

21st October 2008

Economic Transformation in a carbon constrained world

Innovation

The opportunities and obstacles to New Zealand's innovation within a global context

Many people and organizations equate sustainability with managing their environmental impacts and being "green". If you look at a great many sustainability reports, there are a raft of indicators relating to consumption of resources and recycling; social and cultural indicators largely focusing on human resources and community giving and an economic section which by and large features the financial report.

The unprecedented global turmoil of the last few weeks demonstrates as never before the importance of economic sustainability and why without it any discussion about sustainability is flawed. Whether your business is manufacturing goods or providing services it has to be profitable to endure. At the Packaging Accord's launch of its Year 4 progress report last week, we were reminded frequently that recycling is an industry which has to make money from recovered materials and without economically viable markets, recycling operators simply won't be able to do the job.

I am delighted therefore to kick off this series of workshops designed to provide companies and individuals with the tools to derive competitive business advantage from innovating new products, packaging and services that count the cost of carbon in their production and consumption.

The workshop series has been packaged around Innovation, Collaboration and Regulation but none of these can be tackled in isolation. Whilst today's topic is innovation, it is impossible to succeed without building collaborative business models and these must be enabled not stifled by regulation. So I will touch on all three areas in my address this morning.

And there are some salutary lessons for us.

If as Michael Porter Professor of Harvard's Institute for Strategy and Competitiveness says "*Innovation is the central issue in economic prosperity*" then our nation of number 8 wire entrepreneurs should have New Zealand topping the OECD tables but against most indicators we are putting in a very average performance.

Foreign direct investment in New Zealand has declined putting us on a par with nations like South Africa, Slovakia and Greece.

Our expenditure on R&D is around half the OECD average relative to GDP.¹

¹ <http://puck.sourceoecd.org/vl=5066539/cl=14/nw=1/rpsv/factbook/070101.htm>
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In fact the one area we are at the head of the pack is in terms of GHG emissions per unit of GDP where we are in 2nd place to Australia.²

New Zealand business might be innovative. We do have an enviable tradition of entrepreneurs who since the 19th century have been integral to the growth of printing, brewing and sawmilling; trade, textile manufacturing, the meat and dairy industries and many others. We have great ideas but we have not been successful at turning those ideas into global businesses. There are still very few examples of New Zealand doing really well in the international food sector.

Commercial capability is just as important to the internationalizing of an idea as the research capability and the idea itself.

But we need critical mass to compete globally and only a handful of Kiwi companies such as Fonterra, Zespri and Sealord have sufficient size to do really well internationally. Negotiating space on the shelves of retailers that run business operations sometimes larger than the entire NZ economy is difficult.

And this isn't just a problem for NZ suppliers. Reg Clairs the former head of Woolworths Australia said recently that the emphasis on retailers taking charge of the supply chain has resulted in many smaller suppliers being squeezed out by global manufacturers, and he warned that if this continues, local food manufacturing will disappear in 10 to 15 years.

Unless we are able to build a food manufacturing business that is sustainable, then ultimately the global manufacturers will take the power base. Fonterra has been able to demonstrate how this can work to our advantage through its innovative milk auction system.

Increasingly the demands being placed on suppliers relate to their carbon footprint.

Consider US giant Wal-Mart which sells to 100 million customers weekly worldwide and has annual sales of US\$375 billion. That's huge. Their commitments to sustainability are driving change throughout the world. Walmart say they will reduce the amount of packaging across the supply chain by 5% by 2013 and will be packaging neutral by 2025.

They say they are doing this because for nearly every product sold in stores, there is both primary and secondary packaging and by making small changes to packaging they can drive significant impacts on the use of materials, manufacturing, shipping containers, trucks, storage, refrigeration, waste and energy used for production.

Some examples of Walmart's achievements include

- transitioning all of the liquid laundry detergent on its shelves to the concentrated "compact" versions saving more than 125 million pounds of cardboard, 95 million pounds of plastic resin and 400 million gallons of water;
- working with Apple to convert I-pod packaging to 100% renewable, recyclable and more sustainable materials;

² <http://www.oecd.org/dataoecd/20/40/37551205.pdf>

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- moving away from PVC packaging on all private brand items where suitable alternatives exist; and
- introducing PLA packaging for all of their cut fruit and vegetable trays.

