GREEN GROWTH – ISSUES FOR NEW ZEALAND

A discussion paper from the Green Growth Advisory Group

JULY 2011

"Greening the growth path of an economy depends on policy and institutional settings, level of development, resource endowments and particular environmental pressure points." OECD, "Towards Green Growth" reports, May 2011.

The concept of Green Growth has emerged from growing awareness of environmental issues and the pressure on global resources. Green Growth presents major challenges and opportunities: How do we achieve economic growth and development while recognising the limits inherent in natural systems and the need for greater environmental stewardship?

Across much of the world, economic growth will increasingly come from the development and adoption of more efficient and "greener" technologies, products and practices. Making credible claims about the integrity of products and services – including their environmental integrity – will be increasingly important for access to markets, for earning "green" price premiums and, potentially, for even retaining current price margins.

Economies will shift to more sustainable practices, driven by change in many factors including consumer preference, market demand, business strategy, government policy, global governance and the emergence of "cleantech" technologies. New Zealand's ability to anticipate and respond appropriately to these changes is critical to our maintaining and strengthening competitiveness and positive reputation in the global market place.

Green Growth is a challenge for countries collectively and individually. Many countries and international forums are working on Green Growth policies to achieve mutually reinforcing economic and environmental outcomes.
The OECD recommends "greening the growth path" through, first, a broad framework of policies for both economic growth and conservation of natural capital and, second, specific policies to incentivise efficient use of natural resources and reduce pollution.

The Green Growth Advisory Group welcomes feedback on "Green Growth – Issues for New Zealand" up to 20 September 2011. You can provide information and comment by going to www.greengrowth.govt.nz and following a link to the feedback form and the Group's email address. You are also welcome to email comments directly to the website.

The content of feedback is subject to the Official Information Act 1982 and copies of material sent to us will normally be released in response to an Official Information Act request from a member of the public. Note that more detail on the OIA and privacy is available on the feedback form.

New Zealand has an open, trade-dependent economy based heavily on primary exports and tourism. This makes us especially exposed to the competitive opportunities and challenges arising with global Green Growth trends, including the growing demand for "green" among consumers, regulators and others. Overall, we have the opportunity to make Green Growth an economic growth engine for New Zealand.

The Government's growth agenda recognises the critical importance of the environment for continued economic growth. Natural capital - natural resources and ecological systems that provide services to society - is a core consideration in all policy making. The Government has a central role in the stewardship of our natural capital as a key input into economic production and wealth creation, as well as a direct contributor to well being. This approach has long been embedded in various policies for managing natural resources. New Zealand's fisheries quota management and the Emissions Trading Scheme are examples of this.

The Green Growth Advisory Group is exploring three Green Growth topics specific to our country. The Group will report to the Government on options for policy action towards helping New Zealanders and New Zealand businesses develop opportunities for greener growth and overcome related challenges. In brief, the topics for exploration are about:

- better leveraging New Zealand's "clean and green" brand and reputation in global markets;
- using technology and innovation to promote greener growth; and
- helping small and medium-sized businesses transition to a lower carbon economy.

See page 12 for the Group's Terms of Reference and its membership. See left for details on providing the Group with information and comment.

The first step is to identify and understand the critical issues in each topic. This paper begins that process with a brief topic outline and series of questions. The Group will consider all feedback received before 20 September and make its report to the Government in December 2011. The Group believes that the Green Growth discussion in New Zealand will be ongoing and the current process is one contribution to this.

"The concepts of Green Growth, green jobs and cleantech are attracting international attention with the work of the OECD and the United Nations…. This is about New Zealand applying some of our best private sector minds to how we ensure we take up these Green Growth opportunities to support the Government's broader economic growth strategy." Hon. Nick Smith, Minister for the Environment, January 2011, when announcing the Green Growth Advisory Group.

Denmark and South Korea *are among various countries now giving Green Growth high priority in their economic management and development. Together they have formed a Global Green Growth Forum with the aim of accelerating "greener" growth worldwide through partnership of the two governments, multinational companies and world bodies. Denmark's current initiatives include much higher public funding for research into new energy technologies, consumer advice services and eco-labelling. South Korea adopted a National Strategy for Green Growth in 2009, with action plans to reduce carbon emissions, and promote eco-friendly business and lifestyles.*

"Green Growth would help to consolidate New Zealand's long run growth potential. As an exporter of resource-based goods and service, its 'brand' relies on the environmental integrity of its output and policies." OECD, "OECD Economic Survey: New Zealand 2011".

