STRATEGY AND POLICY COMMITTEE
1 AUGUST 2013

REPORT 7
(1215/52/IM)

VALUING NATURE CONFERENCE, WELLINGTON, 9 AND 10 JULY 2013

1. Purpose of Report

To report back to all Councillors on the Conference including the subjects covered and an opinion of the value of attendance by Elected Members.

2. Details on the Conference

The Valuing Nature conference was held at the Embassy Theatre, Wellington on July 9 and 10, organised by the NZ Government Natural Resources Sector, Victoria University and the Sustainable Business Council. It was attended by some 400-500 people from academia, government and local government, and private sector including mining and farming. Council was represented by the Mayor , Crs Foster, Pannett and Ritchie, and some officials from policy and parks.

The overall thrust was that nature is critical. The conference was about hard nosed science and economics. Ecosystem services (clean water, air, energy, biodiversity, soil, marine etc) have a massive value, but generally are not priced, leading to their abuse. As keynote speaker Pavan Suhkdev put it:

“We are driving towards or beyond planetary boundaries. This has to be the biggest challenge of our times.”

Pavan also said “We use nature because she is valuable, we abuse her because she is free.”

3. Recommendations

It is recommended that the Strategy and Policy Committee:

1. *Receive the information.*

2. *Endorse the key messages.*

4. Speakers

Dr Nick Smith – Minister of Conservation
Noted that in his lifetime we will move from population 1 billion living at first world standards and 4 billion in developing countries to 8 billion at first world standard and 2 billion in developing countries.
Stressed the need to marry the economy and environment. The Blue Greens view there are 4 pillars.

1. Robust environmental reporting. We spend over $1 billion on accounting for financial issues, but next to nothing on natural capital. DoC how has a new system of reporting.
2. Need to move to a more collaborative model. Not the polarised prosecution and defence approach. The Land and Water Forum is a great model. DoC is working on a new partnership model. This isn't primarily about revenue but about getting new champions for conservation in the business and wider community.
3. Smart use of economic tools to better value nature. Example – Nelson fishermen had their boats as their biggest assets. Now it is their quota (ie the natural resource) Also noted the ETS, Waste Management levy, nitrogen cap and trade for Lake Taupo.
4. The importance of innovation. Science, technology. Eg electric vehicles, self-resetting traps. DoC has halved the cost of controlling wilding pines.

The Economics of Ecosystems and Biodiversity
Al Morrison (chair) – Director General Conservation
Flying over NZ on lovely day like this, you see the brown silt slicks flowing out of our rivers. Silt destroys river ecology and farming capability. It takes 100-500 years to create 2-3 cm of topsoil. The planet is covered by an average of approx. 1 metre of topsoil. We are losing topsoil far faster than it is being created.

