

## *Introduction*

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Environment Business Australia (EBA) applauds this inquiry into innovation. Our core recommendation is that a national innovation policy, its planning and its funding should be focused on achieving sustainable outcomes premised on *prosperity* rather than *growth*. Innovation is a path and should be one that leads us from where we are now to the future that society wants. We therefore recommend that the innovation policy consider a 2050 vision, use a backcasting methodology, and have critical timeline checkpoints at 2010, 2020 and 2030.

This is an important point because to date innovation has brought about mixed results. The industrial age has provided better housing, transportation, medicines, readily available mass-produced goods, and intensive agriculture. Many countries have seen rapid economic development and improved lifestyles which are understandably aspired to by nations and peoples who have not been so fortunate.

But all these comforts which we take so readily for granted have had unintended but severe side effects. The collateral damage (externalities) of our productivity have brought about five major negative impacts due to poor planning, resource degradation and pollution<sup>1</sup>:

- Climate change
- Extensive eco-system damage inhibiting future delivery of eco-system services
- Endocrine disruption across many species - including humans
- Sterilisation/erosion of agricultural land
- Increasing species extinction and serious impacts on habitats and biodiversity

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.

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

Australia's innovation policy therefore needs to reach further than before. A very broad suite of commodities and support services are fundamental to our wellbeing and 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.

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 an exponential growth curve of cost.

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<sup>1</sup> Waste, ozone depletion, waterway and soil degradation, bio-accumulation of toxicity

## ***Commercial imperatives are driving a green innovation evolution and the next industrial revolution***

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EBA believes that there are clear commercial imperatives for the focus of innovation to be on sustainability. From a business perspective this does not need to be a grim picture - indeed technology, systems, and infrastructure, that are based on sustainable production and consumption will provide economic opportunities hitherto unseen by industry.

The new industrial evolution/revolution is one based on sustainability and avoiding asset atrophy and opportunities abound not only in Australia but in export development and in technology transfer to developing countries.

## ***Institutional innovation and an over-arching framework***

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Innovation is not just about 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'. "Joined up thinking" is what is needed most of all<sup>2</sup>.

Many of the submissions to the 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 for innovation.

There are three critical questions which need to be addressed and answered if an innovation framework is to have long-term benefit and least short-term cost:

- What system will best provide necessary financing and access to market (considering that benefits may not be seen until some time in the future)?
- How will the innovation policy overcome the short-termism in markets and political approaches?
- What entity is best placed to provide "intelligence" (as opposed to data dumps) that the market can read as timely and meaningful signals

## ***The marketplace is changing***

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Leadership as well as technology is changing, and Australia needs to make sure that we remain at the forefront in policy and in competitive markets as new rules and tools come into play. Ethical investment, carbon litigation, market mechanisms such as emissions trading, are some of the new catalysts for change and they are gaining ground in the face of advice from leading international insurance companies. Risk assessment findings and the need for better environmental management are increasingly driving the finance sector to reassess the threats and opportunities in their portfolios - and nowhere is this more evident than with the Carbon Disclosure Project where US\$20 trillion of funds under management are seeking to invest in companies with low carbon liability risks.

Innovation policy and planning need to be undertaken in the international context, not the historical Australian context.

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<sup>2</sup> Dr Graham Harris

### *The layers of innovation - why aren't we taking advantage? 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.

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
- The lack of harmonisation of regulations and guidelines between different jurisdictions
- Institutionally Australia is highly conservative and does not readily weave in new technologies and weave out old technology
- 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

### *In the face of these impediments, can Australia be competitive?*

The environment industry is already a \$17 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 question is - will Australia develop full competitiveness or leave the lion's share of the future market to others? The Environment Industry Action Agenda focused heavily on this area but to date little has been achieved to remove the barriers to full export competitiveness.

### *A Government enabling framework is needed*

The roles of business and industry are to be innovative and to generate wealth. But the next stage of business innovation and its commercialisation will not occur until there is government intervention that provides an 'enabling framework'.