"New Zealand's pre-established reputation (although this rapidly needs authenticating to avoid reputation risk) potentially sets this country ahead of many others." NZ Trade & Enterprise, "A clean economy vision for New Zealand in 2025", discussion document, October 2009.

"New Zealand is pushing an open door to brand itself as green ...I believe you can be at the forefront of sustainability." Mike Barry, Head of Sustainable Business, Marks & Spencer, UK, to an Environmental Defence Society conference, Auckland, June 2008.

TOPIC 1.

Leveraging our "clean and green" reputation in global markets

The growing importance of Green Growth creates the opportunity for New Zealand companies and the country as a whole to develop and leverage a reputation and brand, or brands, consistent with environmental integrity and stewardship, and with innovation more generally. New Zealand stands to gain significantly from overseas consumers, wholesale buyers, regulators and others having favourable perceptions of our products and services as being "green" and innovative. The benefits generally include:

- strong brands tend to reduce the costs of attracting and retaining loyal customers;
- reputation for integrity and quality can facilitate access to, or retention of, markets; and
- customers might be willing to pay premium prices.

Government has important roles to play in supporting and facilitating a "clean and green" reputation for New Zealand and related branding. Policy and regulatory settings can be a platform on which producers and suppliers can brand themselves to best advantage, often with strong "green" elements. The platform can reinforce perceptions and authenticate claims that New Zealand products are "environmentally friendly" and sustainable, and also give re-assurance on such critical issues as food safety and traceability. Ultimately, policies within the country can confer global competitiveness on many industries with food and beverage exporting, and tourism, as obvious examples. This is likely to increasingly be the case also in manufacturing and services, as issues of environmental integrity, and of energy efficiency in production and distribution, as well as "green innovation" generally become more important determinants of market access and of market share.

Government clearly has important roles in managing issues that might adversely affect our national image and reputation, including issues of environmental management and food safety. This is particularly the case where New Zealand's ability to access international markets is placed at risk as, for example, in the so-called "food miles" debate around exports to Europe.

In some circumstances, government can have a role in directly developing and managing a national brand that supports certain sectors as, for example with the "100% pure you" brand campaign in international tourism markets. This positions New Zealand as a country offering great experiences through a unique combination of people, cultures, activities and landscapes. As a tourism brand, "100% pure you" supports the tourism sector by drawing, in part, on positive environmental images.

Overall, our Green Growth aspirations can definitely benefit from New Zealand having positive reputation and brands in the world. Being seen as "clean and green" is a great place to start. But we need to address three key issues.

Can New Zealand's "clean and green" position be enhanced to better support the attraction of visitors, trade and investment to our country?

Recent research on international perceptions confirms that we are seen as "clean and green" and as having "naturalness" desirable for food production and for tourism. It also shows this country has a reputation for being stable and non-corrupt, and for producing quality raw materials. New Zealanders are generally seen as trustworthy, optimistic and resourceful, although somewhat naive and risk adverse when it comes to doing international business. Other general perceptions of this country concern our small size and distance from large markets.

Recently, also, our environmental stewardship has been subject to critical scrutiny. And we can expect more of this as the world shifts increasingly to Green Growth, with a focus on the environmental integrity of technologies, products and practices. Like any country, New Zealand will only benefit from an image and reputation that is grounded in the reality of practices and outcomes. Brands, generally, need to be authentic or they can backfire.

Green Growth poses a challenge for New Zealand to look more closely at tensions in our use and stewardship of natural resources and services. We need to understand how current policies and practices can strengthen or undermine perceptions of "clean and green" and associated brand advantages. In fact, our positive reputation is at risk to some extent today.

What are the particular elements of our reputation and branding that can support our Green Growth? Other than "clean and green", what other aspects of our image does New Zealand need to work on?