Wal Mart has the size and scale to demand that its suppliers meet its stringent requirements and whilst the retailer has acknowledged that sustainable solutions may not be delivered at the same price, price parity is still a key driver of sales.

However the global retailers don't just have an influence on suppliers exporting to them. Their demands for degradable plastics, packaging using recycled content etc are having an impact on our domestic market place too. Yet degradable plastics are non recyclable in New Zealand because the infrastructure is not in place to deal with it. As small players on the world stage we are the recipients of choices which other countries make about packaging. For example packaging imports now make up to 50% of our consumption.

We need to manage the environmental quality of this imported product and its packaging and ensure its recyclability in our market. And as production of some of our large manufacturers such as Fisher & Paykel move overseas domestic packaging production will reduce.

We simply haven't got the size to buck these international trends so we have to address our ability to deal with overseas innovations.

This is not just about commercialising products.

A couple of weeks ago there was a Danish delegation in New Zealand suggesting their waste model would work in New Zealand. In Denmark, a country similar in size to NZ with a population of 5.4 million, there are 340 recycling sites where the public takes all kinds of waste, including hazardous. 70% of all waste is recycled and a quarter of waste is incinerated to create energy. We on the other hand have around 60 sites and our primary focus has been packaging almost to the exclusion of all other products.

As a country which seeks tourist dollars on the back of its sustainable credentials, why aren't we developing a waste management / recycling model which we can tout to other countries?

So how do we become world class?

Critical mass and commercial capability are crucial components of any attempt to deliver international success for New Zealand business. To achieve this we need to have leadership from a political and business perspective about where we want to be as an economy and have the legislative frameworks in place to get us there .

There are four key elements to effective leadership. The first is vision. If you don't have a vision of where you want to be, how do you get people to move with you and change?

Then you must consult and talk to people - understanding opposing view points is critical to fashioning the best framework for success. For the packaging and recycling industry, the best example of this has been the consultation process towards the Waste Minimisation Act. Of course we haven't had 100% consensus because that is simply not going to happen but we have reached acceptable compromise positions.

Then leaders have to be decisive. This often means putting your head on the block and making calls. If we want to reduce waste to landfill and to reduce our GHG emissions why are we so set against proven technology to incinerate waste to energy? Is it better for the environment and the economy to look at the whole of life impact of a product rather than simply focus on its end of life? These are not easy questions but we need to debate them and then take a decision.

Finally there is execution. This is where all too many NZ businesses fail because they lack responsiveness and urgency by comparison with their counterparts in other particularly Asian countries. We tend to be a bit laissez faire and in an aggressive world market place this does not serve us well.

So how do we commercialize our good ideas if we aren't going to be able to compete with the international giants? Well the Packaging Accord as a collaborative product stewardship scheme between industry and local and central government provides an example of how we could progress. We aren't going to win on size but we can galvanize companies and organizations to work together to achieve critical mass.

We need to realize that talking and working together does not compromise companies commercially. In fact it offers greater opportunities. Clusters of small innovative enterprises with something in common can provide much needed access to corporate capability particularly if mentored by larger enterprises.

There are some good examples of smaller companies benefiting from working with corporations:-

- Working with Progressive Enterprises, Foodcap International has developed a business around supplying retail ready meat from a central production facility, as opposed to meat being produced in the supermarket butchery department. The business success is based around the packaging of the meat for transport in a special material called the "Foodcap" which has been designed and patented worldwide. The system also allows the company to better manage its end-to-end supply chain materials handling processes via its pioneering use of FoodCap's radio frequency identification (RFID) tagging.
- The Warehouse has partnered with Enviroreel Plastics to develop new products using recovered plastics.

Collaboration also needs to happen within academia and between academia and business. This has worked well for the US economy.

The Glass Packaging Forum has provided funding from its levy to Massey University to research and develop alternative uses for glass cullet.

And the development of the CarbonZero model by crown research institute Landcare Research shows how research solutions can be practically applied to business to help them measure their carbon footprint. Landcare Research has now signed a partnership with British based Achilles Information Ltd to provide the measurement, management and certification steps of its CarboNZero programme to 30,000 clients in 23 countries.

