively to reward what is in the national interest and to penalise what harms it. This in turn would be reinforced by regulation setting clear performance standards and providing the surety of a legal framework to support high performers' equity in transition to a carbon-constrained future and a marketplace where sustainable development defines competitive edge.

Business needs regulatory certainty

Business, the economic engine room, is capable of change but it is slow to react unless regulatory and market forces create urgency. The cleantech generation, or new industrial revolution, and the "new economy" are real opportunities the question is whether Australia will be sufficiently avant garde to take advantage of these new opportunities; whether we will show leadership on the world stage and help other countries emerge successfully through economic development to become full market economy countries.

A sustainability enabling framework effectively reduces costs to consolidated revenue; regulation can remove institutional blockages; and government procurement and investment benchmarks can create 'friendly markets' of considerable magnitude.

Economic instruments play a key role in this framework approach. A carbon price signal with an internationally linked emissions trading system would facilitate both the supply and demand sides of the market, being able to take immediate advantage of investment into emissions-reduction technology. Emissions trading also brings into play other ways of abating, mitigating or offsetting emissions and this would allow Australia to take better advantage of forestry carbon sinks. Trading could additionally provide a reward system for farm stewardship of biodiversity or for not clearing land.

Other government tools include procurement and investment, education, market-based instruments, standards, facilitation, and the creation of demonstration sites.

For example - there are significant gains in greenhouse gas emissions reductions to be made in transportation (about 20 per cent of global emissions) and the household and commercial sectors (about 24 per cent of global emissions), and these could provide important new manufacturing and employment opportunities. In Australia and the US, a purchase or lease program in all three levels of government mandating that all fleet vehicles had to meet benchmark fuel efficiency and low emissions standards would give a significant impetus to automotive companies to retool production plants. The size of the government fleet market would effectively allow for lower unit cost of vehicles for consumers, while creating a supply of highly efficient vehicles for the second-hand market. Combine this with lower air pollution and opportunities for export of clean vehicles to China and India in particular, and the taxpayer dollar would be used very effectively.

Market based instruments - and the most topical is carbon trading - facilitate correct pricing throughout the supply chain and help to catalyse new technologies, their commercialisation and deployment. Supply chain trading could lead to the transfer of funds from the product end to pay for the prevention, mitigation and/or reversal of environmental damage at the resource extraction and processing and manufacturing stages. 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 yet fully capitalised on by Australia.

Cities and profit versus efficiency centres

EBA believes that the three levels of Government, society, and business/industry need to look at cities more holistically and with a longer term perspective. The aspects that allow the 'whole' to function efficiently should not be regarded as profit centres but as 'efficiency

centres' that support public good and perhaps act as catalysts or enablers to other centres of activity. Public transport is an excellent example of this need for efficiency as it assists quality of life, productivity, and the economic performance of the whole.

EBA recommends a study of direct and indirect subsidies within the 'city' to ascertain how health, quality of life, environmental and economic objectives can best be achieved. For example, referring again to public transport, many believe that the taxpayer subsidises the users of public transport – which is true – but to a far lesser extent than they subsidise each vehicle on the road because of the provision of the entire road transport network and the absorption of costs associated with negative externalities such as air pollution, traffic congestion and traffic accidents.

EBA does not believe that Governments should seek to have new infrastructure prepaid. The private sector has developed flexible financing mechanisms and we encourage all levels of Government to take advantage of this. We believe this will allow for more adaptive planning without immediate constraints on consolidated revenue.

Good planning - not GDP measurement

City planning, development and management should not be allowed to fall into classic GDP measurement – where dollar increases in GDP are applauded without factoring in and extricating the 'negative' GDP such as air pollution, water contamination, oil spills, poor indoor air quality, lower productivity, or traffic jams. For example poor indoor air quality led to 150 million lost working days and \$30 billion lost productivity in the USA last year³. Yet in GDP terms the cost of temporary replacement staff, health care, hospital admissions, etc. all contributed to a higher 'performance'. A sustainable city must be able to engage the future ramifications of its actions.

Materials science and materials stewardship

While attention is increasingly being paid to the energy life-cycle of goods and services, the same cannot yet be said regarding the materials we use in construction and development, or in the manufacture of goods. There is however, some excellent work underway in studying raw materials usage, for example in developing plastics from bio-materials, and in new cements that have the ability to absorb higher levels of carbon. However, the uptake of these materials will rely on the marketplace getting stronger signals regarding safety, longevity, and longer term benefits from healthier materials that decrease the pollution load.

Cost and risk of not making the transition

the Federal Government, supported by State and Territory Governments, must assume the risk of transition - because quite simply the risk of not changing to a sustainability model will come at a significantly higher cost.