New Zealand's growth depends upon the capabilities of our businesses in terms of entrepreneurship, product innovation, market development and ongoing management. These capabilities become even more important for Green Growth, with all its opportunities and challenges. New Zealand will have even more need for businesses that have strong international capability – and positive image and reputation to match.

Perception research suggests that we have capability strengths (trustworthy, resourceful) and weaknesses (naive, risk averse). Our Green Growth aspirations call on New Zealand to identify and develop the qualities needed – in perception and reality – for our businesses to convert "clean and green" into growth.

Air New Zealand *says international visitors see us as "a clean, green, unspoilt and remote destination". And the airline leverages, and supports, that position through innovative reductions in environmental impact. It has cut fuel burn by taking weight off some aircraft, trialling new flight paths and modifying the wings on its newest models. In-flight service consumables are now made of 100% recyclable materials, and many other actions are cutting waste and carbon emissions. "We are highly dependent on the attractiveness of NZ as a destination to support demand for our air services," says CEO Rob Fyfe."So we've made a conscious decision to be one of the leading airlines in the world when it comes to minimising our impact on the environment."*

"Cleantech" refers to "technologies, services and products aimed at reducing GHG emissions and other pollutants, and promoting energy efficiency and conservation of natural resources." NZ Trade & Enterprise, discussion document, October 2009.

New Zealand has companies capable of market leadership in energy efficient technology. ***Whisper Tech*** *is taking its smart product to the homes of Europe. The WhisperGen combined heat and power unit is a small-scale replacement for traditional domestic boiler systems, with huge advantages in energy efficiency and emission reduction. Whisper Tech's Spanish partner began manufacturing the units in 2009, for the European market where 6.5 million boilers are replaced each year. WhisperGen is 90% efficient in its in-home burning of gas to produce heat and electricity, with surpluses of the latter "exportable" to the power grid. The company, with Meridian Energy as majority shareholder, is applying technology developed at the University of Canterbury. CEO David Moriarty says ongoing R&D is central to Whisper Tech plans for Europe. "We are continually trying to take cost out of the product; to improve performance in terms of efficiency and, therefore, savings to the home owner and the carbon benefits that flow from that."*

How can we leverage New Zealand's image and reputation in the emerging Green Growth context to support more sectors in our economy, beyond food, beverage and tourism? An important source of future growth in New Zealand will be our high value manufacturing businesses, for whom brand values such as "innovative" and "efficient" can be more important than "green" and sustainable as these are traditionally defined. Nonetheless, this sector must be part of Green Growth and, of course, it includes businesses developing and supplying "cleantech" technologies to the world.

What role should Government play to support Green Growth-related branding efforts in global markets for New Zealand businesses, products and services?

Government can support New Zealand reputation and brands by providing regulatory platforms and engaging in crisis or issues management, as discussed above. It will be increasingly important, in some areas, for industry policies and regulations to be developed with a keen eye to international perception and companies' brand credibility. As noted also, government can become an important player in developing and managing the national brand of a particular sector, with tourism the main example.

Government actions of any kind will, however, only ever be one driver of national reputation and brands. New Zealand business practices, New Zealand products and services, and others' experience of all these are critical, beyond regulatory platforms, issues management and brand campaigns. Ultimately, we all "own" the New Zealand brand. And the Green Growth challenge calls for strong partnership between government and business to maximise the positive contribution of each.

TOPIC 2.

Smarter use of technology & innovation

Technology and innovation have always been important to growth and development – and this is also the case with Green Growth. The technologies that support Green Growth include "cleantech" and any other technology that promotes, directly or indirectly, better environmental outcomes as well as economic growth. Innovation can take many forms, including enhancement of existing processes, smarter use of current technologies and resources, as well as adoption of new technologies and processes.

Efforts to improve environmental performance increasingly align with business productivity and profit objectives. Green Growth occurs, to a large extent, at the individual enterprise level where traditional economic imperatives – profit, competitive advantage, productivity gain, and innovation – interact with "green" consumers and regulation, and the emergence of "greener" technologies. In fact, the profit motive coupled with such technologies can be inherently positive for the environment (for example, fewer natural resources might be used to produce the same output).

What is the best path for greener growth through the smarter use of technology and innovation by businesses? Where does it all begin?