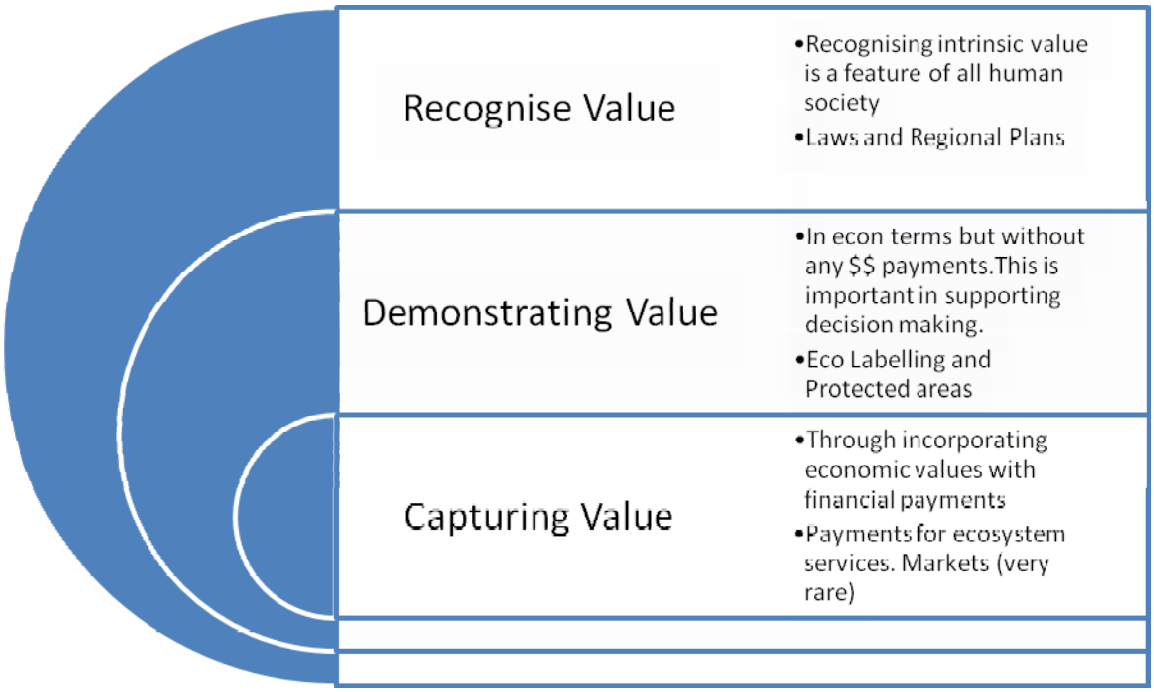
That is true across the board. We are losing ecosystems too fast across the world. Nature cannot keep up. Loss of tropical forests, of coral reefs etc.
The conventional economic model dismisses the value of nature. There will be considerable opposition to developing a new economic model valuing nature.

Pavan Sukhdev - (India) – Study leader TEEB (The Economics of Ecosystems and Biodiversity)
TEEB works internationally through UN.
Business is making profits, but not paying externalities. We are driving towards or beyond planetary boundaries. 'This has to be the biggest challenge of our times.'
Ecosystem services are critical but we don't recognise them and value them. Showed the world picture – the Amazon, Indonesia and Congo are the Planet's rainfall factories.

Valuing nature isn't putting a price on a species. What we can estimate is the cost of not having (eg) bees, butterflies. Price is what you pay. Value is what you receive.

Projected loss of variability and extent of biodiversity between 2010 and 2050 – if do nothing would expect to cost 7% of world GDP or Euro 1.35 to 3.1 trillion per annum. That's about the size of the recent Global Economic Crisis.

Examples
Baoxing (Sichuan, China) Realising the environmental damage they are doing they mapped areas of high, medium and low environmental value to direct investment to areas where it would minimise effects.
Tubbataha Marine Park (Philippines) Coral reef – research recommended a no take area.
Kampala Wetland (Uganda) Calculation showed it was better financially to save the wetland from being filled in and developed but then having the cost of a sewage treatment system. Also better for water quality.



Global fisheries – ½ of all global wild fisheries are fully exploited, a further quarter are over exploited already. Graph showing more fishing boats but catching fewer fish – est $50 billion in lost productivity. Massive subsidies to the fishing industry. At risk $85 to 100 billion in landed catch. Also effect on local fisheries 'when you Europeans fish here our canoes come home empty.' Solution is to establish reserves so female fish grow bigger – double their size multiplies egg numbers by many many times. Fishing concentrates around reserve edges and is more profitable.

Gave case study of a subsidised prawn fishing boat. Conventional model showed positive return from clearing mangroves for prawn fishing. Add in ecosystem services and retaining the mangroves would have been far far better.

How do you reflect the national value of natural capital ?
Value the assets in the ground – showed very interesting international tables. The Middle East has achieved good financial results but only by drawing down its in ground non-renewable resources (oil) which should be (but isn't) reflected in its balance sheet.

Also question of which part of society pays

	Indonesia	India	Brazil
Ecosystem services as a % of conventional GDP	21%	16%	10%
Ecosystem services as a % of GDP of the poor	75%	47%	89%

(Guidimeda and Suhkdev – TEEB for Policy makers)

China has 'got it' now, understanding their loss of natural capital - so beginning major restoration projects.