There are excellent examples in New Zealand of companies innovating products and services which are designed to meet the needs of the 21st century. But today's entrepreneurs need to embrace clean technologies just as during the 19th century the industrial revolution first changed industry with major global changes in agriculture, manufacturing and transportation.

These cleaner technologies represent a market worth potentially billions to our economy driven by a combination of six factors.

1. **Costs.** Renewable or clean energy costs are falling as the costs of fossil fuel energy increase.
2. **Capital.** Billions of dollars, euros, yen and yuan have poured into clean technologies. Prior to the financial crisis Citigroup had pledged \$50 bn to green initiatives over the next decade and Bank of America has made a \$20bn commitment.
3. **Competition.** Governments and businesses are competing aggressively to dominate the sector and build the jobs of the future.
4. **China.** The expanding energy needs of the developing economies in China, India etc are driving major growth in clean energy, transportation, building and water delivery technologies. Demand for recovered materials has increased substantially albeit falling off recently.
5. **Consumers.** Consumers are demanding cleaner products and services that use resources efficiently, reduce cost and embrace quality over quantity. In NZ 32% consumers belong to a market segment which is in this space. Energy Mad – makers of the Ecobulb was the Fast 50's fastest growing company.
6. **Climate.** The Emissions Trading Scheme will have a major impact on business putting a price on carbon.

The speakers you will hear over the next three days all recognize that innovation now more than ever means finding solutions that have a lower carbon footprint. And key to success is collaboration.

You will hear shortly from another CRI business Scion about their work to demonstrate the massive opportunities from NZ grown softwood in terms of fulfilling transport biofuel commitments and replacing the traditional Kraft pulp way of removing lignin through a process that gives a 5 fold increase in yield.

Our plantation forests are already amongst the most productive in the world and help to make the industry our 3^d largest export earner with earnings of \$3.2 billion.

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If our *pinus radiata* can be used in future to produce ethanol there will be competition for land use – and how our forests are used will be determined by economic drivers. Traditionally we've used our wood to produce packaging materials, tissue and logs – but this may all be set to change. To maximise the opportunities Carter Holt Harvey has got in at the start to work with Scion and Ag Research demonstrating how the collaborative approach provides New Zealand's best way of becoming a world leader.

In another collaborative example Kimberly-Clark maker of Huggies nappies are working with a new start up business Envirocomp Solutions to open the first nappy composting facility in the world in Canterbury later this year.

But as I said earlier it is not enough just to have the "big idea". Commercialising the idea requires capital.

The government's Fast Forward Fund scheme announced earlier this year has committed \$700 million to lift levels of innovation on the farm, in the factory, and in the laboratory with the stated aim of keeping ahead of the rest of the world although whether we are ahead of the world is a moot point. However the fund is to be a partnership with industry and is a welcome step in the right direction.

So far, four broad areas where major challenges and opportunities have been identified include sustainable pastoral systems; research and education capability; food innovation clusters, and internationalisation.

In addition to government funding however, we need to see more private investment in sustainable and clean technologies. Without investment inventions will not be commercialized. And investors are not interested in just a good idea they require hard facts. I am reminded of the words of American economist Larry Summers:

["Investors are no longer seduced by a financial 'dance of a thousand veils.' Only hard and accurate information on reserves, current accounts, and monetary and fiscal conditions will keep capital from fleeing precipitously at the first sign of trouble."](#)

In today's challenging economic climate this is more apt than ever.

Ensuring that innovative start-up companies have access to the capital and expertise needed early in their development is vital if we want to maintain a pipeline of promising New Zealand companies that can contribute to our future economic health. However as Dr Stemmer will demonstrate later we are currently struggling to retain revenues from our innovations in New Zealand because domestic investment for new technologies is very limited. We need to strive harder to keep these dollars on shore for re-investment.

With the implementation of the Waste Minimisation Act coupled with ETS legislation, the businesses that make adapting to a carbon constrained regulatory environment a priority and which have the staff who are able to recognize the opportunities and make them become a reality are going to be best equipped to thrive under challenging economic conditions.

I would like to thank Paul and the Packaging Council team for organizing the workshops this week and encourage you all to use this opportunity to work together across the private and public sector so that we turn those good ideas into economic reality.