Traditional business drivers can support Green Growth: successful, profitable enterprises may use less natural capital because of their focus on efficiency and productivity gain. Greener growth in New Zealand will also benefit from the emergence and growth of "cleantech" companies both here and internationally.

Technology adoption will be accelerated when business decision makers have an awareness of how their business's future viability and growth are influenced by environmental integrity and environmental performance. Some companies are unaware of opportunities for cost effective enhancement of this performance, while others struggle with implementation. The decisions involved are generally influenced by business mind-set and capability.

Of course, Green Growth need not await the arrival of new technologies. A business can benefit from adopting existing technology and/or processes, including those used by competitors, or adapting those used within a neighbouring industry. There may be significant potential for New Zealand firms to quickly enjoy cost savings and demonstrable improvements in environmental performance through the adoption of current technologies and practices. However, the owners, managers and staff in individual businesses will need to appreciate the issues and options for change.

New Zealand's R&D expenditure is consistently lower than many comparable countries. However, there has been improvement in recent years. Statistics NZ data show 212% growth in annual R&D expenditure by businesses in the 10 years to 2010. Businesses accounted for 41% of total R&D in New Zealand (which includes government R&D expenditure) in 2010 (28% in 2000). Total R&D as a percentage of GDP rose from 0.98% to 1.3% over the same 10 years.

Some of our oldest-established companies are seizing Green Growth opportunities today. ***Methven Limited*** *has put sustainability at the core of its business. It is New Zealand's largest supplier and leading designer of showerheads, faucets and hot water valves, with growing export sales. Water usage is an issue of rising importance everywhere – and Methven has made this a central focus in its design of luxury tapware and showers. "We want to develop a great low-flow shower that's great for the Earth and delivers a great experience too, with a sense of luxury," says Kent Sneddon, Design Director. Methven's focus on less water and energy use is a great competitive differentiator, he says, winning it 40% of the Australian shower market and growing sales elsewhere. The company's sustainability principles govern each stage of manufacture and distribution – all far from its origins as an iron foundry in 1886.*

LanzaTech *is a leader in developing technologies for production of low-carbon fuels that do not compromise food or land resources. This cleantech company was founded in Auckland in 2005, and now has a corporate presence in the US. LanzaTech and its partners are developing microbial fermentation-based technology for commercially-viable production of biofuel. LanzaTech has joint ventures that include major steel and coal operations in China, India and Japan. It has a working pilot plant in New Zealand, and its first off-shore pilot plant will be commissioned in early 2012 as part of a joint venture with Bao Steel, one of China's largest steel companies.*

What are the barriers to technology take-up and innovation? How can businesses become more responsive to drivers for greener growth?

Some businesses struggle today with technology change and innovation – and Green Growth opportunities and challenges will be no different. The same barriers will apply: Lack of knowledge and time required to make properly-informed decisions; funding constraints; risk aversion etc. Business owners and managers may have the mind-set and willingness for greener growth but have limited access to funding and other necessary resources. For some, the sheer complexity of issues will be the major barrier. In a dynamic and fast changing area, there is always the question of whether to invest now or wait to see how strong the trend will be, the direction it takes, and what new technologies develop.

Impediments to technology transfer in New Zealand have come under scrutiny by government recently. The focus is strongly on the science-business interface, and our capacity to commercialise with technologies, practices and products that come out of basic research. New initiatives in these areas will likely also stimulate technology take-up and innovation for Green Growth.

What types of policy action might encourage and support businesses to make the right types of investment in technology and innovation?

There are good arguments for government to help companies overcome barriers, as long as intervention does not unjustifiably affect risk/return considerations that drive Private Sector investment decisions. Government will inevitably have an influence on such decisions through regulation of the economy, which includes price-based instruments such as the Emissions Trading Scheme. There is also heavy Public Sector investment in R&D which will support Green Growth, both indirectly through universities and Crown Research Institutes, and directly through initiatives to support and raise business R&D.

Many of the widely known challenges facing New Zealand around technology transfer and commercialisation of new technologies also apply to Green Growth. Resolving these underlying issues will have a significant impact on our ability to support Green Growth through technology. A key question is whether there are additional measures specific to Green Growth that need to be considered to accelerate this process.