Panel session - chair Kim Hill, Dr Girol Karacaoglu (Treasury Chief economist), Dr Jonathan Boston (VUW), James Palmer (MftE Dep Sec), Dr Marjan van den Belt (Massey)

Marjan van den Belt (ecological economist) – Many countries have entered a period of 'uneconomic growth'. Ecosystem services in 1997 valued at x3 world GDP. NZ very well endowed with natural capital but tends to take it for granted. Suggests mapping ecosystem services across the whole country to help make tradeoffs.
Vision - In 100 years NZ has recovered from uneconomic growth. Maintains its natural capital. New institutions to manage the public asset. Account for natural and human capital.

Jonathan Boston – TEED project has produced some immensely valuable work. NZ Treasury developing a richer and broader framework to recognise natural capital and ecosystem services. Current approach ignores intrinsic value of nature. Don't need to monetise everything. Hard to do anyway. 2005 – pollinators value to the world economy was est at $300 billion. But this is not the full value pollinators produce. Task ahead – far too many business and political leaders lack understanding – even positively dangerous. Jonathan pulled no punches. NZ current Government weakening ETS, roads, DoC funding, urban sprawl, RMA changes, mining without carbon capture. 'This is not good !' The task is urgent. The damage is acute and accelerating.

James Palmer – Dairy story. Many NZrs blissfully unaware of our reliance on the agricultural system. However that wellbeing is tied to the environment that hosts it. We've had many adversarial environmental battles. Leads to policy and regulatory instability. Need greater certainty. We are transitioning from creating bottom lines and then activities within that (RMA) to a more holistic approach with social values included. Developing a new analytical framework including human behaviour – to be launched next month. Not just a question of science. Want to get communities to come together a la Land and Water Forum to make the trade-offs. More proactive planning required. More collaboration and integration.

Girol Karacaoglu – Treasury advice needs to focus not just on economic growth but on wider concept of prosperity. Hard work to do this. Focus operationalizing this. On building, protecting and sharing (across society and across

generations). Also on managing risk. Very early days of this work but very excited by it.
One of the challenges is not being seen as 'anti-growth'. There is good growth and extractive growth. The former expands our capital stock and is inclusive and sustainable. Need to move away from constant tradeoff decisions to decisions which are mutually supportive. (good for all parts of economy and environment) Statistics NZ mapping all the data very well.

Questions

1. Is there a parallel between Pavan's shrimp boats and our dairy industry ?
   James – we are running down our natural capital over time. We are a long way from truly sustainable. However that isn't to say that every one of our farmers is doing that. Many are doing a great job. 'We are in uncharted territory as an experiment !' Societies since 1840 have chosen to put people ahead of the environment, and Governments have followed.
   Jonathan – Governments do lead. Current Government is not serving the environment and therefore not serving future generations.

2. Question about good growth / bad growth in Government's ambition to double agricultural export value over time.
   James – getting a lot more milk outputs for the inputs than say 30 years ago.
   Jonathan – need to price externalities properly – eg starting with water.
   Marianne – need for different property rights – and valuing common assets (public assets)

3. Question – how do we avoid penalising people (farmers) so they don't react negatively.
   James – collective responsibility, working together. urban – rural.
   Jonathan – still have to be clear that won't allow damage to the commons without prices and regulation.
   Marianne – work with the farmers that get it first.

Afternoon Session
Te Uawanui
Presentation on Te Uawanui project – Tologa Bay – real integrated, long term thinking.

Celia Wade-Brown (session chair) – Valuing Nature at a Local Level
Value of the natural environment to our city economy. Focus on weightless economy. Noted reduction in water use, waste, GHG emissions. Must be getting some 'good' growth.
Story of the Formery – combining rice waste with NZ merino to make furniture.