This framework should go well beyond the format of Public-Private Partnerships (PPPs) . Also, it should not be limited to providing seed funding or innovation grants. There needs to be an enabling framework that makes full use of the powerful tools available such as taxation, regulation, procurement and investment, education, and economic instruments. These tools need to be strengthened to reward what we want, penalise what we don't want, and to remove institutional blockages.

Innovation lies in the domain of "public good" and it is an area where 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.

### ***Competitive neutrality***

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Competitive neutrality is being compromised because the companies who invest in positive change that is at the forefront of sustainability are being undermined by competing companies - or in some cases competing government entities - who do not base their decision making or their future competitive edge on sustainability. Externalities, outsourced onto the environment, are a hidden and perverse subsidy which in many cases the market is largely unaware of. This is a fundamental area of market failure which is having significant impact on the development of the environment and sustainability industry.

Sorting out the issues of competitive neutrality and risk are fundamental to a climate of innovation 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 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 change will be lost.

### ***Investment in innovation***

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There is concern within the environment and sustainability industry that significant sums, supposedly directed towards innovation, could quickly be whittled away in appeasing status quo industry - while the larger marketplace has moved into new territory. For example we are concerned that the majority of the Low Emissions Technology Demonstration Fund may still be destined for research into and trialing of underground carbon dioxide sequestration. While EBA certainly supports the premise of clean coal technology as part of a portfolio approach to supplying energy in a carbon-constrained world, we believe that there other more secure, and more certain, ways of achieving cleaner burning coal, and of providing energy with much lower greenhouse gas emissions (as an Appendix to this paper we attach recent submissions to the Productivity Commission on National Competition Policy Reforms; Energy Efficiency; and also the EBA submission to the Federal Government regarding the Energy White Paper).

### ***Focus R&D on 'big need' areas***

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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:

- In the water area major infrastructure research especially in the area of renewable energy fuelled desalination plants to convert seawater to potable water, rather than river drawdown or diversion to dams
- The rapid decoupling of energy provision and manufacturing from GHG emissions
- Energy provision that looks at baseload energy supply from sources such as deep hot fractured rock geothermal; wave and tidal power; development of solar PV and solar thermal; off-shore wind-farms; as well as energy conversion and storage technologies
- Converting waste to new resources, especially soil enhancers that recycle food waste and sewerage and avoid deep ocean outfalls
- Making manufacturing and the bringing of goods and services to market as efficient and productive as possible

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### *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 GDP<sup>3</sup>, while in Europe the external damage from fossil fuels costs between 1% and 2% of GDP – and this without factoring in climate change<sup>4</sup>! Little wonder, then, that the global market for environmental goods and services is estimated to be more than US\$750 billion and growing at 3% per annum.

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### *International security and stability*

A further reason why EBA believes that sustainability should be the focus of the national innovation policy is the need to take the effects of environmental degradation on international security and stability far more seriously. It has often 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 impacts of drought, severe weather events, rising sea levels, bushfires, heat waves, 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.

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### *Eco-infrastructure projects*

One of the approaches that is advocated by EBA is the development of eco-infrastructure projects. Designed to complement efficiency gains in water, energy and resource use, these projects would combine resource use, engineering, manufacturing, recycling, and financing approaches to address significant environmental problems.

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<sup>3</sup> Frank Dixon, Managing Director, Innovest

<sup>4</sup> ExternE Study (EU and USA)

In this way a national innovation policy can identify unsustainable industries, practices, or resource use, and provide tools to change them to have more sustainable outcomes. Maintaining or improving revenue streams and employment levels would be amongst the desired sustainable outcomes.

As an example of some of the ideas of how innovation can catalyse positive change, we have attached our submission to the Federal Government on Sustainability Cities.

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*Appendices*

- *Competition policy reform, submission to the Productivity Commission*
- *Energy Efficiency, submission to the Productivity Commission*
- *Energy White Paper, submission to the Federal Government*
- *Sustainable Cities, submission to the Federal Government*
- *Externalities, submission to the Federal Government*