TOPIC 3.

SME transition to a lower carbon economy

As the global economy transitions to an era of lower carbon emissions, significant effort will be required over the next five to 10 years to reduce the emissions intensity of production (the measure of emissions per unit of economic output). "Lower carbon" encompasses, of course, all greenhouse gas emissions (not just carbon dioxide from fossil fuel burning). Reduction will rely heavily on individual businesses addressing the emissions intensity of their own activities as they continue striving for competitiveness and success.

By working to reduce emissions intensity, businesses can make efficiency and productivity gains that promote business success and economic growth. Our Green Growth aspirations are, in part, a call for businesses to manage risks in the transition to lower carbon, and to take up the emerging opportunities for greater efficiency and productivity – and to convert each of these into Green Growth.

The small and medium-sized enterprise (SME) sector is substantial in the New Zealand economy (see right). The environmental performance of this type of business will, accordingly, be critical to our Green Growth. There are substantial challenges for SMEs in making the transition to the lower carbon era, especially if their emission intensity level is currently high. The new era will bring risks to SMEs but also opportunities. The latter will involve pursuing growth from new demand for "greener" products and from positioning ahead of competitors.

In this, many SMEs will need to anticipate greater scrutiny from regulators, consumers and competitors on issues of environmental integrity and "green credentials". As New Zealand's larger exporters are dependent on SMEs for production inputs, demands for "greener" will be driven down to those SMEs. Those not able to meet new requirements flowing through supply chains will likely lose business.

New Green Growth-related requirements on businesses will include energy usage and efficiency, and extend to various other aspects of environmental management and to compliance with traceability and many other standards. It will be important, therefore, for SMEs to access new management tools and information, and to adopt approaches consistent with international standards and practices.

Small and medium-sized enterprises (SMEs) are defined in New Zealand as companies with 19 or fewer employees. This sector accounts for 97% of all businesses and approximately 42% of total economic output. SMEs operate in every area of the New Zealand economy. (Data from Statistics NZ)

New Zealand's approximately 60,000 farms are an important component of the SME sector—and they have shown what can be achieved with innovation and new technology take-up. Improvements in animal genetics, pasture and feed systems, and farm management have led to productivity gains with large environmental benefit. For example, sheep numbers were cut by around 45% in the 20 years to 2008 but sheep meat production declined by only around 10% over the same period. In the dairy sector, advances in farming have raised milksolids production per effective hectare by 57% over the past 20 years. (Data from the Ministry of Agriculture and Livestock Improvement Corporation.

New Zealand SMEs include innovative businesses pursuing both commercial and environmental goals. ***Eco Stock Supplies Ltd****, for example, turns food waste into a high-quality food product for livestock – and makes a big contribution to waste minimisation in the process. Eco Stock Supplies collects food waste from processors, retailers, importers, and transport companies, and instead of going to landfill, the material is processed at its South Auckland plant. Eco Stock Supplies currently services the upper North Island, and in the past 12 months it has diverted 25,000 tonnes of food waste from landfill.*

Seat Renew Global Ltd *is another great example. This company has an innovative method for restoring worn out plastic stadium seating. Currently, 100s of thousands of plastic stadium seats are replaced each year around the world, requiring recycling or disposal in landfills. The Seat Renew process returns seats to near new condition, significantly lengthening their lifespan and reducing the need for seat disposal and replacement. Other forms of stadium cleaning can involve high water volume use. Seat Renew uses a very low volume of water (about 15ml per seat) and no harmful by-products are generated. Restoration means that seats can continue to be used for longer, with economic and environmental benefits.*

Eco Stock Supplies was the Supreme Winner in the Government's Green Ribbon Awards for 2011. Seat Renew Global was a finalist in the Green Ribbon Awards Small Business Making a Difference Award category.

What particular pressures might the transition to a lower carbon economy put on SMEs?

First, rising energy costs (from the pricing of carbon into energy, goods and services) will impose cost pressures on all businesses. Transport fuel costs are typically the biggest energy cost for SMEs. Many may struggle to absorb these increases or pass them on to customers. There are significant uncertainties regarding the long-term impact of carbon pricing on some businesses.