Marlene Laros – ICLEI – Capetown. Valuing Nature at a Local Level.
Local Government isn't waiting for the world to change, but changing the world together.
Globally 50% of world population is urban, consuming 75% of world resources and producing close to 80% of world GDP. By 2050 we will have to build the same urban capacity as we have built over the past 4000 years. Cities and towns are pivotal.

8 focus areas for cities – sustainable, resilient, healthy and happy community, green urban, smart urban, resource efficient, low carbon, biodiversity.

1997 value of global GDP $18 trillion, ecosystem services $33 trillion. (Note 2012 GDP $70 trillion)
Ecosystem services – provisioning (food, water, raw materials etc), supporting, regulating, cultural services.
Example – the ecosystem services from sand dunes. Land protection, biodiversity, cheaper than hard infrastructure. Mangroves value as fish nursery grounds, storm and erosion protection, etc.
Trees to capture carbon, reduce run off, reduce energy costs, reduce air pollution, regulate climate.
Atkins and UCL – there is a perfect storm of risks facing cities
'Plan B' could be a real coming of age for business.

Sir Stephen Tindall – by video
The Warehouse has adopted Northland for long term (2050) landscape and forests etc restoration with Landcare Trust and WWF.
Pure Advantage – focus on biodiversity, waste and biomass to energy, sustainable agriculture, healthy homes etc
People come first philosophy at the Warehouse. What makes staff believe in the company is the work they do in the community.

Panel Session, Kim Hill. Sir Bob Harvey. Prof Bruce Clarkson (Waikato), Devon McLean (Project Janzsoon - Abel Tasman NP), Kevin Prime (Te Runanga o Ngatihine).

Bob Harvey told his story. 1972 – talked to Norman Kirk about running an environmental campaign. 1992 obsessed with Rio – stood for the mayoralty – have to have an idea 'eco city'. Save Waitakere ranges. Cleaned up streams and graffiti, brought ethnic communities into the table. Partnership with schools, police, doing up town centres etc. Safe cities programme. Transformed from Boganville.

Bruce Clarkson – story of a halo and a new saint. Somebody who didn't ask about his property rights. Just 0.1% of Hamilton City dominated by native plants and animal. Waikato region only 1% - an ecological desert. 50 years ago Alwyn Sealy started planting his back yard gully. Early 2000s before momentum grew. Waikato River and gullys make up 8% of Hamilton. Tui 2000 - community group to bring back the tui by 2000. Hadn't been in Hamilton for 100 years. Mass planting. Hamilton halo focussing on pest control (rats) in the peri-urban area. By 2009 tui are back in the city. Aim by 2015 to have 9% of the city dominated by natives – equal New Plymouth which Bruce says is the top in NZ. (my note - Wellington 290 sq kms – our reserve network alone represents 40 sq kms or 14%) Aim for Hamilton more than 100km of trails in the gully system.

Devon McLean – Kiwis love hate relationship with nature for a long time. Maori and settlers clearing bush. 1894 first nature reserve – Little Barrier Island. 1896 Tongariro National Park.
We love clean and green, but are concerned it might not be true and that there is no clear action plan. People want to do the right thing but don't know how.

Corporations involvement generally drive by passionate leadership. They need to be long lived to have real effect. Employees love their company being involved. How come we can't turn our environment into a competitive edge ?

Kevin Prime – Don't wait for the world to change but be part of changing the world. Collaborative effort to restore his area in Northland. Northland selected because has good remaining indigenous ecosystems, variety of landscapes, strong iwi support, funding from Tindall Foundation, HSBC, ASB community foundation. Reconnect people to nature and kaitiakitanga. Join up bush areas.

Questions
1. How are the Waitakeres going post-merger ? Bob Harvey concerned about the foothills of the Waitakere's being under threat again. Penny Hulse has kept the vision going. But he sees there are people 'wanting to have another go' – the battle never ends.
2. Is scale important ? Bruce – yes it is. Same pressures financially as Auckland. If local people are empowered then nothing can stop them.