A 'war council' approach

The world needs a war council approach to tackling major sustainability challenges such as climate change. And, while it is logical to call for all countries to be involved, there are today's leaders and those of tomorrow. Current ability should be the criteria for some to act faster than others and show the way ahead that encourages others. The opportunities for Australia to become an early leader are many - our current economic wellbeing; our innovative approach to technology; a concerned and educated community; and the need to build our next competitive edge in the global marketplace.

US\$31 trillion demands sustainable development

At present the finance sector is ahead of governments in providing leadership on sustainability. The Carbon Disclosure Fund (CDF) which has foreshadowed litigation

³ Maria Atkinson, Green Building Council of Australia

relating to latent climate change liability represent some 215 institutional investors with approximately US\$31 trillion of funds under management. The CDF seeks investment opportunities that do not carry a carbon exposure risk and this is starting a trend where risk, liability and long-term opportunity are emerging as stronger investment signals than they have been in the past.

Opportunities for Government and business working together

Meaningful action in some sectors will be very difficult to achieve, and yet in other areas there are many opportunities for energy efficiency, emissions reductions, and fuel switching to renewable energy sources (or at the very least less polluting sources of energy). For example energy retrofits to the household and commercial sectors - with energy retailers, governments, and banks providing 'lease-financing' or mortgage extension financing. This may be an excellent opportunity for the Future Fund to invest in and repayment would be secure (payback through energy bills for example).

This is not to suggest that governments should pick individual technologies - rather that they should set benchmarks for performance and avoid picking tomorrow's marketplace losers.

Full price cost recovery and the social charter

While securing full cost price recovery for water and energy would provide Australia with competitive reform opportunities, it need not disadvantage the poorest in the community. A simple staggered pricing formula would offer basic energy and water requirements for households at low rates, and increased use would incur threshold increases in price.

APPENDICES

Appendix 1 - Australia's Choice - building on national prosperity - opportunities for Australia by pursuing a sustainable future

Appendix 2 - Climate change - the biggest threat of all

Climate change is the single biggest threat facing the world and there is no precedent in history for comparison to our current dilemma. This is the first time that a "living system has altered the planet's climate" ⁴ and it is the first time that mankind has had to face a natural weapon of mass destruction aimed at the entire global eco-system.

Scientific research is revealing previously unrecognised step changes in climate associated with anthropogenic greenhouse gas emissions. While climate variation is part of the planet's history, carbon dioxide concentrations in the atmosphere have increased in the last century to 380 parts per millions (ppm). This is 100 ppm more than at any stage in the past 800,000 years.⁵

⁴ Mark Lynas, author, High Tide

⁵ Professor Sir David King, Chief Scientist, UK

There is international consensus on the need to stabilise atmospheric carbon to avoid crossing a 2 degrees centigrade rise in average global temperature. To achieve this there is international agreement among leading scientists that 60% cuts in emissions need to be made by 2050 and 80% cuts in emissions by the end of the century.

This is an extremely tough call given that energy demand is predicted to rise by 70% by 2030 under a business as usual scenario. It is an exceptionally tough call for developing countries where over 1.5 billion people are still without electricity and without the basic survival services of clean drinking water and sanitation that electricity can help to provide. But without action to combat climate change the situation in many of the least developed nations will worsen, not improve. Climate change must therefore be recognised as one of the most important development challenges.

Ten years ago we were discussing the likelihood of being able to contain global warming in a one to two degree Celsius rise in average planetary temperature. Today we are talking about how to avoid a four, five, or potentially even higher rise in temperature. There is evidence from the Hadley Centre that a 2 degree rise in temperature may be enough to melt the Greenland ice sheet. And there is the alarming announcement from the Head of the British Antarctic Survey - Professor Chris Rapley - that the huge West Antarctic Ice Sheet may be starting to disintegrate - an event which alone could raise sea levels around the world by 16 feet. That the debate has shifted so dramatically in just one decade shows how serious this issue is - and that we have no time to lose in cleaning up our act.

Australian cities - mainly coastal based have yet to be 'climate change-proofed' and are vulnerable to many potential impacts which would threaten infrastructure and livelihoods.

But "beyond Kyoto" is now on everyone's minds. With the need to achieve the deep cuts outlined above, and the necessity of adapting to climate change that is already underway, the world needs to undergo a serious structural overhaul of economic and productivity systems. The call by the Asia Pacific Clean Development and Climate Partnership for technology solutions is therefore timely, and more recently the AP6 meeting in California demonstrated a clear requirement for economic measures to assist technology development, commercialisation and deployment.

The recent report by the Australian Roundtable on Climate Change also highlights the need for a portfolio approach catalysed by a "loud, long and clear framework to establish a carbon price signal which will encourage innovation and investment in emerging and breakthrough technologies to reduce greenhouse gas emissions and help build national resilience to the impacts of climate change."