Second, SME exporters and those participating in sophisticated supply chains will need to meet emerging sustainability standards imposed by buyers and regulators. Failure to demonstrate compliance may result in exclusion from discerning markets and supply chains. Third, many SMEs will face pressures to adapt their production processes beyond carbon reduction to encompass environmental management more generally. Waste management, water conservation, usage of certain refrigerants and so on are also significant in the transition to "greener" business. Many SMEs will likely face further pressures to shift from established technologies and practices to others with fewer environmental impacts.

What opportunities might open for SMEs for greener growth and transition to a lower carbon economy?

The transition to a lower carbon economy can create opportunities for those SMEs willing and able to seize them. They can adjust to new cost structures, transition to lower carbon technologies and practices, and act on the market potential that Green Growth presents. New opportunities will arise with shifting consumer preferences, the emergence and growth of new markets, and the development and commercialisation of "greener" technologies and other innovations. Energy efficiency will likely become an important issue for many SMEs given its benefits to productivity and emissions intensity reduction.

Why might SMEs find it more difficult to transition? Where are they now on the path to greener growth?

SMEs are a diverse group. But because of their relatively small size and other characteristics, SME's often face similar types of constraint. They tend to have limited knowledge of effective environmental management practices and of how these support opportunities for growth and development. Often SME managers have limited time to devote to longer-term planning, market analysis, business development or innovation. They tend to have low levels of awareness about environmental regulatory obligations and find it difficult to access capabilities required for more efficient operation. SMEs can also have limited ability to borrow funds or raise additional equity. Typically they are in very competitive markets and, accordingly, have less ability to influence their operating environment.

In the face of these constraints, there are challenges to ensure that SMEs pursue the environmental improvement and effective cost reductions of which they are capable. This is likely to be the case in many situations, even where cost reductions could bring early improvement in bottom line performance to particular SMEs.

SME owners and managers are likely to view, initially at least, environmental standards and environmental management systems in terms of compliance cost, not of investment in innovation, productivity and competitiveness. They can also be constrained by the confusion of "environmental" product offerings available and by uncertainty over how particular offerings might benefit their business. Some SMEs see an absence of clear direction and commitment from government or industry leaders when it comes to assessing the value of "greener" practices. On the other hand, SMEs will generally respond to incentives and opportunities as these become more apparent.

Encouraging the adoption of "greener" technologies and better environmental management practices will require a broad range of approaches by government and industry. Market drivers, including new procurement and certification processes in the Public and Private sectors, can be strong incentives for SMEs to move in this direction. Similarly, regulatory requirements (e.g. the New Zealand Emissions Trading Scheme, national environmental standards) and other industry-specific requirements can be drivers of change. Education and information can also be powerful change agents as they spur more informed decision making. To be effective, however, any approach will have to take into account the limited resources that are available to many New Zealand SMEs under business-as-usual conditions.

Other suggested reading

"Towards Green Growth" reports, OECD, May 2011.
See www.oecd.org./greengrowth

"OECD Economic Survey: New Zealand 2011", OECD Economics Department, 2011.
See www.oecd.org/nz

"A Clean Economy Vision for New Zealand in 2025", discussion document, New Zealand Trade & Enterprise, October 2009.
See www.greengrowth.govt.nz

"Sustainable Business Design", Better by Design programme, New Zealand Trade & Enterprise, 2010.
See www.nzte.govt.nz/develop-knowledge-expertise

"Working towards higher living standards for New Zealanders", NZ Treasury working paper, May 2011.
See www.treasury.govt.nz/publications

For more information on the Green Growth Advisory Group, go to www.greengrowth.govt.nz

Green Growth Advisory Group

Terms of Reference

The Advisory Group was established to evaluate and advise on opportunities for Green Growth to contribute to an increased rate of economic growth for New Zealand. To achieve this, there are three areas of work being undertaken by the Advisory Group, which will evaluate and advise the Government on:

1. How New Zealand, and in particular government agencies, can help exporters leverage greater value in international markets from our "clean, green" brand.
2. Opportunities for smarter use of existing technologies and innovation, as well as greater development and adoption of new technologies (including clean technologies) in our productive sectors.
3. Options for our small and medium sized businesses to move to a lower carbon economy while sustaining the desired level of productive growth.