Wednesday
Professor Sir Robert Watson – UK National Ecosystem Services Assessment
Massive and inspiring piece of multidisciplinary work.
Looked back forty years, and forward for next 50 years.
Assessed a whole range of different ecosystems in the UK. 35% are in decline, 20% are improving. Since the War major forest clearance for food production. Only 9% of forest remaining. Water systems are under the greatest pressure.

Why bother with Economic Analysis? Market doesn't value these ecosystem services despite their critical value.
Avoid double counting – eg don't value primary ecosystem service (soil) but what it produces – forest, crops, biodiversity etc. Value these 'final' ecosystem input and the input from human labour and capital.
Services – provisioning, regulatory, cultural (enjoyment), supporting.
To assess value of ecosystem services – some have market value flowing from activity they allow, value via contribution to output, value via avoided costs, value via market preference (people like living by a woodland) etc

Demonstrated the value of converting farm into woodland – carbon marginal value is more or less constant, recreation value reduces as you have more of it and as it is further from population centres.

Demonstrated that the whole of Wales should be a woodland! Farming is subsidised and there is no price on carbon. In a more rational world there would be a very different land use pattern.

Used 6 Scenarios looking forward
1. National Security – of production – grow 65% of food, 25% from EU
2. World markets – unfettered push for GDP growth
3. Local Stewardship – we care about local environment
4. Go with the Flow - BAU
5. Nature at Work
6. Green and Pleasant Land – hug all the trees!

Graph showing which would be good and bad across a range of indicators.

Broke the UK into a 2km grid. Looked at historical land use change of every part of the UK since 1969, future predictions (how we farm), policy etc and looked at impact on environment, recreation etc. The theoretical model matched actual almost perfectly from 1969 to now.
World Markets approach gain of Stg 420 million a year, Nature at Work loss of Stg 510 million per annum. But loss of recreation, biodiversity, loss of green space in and around cities, GHG.
World Market – loss 19 billion Stg a year. Nature at work gain 18 billion Stg a year.

Noted some areas (SW Scotland) were better under World Markets – so take a local approach there. Lesson - Don't just have one policy setting across the whole country.

Detailed assessment at 2 km square levels. Can get Stg 19.6 billion improvement under Nature at Work – but make changes at 2 km level where if retain all biodivesrty can still gain $18 billion.
Modelled reforestation policy and benefits for water quality, and soil quality. Modelled which types of trees bearing in mind climate change. Modelled where you'd target tree planting.

White paper – an integrated strategic landscape approach – Government reporting back every six months. Natural Capital Committee will report to the Chancellor of the Exchequer every six months.

Now looking at the macroeconomic effects in the short, medium and long term, and on the marine ecosystems.

Looking at what are the barriers to picking up this information and incorporating it into decision making. Use this information to help decisions about what to grow where – eg cereals, dairy, beef.

Key lesson - Markets don't price Ecosystem services so make poor decisions. Difficult to monetise – birds.

The depth of the assessment is staggering.
3 economists, 2 scientists, a social expert, and accountant on the Natural Capital Committee.

The model was adopted with enthusiasm by Cabinet despite not believing in national planning. They want local decision making, but now all Government Depts are now tasked to include assessment of ecosystem services gained or lost in any decision making.

Questions
What about the value of intrinsic ecosystem services? Seems understated. Sir Bob agrees. Thinks will need to be more focus on these intrinsic cultural objectives.
Question – how did you ensure you had decent valuations – used 7 different methods – market, through to peoples' revealed preferences, property prices (eg

- analysed the recent selling prices of 1 million houses to get additional value from being close to green space), avoided cost etc. All heavily peer reviewed by academia, central government, private sector.

Panel Session 3 – Natural Capital in a National Context
We viewed a short NIWA video from Rio +20 with a very sobering set of statistics of changes between 1992 and 2012.

Kim Hill chair. Prof Caroline Saunders - Lincoln University, David Wansborough – Ministry Primary Industries, Dr Lin Roberts – Lincoln University, Hamish Buchanan - Bathurst Resources.