Appendix 3 - The technology fix - solution and problem

There is a school of thought which promotes the concept that human intellect will invent new technologies to avert disaster. But human ingenuity relies on market demand, and 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 data shields the market from knowledge about:

- The cost of negative externalities to consolidated revenue
- Lower than optimum efficiency, productivity and competitiveness
- The waste of resources, energy, human intellect and time
- The exponential growth curve of cost – today's legacy to future generations
- The real cost basis which will determine the future competitiveness of technologies and companies

Without full intelligence the market cannot operate at full efficiency. And, while true costs are not factored into the supply chain there are inadequate rewards and penalties to catalyse change and the uptake of innovation. Three current examples clearly demonstrate this:

- The tension between fossil fuel and renewable energy sectors. Renewable energy sources are often cited as being "too expensive". However, recent findings from the EU ExternE study have found that the cost of producing electricity from coal or oil would double and the cost of electricity production from gas would increase by 30% if external costs such as damage to the environment and to health were taken into account. It is estimated that these costs amount up to 1-2% of the EU's Gross Domestic Product (GDP), and this does not include the cost of global warming (in other words once the cost of climate change impacts are included these costs and percentages are expected to rise). These costs have to be covered by society at large, since they are not included in the bills which electricity consumers pay. Renewable energy costs on the other hand are likely to decrease with market demand, increased research, and operational refining.
- The conservative and risk averse approach to new water infrastructure. Demand side management and water use efficiency will deliver gains but major infrastructure projects such as sewerage recycling, stormwater use, or desalination plants fuelled by renewable energy sources could make urban centres independent of river drawdown.

Soil nutrients and carbon being exported to the oceans through the food and sewerage chains. Sewerage recycling would capture water for reuse, and sewerage and putrescible food waste recycling would capture the vital nutrients and minerals needed for Australian soils to help retain the level of productivity we demand of them.

Appendix 4 - focus R&D on 'big need' areas

In technology terms EBA would like to see a focus on five critical areas - provision of drinking and irrigation water; climate change and greenhouse gas emissions reductions; energy provision; recycling waste into resources; and sustainable production and consumption:

- The rapid decoupling of energy provision and manufacturing from GHG emissions, waste and pollution
- A broader portfolio of energy supply - focusing on full cost price recovery and clean energy (cleaner coal, nuclear leasing and stewardship; deep hot fractured rock geothermal; wave and tidal power; solar PV and solar thermal; off-shore as well as on land wind-farms; and including energy conversion and storage technologies)
- Converting waste to new resources, especially soil enhancers that recycle food waste and sewerage and avoid deep ocean outfalls
- In the water area major infrastructure demonstration and operation research especially in the areas of water recycling and renewable energy fuelled desalination plants to convert seawater to potable water
- Materials stewardship - making manufacturing and the bringing of goods and services to market as efficient and productive as possible with minimisation of waste and maximisation of recycled materials input



Appendix 4 - Innovation - what are the impediments?

EBA suggests that innovation - in terms of technology development and infrastructure opportunity - is high in Australia, but we emphasise in the strongest possible terms that the commercialisation of this innovation remains weak. This is partly because there are numerous barriers and impediments still in place.

Impediments to innovation that would foster sustainable development

An indicative list of these barriers and impediments would be:

- Conservative and risk averse procurement by government entities (in many cases governments have control over major infrastructure decisions such as water, energy, and transportation)
- Standards - Australia does not have a history of creating new international standards and this may be partly because the Standards Australia procedure is slow, even for up-dating of existing standards. Standards should be a catalyst to change and innovation but this is not the case in Australia at present
- The concept that Australia should be a 'fast-follower' rather than a leader in innovation. This may have merit in some niche areas but broadly speaking it is an approach which denies Australia a leadership role. While the scope and scale of the domestic market may suggest that there is inadequate market return for high levels of investment we strongly recommend Australia's approach be one of demonstration trialing domestically, with a view to high exports to the rapidly growing neighbouring Asian region. This is a particular point of concern for the environment and sustainability industry where energy, greenhouse gas emissions reductions, and water technologies and infrastructure need to be demonstrated in Australia before an overseas government will seriously consider our expertise. France, Germany, Canada, the United States are well ahead of us in this regard and are fiercely competitive in export markets. Full scale demonstration is costly and the private sector cannot afford to absorb the financial aspects of public good and/or risk, especially while the market does not understand and reward new approaches
- The lack of harmonisation of regulations and guidelines between different jurisdictions

Cities focus on 'profit centres' when efficient operation centres that help make other centres more efficient and profitable would be a more strategic approach