Group Members

Phil O'Reilly – Chair

Phil O'Reilly is the Chief Executive of Business NZ. He chairs the Government's Capitalising on Research & Development Action Group, the Redundancy and Employment Transition Advisory Group; is Joint Chair of the NZ Workplace Health & Safety Council; and is a member of the Innovation NZ Board and the Council of the Royal Society of NZ. Phil also serves on a number of other Ministerial and advisory groups.

Melissa Clark-Reynolds

Melissa Clark-Reynolds is the founder and CEO of MiniMonos.com, a virtual world for children. As well as being on the Board of Wellington's incubator, Creative HQ, Melissa is an international speaker on Green Business, Technology and Entrepreneurship.

Melissa has been an entrepreneur for almost 20 years, and holds a Masters Degree with a focus on Environmental Health.

Whaimutu Dewes

Whaimutu Dewes is a director on Ngati Porou Forests, Ngati Porou Seafoods and Contact Energy Boards. He has previously held numerous directorships in organisations including Television New Zealand and the AMP New Zealand Advisory Board. He was Deputy Chair of Sealord Group (1992 to 2008) and has held senior management roles at Fletcher Challenge. Whaimutu served 10 years on the Treaty of Waitangi Fisheries Commission. Whaimutu is of Ngati Porou and Ngati Rangitihi descent.

Lain Jager

Lain Jager has been the Chief Executive of Zespri since December 2008. Previous roles with the company included Human Resources, Grower Relations, Innovation, Supply Chain, and Corporate Strategy.

Prior to joining Zespri, Lain worked for Starwood Hotels and Resorts and Fletcher Challenge in a variety of Human Resources and Operations Management roles. Lain has a Masters degree in Social Sciences from the University of Waikato.

Neville Jordan

Neville Jordan was Chair of the CRI Review Taskforce. Neville has served six years on the board of AgResearch, and three years each on the boards of the Foundation of Research Science & Technology as well as the Prime Minister's Growth and Innovation Advisory Board. He has also been Chair of an SOE Establishment board.

In 1997 he received the Governor General's Supreme award for Exporting. He is a laureate of the NZ Business Hall of Fame as well as the Hi-Tech Hall of Fame. He is the immediate Past President of the Royal Society of New Zealand and has an honorary Doctorate from the University of Canterbury.

Dr Andrew (Andy) Pearce

Andrew Pearce is currently the Chair of the Regional Committee to give effect to the Canterbury Water Management Strategy.

During his career, he has been involved with a diverse range of public and private-sector organisations and brings broad governance and management experience. His experience has included roles in the infrastructure sector, banking, publicly-listed companies, research and development organisations, as well as the not-for-profit sector.

Andy was founding Chief Executive Officer of Landcare Research from 1992 to 2005 and sits on a number of boards including the Bank of New Zealand, Christchurch City Holdings, the Energy Efficiency and Conservation Authority, and Terranova Charitable Trust.

Guy Salmon

Guy Salmon is Executive Director of the Ecologic Foundation, an environmental consultancy. As a member of policy task forces for successive governments, he contributed to the reform of the government's environmental administration system, the development of the Resource Management Act, and the development of policies on forestry, climate change, electricity markets, land transport and overseas aid.

He has worked closely with business on environmental projects especially in the fishing, agri-food and waste management industries. He has also served on the boards of Landcare Research and the Energy Efficiency and Conservation Authority, and is a Trustee of the Cawthron Institute.

Peter Yealands

Peter Yealands is the founder of Yealands Estate which has achieved rapid growth in the international market, exporting to over 20 countries in less than two years. After success in the building and aquaculture industries, followed by deer farming, Peter then got involved in the wine industry and runs Yealands Estate with a strong sustainability ethos.

The Green Group Advisory Group has administrative, research and communications support from the Ministry of Economic Development and the Ministry for the Environment, working in consultation with other government agencies and Crown entities.
The Group's secretariat is based in the Economic Development Policy Branch, Ministry of Economic Development.

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Cover image courtesy of NASA's Earth Observatory.