Caroline Saunders – looking at Sir Bob's approach for NZ. Issue of data quality? We need to value biodiversity to help us look at the trade-offs. Take Bathurst mine at Denniston – how does that mine get compensated for? She's surveyed India and China - China willing to pay 22% extra for biodiversity, India up to 40% and UK 6%. China willing to pay 49% extra, India 10% more based on NZ clean green image. We should stop talking low cost producer but high value producer.

David Wansborough – Ministry Primary Industries. True collaboration is asking what the other party's outcomes are. Ask them to listen to your own outcomes. Often there is a clash between economic and other outcomes. Need to acknowledge this and look for win-win. Goals for Primary Sector. Doubling value of primary sector exports by 2025 – going hard to achieve this. Not just about volume but value. Aim to do this without doubling footprint. Means being more sophisticated – people are passionate about this.

Dr Lin Roberts – Lincoln University – Over the last 30 years our public discussion has been in the language of economics, it hasn't mattered if it didn't relate to the language of biophysics. Ecosystem services is a language to shift the discussion. Discussed 'wellbeing' as something not just about material things – love, friendship, meaning, basic material wealth. Been researching NZrs wellbeing in relation to indigenous environment's wellbeing. Happiness doesn't change much beyond $125K income.

Hamish Buchanan - Bathurst Resources – NIWA video really brings home impacts – and we need to do things about it now, not in 5 or 10 years time. Challenge is how can we mine or grow in a non-destructive way. Seen the damage mining can do. Ethics hasn't really come up in discussion. We've got the tools – need to use them.

Questions
1. Should Antarctica be utterly out of bounds for mining? Hamish – yes.
2. Trade-offs sounds a very binary approach? David - Look for win wins but different people will make different judgements at part of those decisions at the end. That's value judgements – clearly struggled with the GE question.
3. How do you work out the trade-offs? David - The better information provided, hopefully the better the decision will be. Evidence based policy is vital.

4. Can we be sustainable if we double food production? Lin – Production not the primary answer. Waste and poor distribution is the first answer.
5. Surely burning fossil fuels isn't good? Hamish – agree – need alternatives quickly. (eg India hasn't got power outside of coal) Sees coal as transitional. Time is not long at all to shift away from coal. Coal also used for steel and concrete.
6. What is good and bad growth? Lin – there are limits to growth but we are hooked on growth. Could grow social, cultural and environmental capital while holding economic growth. Noted much less fossil energy available – so we need to change our approach – eg don't build motorways.
7. What will replace fossil fuels? Caroline – the huge shift in culture that flows from Girol's work. Thinks places like China are trying to put in place mechanisms better than we are.
8. Sir Alan Mark. Denniston Plateau question. Was that a wise choice? Hamish – still working on what is the appropriate balance through the Environment Court.
9. Answers imply coal industry would love to stop mining. Doesn't believe it. Hamish – it's a given that we cannot keep burning fossil fuels or in steel or concrete. However we still need coal as a fuel.
10. Lin – noted fossil fuel industry internationally has been trying very hard to promote public uncertainty about whether climate change exists.
11. Biodiversity – what about having no go areas? Caroline – the market only behaves if we give it permission – need to be very clear about where is no go. David – we have no go areas (National Parks) what about the rest. Lin – absolutely there should be some no go areas. We also need to value biodiversity everywhere. Hamish – yes. There are no go areas.

Afternoon Session
Brett Tomkins – Chair Sustainable Business Council
This year embarking on a business and biodiversity work programme. People don't know what 'ecosystem services' are.

James Griffiths – MD Natural Capital – World Business Council for Sustainable Development
They have 200 member companies turnover $7 billion, 15 million employees. Big multinationals. Came out of Rio Earth summit. Platform for thought leadership.

Video – Stockholm Resilience Centre. Concept of planetary boundaries. Red flags – humanity's footprint on the planet is expanding at a rate far faster than ever before and for the first time putting the planet's resilience under real pressure. Global fisheries facing almost certain doom under BAU approach.

Sustainable Development stocktake – Planet Earth in trouble. Overshooting core planetary boundaries. Social tensions rising. Governments are failing to lead. Lack of political will/capital. GEC not eased yet. There is a systemic crisis. Business needs to have a much longer term view. Focus on <u>scaled up</u> solutions.

Business solutions for a sustainable world – The Vision for 2050 – 9+ Billion people all living well within the planetary boundaries. City planning. Consumer information

5 steps for corporates – progressing from 1 to 5.

1. Do no harm and compete with integrity
2. Corporate philanthropy
3. Sustainability as a core business strategy
4. Sustainability in risk management framework
5. Change the accounting – rules of the game – financial, natural and social capital.

Share best practice across businesses, sectors and across sectors.

Top down and bottom up work. Involved in the TEEB report. UK Natural Ecosystem Assessment. Company level work – Puma. B team collection of 10 – 12 companies like Puma and Unilever.
Work on identifying policy initiatives. Puma is about to start showing ecosystem costs on its product price labels.

Natural capital 2020 project – pursuing vision – 3 capitals (financial, natural, social), science based, scaled up. Table with the 9 Must have's – look at photo.

NZ Inc – we are very dependent on our natural capital. Are we investing enough in ecosystem services? Is this a top line issue for central and local government? Is NZ strengthening its position as a food and fibre supplier as the world becomes shorter of these resources?

The B Team – inc Richard Branson, Unilever etc – established 2013 to put together People, Planet, and Profit.

Panel session 4 –Natural Capital in Business
Chair Kim Hill. Phil O'Reilly (Business NZ), Dr Suzie Greenhalgh (Landcare), Todd Muller (Fonterra), Guy Waipara (Meridian Energy)

Phil O'Reilly – Not green growth but need to green all growth. Greening accounting standards. Normalising green as the new black. Do real gritty work in helping business. Business needs to show leadership – politicians aren't. NZ can make real international contribution to green discussion.

Dr Suzie Greenhalgh – what are the incentives in the tax structures to help preserve ecosystem services. Biodiversity offsets – haven't touched on the death by 1000 cuts, that Councils deal with daily – what is the cumulative impact of all these ? No go zones – has anyone really had a good look? We have Schedule 4 but what beyond that ? Governments come and go but businesses hopefully last longer and can take leadership.

Guy Waipara – Meridian Energy. Our electricity is 75-80% renewable now. Unsubsidised renewables too. Both these set our market in a unique space. Importance of stable playing field for making decisions in investments in electricity generation.

Todd Muller – Fonterra – partnership with DoC. Farmers have a track record of resilience and of adaption. Noted that only a generation ago the government encouraged practice was to put dairy sheds next to streams to get effluent out to sea as quickly as possible. Clean Streams Accord. Stock exclusion, riparian planting, monitoring effluent loss. Fonterra understands sustainability of business relies on natural capital.

Questions

1. Aren't businesses all about profit? Todd - no business will be able to survive if it has a sole focus on $ bottom line if it has an impact on the natural ecosystem. We are on the journey. Talked about a marae meeting and the close value alignment of kaitiakitanga and 3-4 generation farmers.
2. Phil - businesses think about $ but also about the community and the environment they operate in. They do take account of natural capital, but it would be good to formalise this in accounting mechanisms.
3. What is corporate social responsibility when you are laying people off? Phil – businesses do have to be flexible and change. It is not about not changing but about how you go about the change.
4. Mokihinui – what are the drivers for making companies do the right thing? Guy - We didn't read the tea leaves. It was going to be challenging economically, environmentally and politically – what were we thinking – should have done it sooner! (really honest answer on this!)
5. What is the role for regulation? Phil – don't regulate us stupidly. There is a lot of regulation. Making the change from BAU won't happen just by passing laws but by having businesses believing it to be true. Need an ecosystem of consumers and businesses wanting the right thing supported by regulation to get the last few. A debate we haven't had in New Zealand.
6. Question about water use ? Todd and Phil - need to maximise value from water, price it, also need look at high tech industry opportunity.
7. Question re supporting small community wind farms? Guy – don't think this is economic. Solar is much easier small scale technology.
8. Are we making progress?
   Phil – yes it is changing – businesses seeing this as core not an add on. Not yet doing enough.
   Suzie – yes we have come a long way in business and in regional government. Central Government a little bit further behind. We are getting the evidence too.
   Guy – we are making progress.
   Todd – yes and we will do this farm by farm and community by community because we are New Zealanders.

Al Morrison – conference summary

We cannot price a butterfly or a cloud but we know it has value. Our decision making is an uncomfortable mix. We use nature because she is valuable, we abuse her because she is free. (Pavan Suhkdev)
We have to counterbalance this problem somehow by measuring nature's value. Suboptimal information leads to bad decisions.

Al mentioned a recent Trondheim conference – saying "it's not enough just to know the answer. Answers need to fit in with a receptive social environment."

Sir Bob Watson – Master Class

We face many major challenges

1. Ozone depletion – has been addressed
2. Climate change
3. Biodiversity threats
4. Energy
5. Water
6. Agriculture

Process wise

1. Decisions need to be evidence based
2. Assessment needs to be multi-disciplinary
3. Peer assessment is critical
4. Engage end users in designing the process

Scientists must work hand in glove with end users but must be independent. Government must not be able to censor science.

Need to price resources. Don't waste a precious commodity. Energy needs to become carbon free.

Address the inefficiency of our lifestyles. City planning is crucial. Bob had no car for 5 years in London – needs 2 in Washington.
People need information rather than being told.
Climate change – info is there for politicians but can't make them do the right thing.

Questions

Accounting – companies should report on water use, GHG production etc. This would be a major step forward. Government should talk to business and develop together a reasonable level of reporting.

Population concentration – no issue with population concentration in London or Auckland – sees that as an efficient way of organising ourselves. The key is keeping these large cities liveable. They need parks etc.

GDP is a totally flawed concept. It has nothing to do with sustainable economic activities. Need new measures.

Australia has just established a National Sustainability Council. They used the different forms of capital to assess whether Australia is sustainable.
Australia scored really well on liveable cities, education, human resources, but depleting natural resources, inequality, health effects. Productivity gains in the 1970s, 1980s, 1990s has fallen during the 2000s. They have emerging challenges.

Publicly funded independent research is absolutely vital for public good reasons. Some commercial research is also really valuable – eg the work Bob did on CFCs. Some commercial research is awful – tobacco industry.

Question – what do you think of the future of mankind?
Answer – I am optimistic. However the evidence says I shouldn't be.
I don't think we are stupid enough to go over the cliff. However we are on the wrong path. The issue is not technology, it is human behaviour.
Well-designed policy and regulations are crucial, as are financial incentives and behaviour change. We need all three.

5. Conclusion

The conference was excellent with some world leading thinking and stimulating material. The key messages for me were:
We are driving towards or beyond planetary boundaries. The pace of change is accelerating dramatically. The statistics are sobering. The challenge to act to change that is immediate and critical.
Natural capital – ecosystem services are crucial. However because they are treated as free we are undermining them and this is not accounted for in conventional economic and financial models.
Business as usual will not cut it.
Science and good data should be at the heart of decision making.
Accounting for ecosystem impacts will help us make good decisions at policy, business and individual levels. We need to change the language.
Collaboration between Government, Business and People is the way we have to go. The Community needs to own the process.
New Zealand should adopt the National Ecosystem Assessment approach outlined by Sir Bob.
Current NZ Government policy is largely in the wrong direction (political level), but some excellent work is being done by ministries and agencies.
There are many great local projects – the need is to 'scale these up.'
There should be 'no go areas' (avoid the endless fights about whether given areas should or should not be dammed, mined, developed)

Wellington City is largely heading in the right direction with compact urban form, relatively low resource use, good transport mix relative to other Australasian cities, focus on weightless economy, protection of natural environment and proactive biodiversity work. Major challenges are probably in transport, and in adapting to climate change.

Report prepared by: *Councillor Foster*