
ANNUAL MAYORAL SPEAKER FORUM : SUSTAINABILITY

Facilitated by Warren Webber, LWQS

Mayor Steve Chadwick has been a committed environmentalist and supporter of sustainable development for a long time. She was approached by Ian McLean from our Society when she first became MP for Rotorua in 1999 with concerns about the dire state of the Rotorua Lakes' water quality. At that time the councils were not responsive to the call for more action, but Mayor Graham Hall and Regional Chair John Cronin were interested enough to accompany Steve to Wellington to propose a collaborative programme, funded by the Crown, Regional Council and District Council. However, Environment Minister Marion Hobbs sent them packing, with instructions not to return until both councils could work together. They took this to heart and agreed to collaborate; in the event securing \$72 million from the Government for the clean-up of the Rotorua Lakes. Thank you Steve for being very much at the fore of making that happen.

Mayor Steve Chadwick

Welcome everybody. Anaru Ririwai Rangihueua also came to that meeting, and afterwards we realised that we did not 'cut the mustard' - a very good message. Today the LakesWater Quality Society symposium has shown the rest of the country what can be done when you work together in a collaborative model. We always knew we were on an amazing journey and we still have a long way to go.

In 2015 we were proud to be New Zealand's first city to become a signatory to the United Nations Global Compact Cities Programme, a United Nations initiative to encourage businesses worldwide to adopt sustainable and socially responsible policies about environmental sustainability. We need to know that we are connecting with the very best research in the world. We have linked our Global Compact Directorate with Local Government New Zealand and asked other mayors to join. Then we will get consistent models of measurement, ensuring that we make beneficial incremental change to our environment.

It is my pleasure to introduce our speakers tonight:

Sir Rob Fenwick, a conservationist and businessman with a diverse background in resource recovery, bio-diversity, heritage conservation, science and Iwi governance. He co-founded Living Earth and led the passage of the Waste Minimisation legislation in New Zealand. He established the New Zealand Antarctic Research Institute for climate change research and led the restoration of heritage buildings in Antarctica. He founded Predator Free New Zealand and the campaign to save the kiwi from extinction. He is a director on two national science challenges and chairs the panel reviewing the New Zealand fishery system.

Rod Oram has 40 years' experience as an international business journalist working for various publications in Europe and North America including the Financial Times of London. He is a valuable commentator on the state of the environment in New Zealand, contributing regularly to Nine to Noon on RNZ,

Newsroom.co.nz and the Larry Williams programme on Newstalk ZB. Rod is also a frequent public speaker on business, economics, innovation, creativity and entrepreneurship, in both NZ and global contexts. For more than a decade, Rod has helped fast-growing New Zealand companies through his involvement with the ICEHOUSE, the entrepreneurship centre at the University of Auckland's Business School.

Eamon Walsh is a final year student and sustainability leader at John Paul College in Rotorua. He has a keen interest in environmental issues and aspires to a career in medicine.

Question, Warren Webber, LWQS: *What are some of the new innovative ways of managing land without resorting to environmental national standards, rules or regulations and thereby enforcement. Can we do this in a more enlightened way?*

Sir Rob Fenwick: This is an area that Rod has a lot of expertise. The whole environmental effort rests with local government and leadership of mayors like you, Steve. Currently there is a lot of discussion about the responsibilities of central government but most environmental problems impacting our daily lives are the responsibilities of local government. It is excellent that you and your Council get behind these issues.

The old carrot and stick argument comes to the fore whenever we think about change without regulation. In particular, the question is about the correct use of land with minimal impact on the environment. With no regulation there has to be the threat of regulation in the background and an incentive for change. The most obvious one in the farming community is changing markets. Farmers have only recently had to come to terms with significant emissions and nitrate loading issues, changing their thinking very quickly. There are huge capital issues around changing farming activities.

I was impressed recently while visiting controversial farms near Taupo where a large forest was destroyed. The Landcorp managed Wairakei Pastoral Holdings has converted one whole farm from traditional dairy to sheep milk, and the transformation is extraordinary. Sheep use half as much water, a fraction of the compaction of soils, far less nitrate loadings on ground water and emissions are a fraction of a cow herd. Most importantly, the product produced has much greater value than milk powder and greater health benefits. Ask yourself, we used to have 70 million sheep in New Zealand, now we have less than half that. Is sheep farming for dairy a better land use outcome? That is a huge market shift and answers your question of a preferable land use without regulation.

However, change will not happen by itself. It needs incentives from local and regional councils to encourage the process and should not be by regulation alone. There are glimmers of hope, but ultimately how we use our land is the responsibility of regional councils under the Resource Management Act.

Rod Oram: I would like to build on what Rob has just said. There will always be a need for a solid framework of rules and regulations. However, we also need to

remind ourselves that technology, business economics and societal values move faster, at an accelerating rate, than we can keep up with regulations. Regulations lag the real leaders in the field.

A couple of years ago the Productivity Commission did a survey of senior civil servants asking, 'How fit for purpose was the legislation under which their ministry worked?' The answer was two thirds of it was not fit for purpose. Legislation was behind the issues, and this in a parliament renowned as one of the fastest in the world for passing legislation through when it wants to! We need a far greater collective sense of responsibility so when we are at the leading edge of change we make good decisions, possibility in the absence of, or ahead of regulation.

I had the privilege recently of delivering the Salmon Lecture to the Resource Management Law Association. It was 'Reinventing Paradise - From Rules to Reason, From Economics to Ecosystems'. If we keep the rules but also develop a collective sense of what is reasonable, and account for things in the ecosystem, rather than a narrow economic one, that will take us a long way towards a far greater rate of change, and give more confidence in the changes we do make.

Mayor Steve Chadwick: Our Council is looking at innovation and talking about the impact of natural capital and what is the best land use for this catchment. We might come up with a better solution than rules and regulations.

Question, Mayor Steve Chadwick: *What are your views on natural capital?*

Sir Rob Fenwick: The problem with capitalism is that we only focus on financial capitalism and that runs amuck from time to time. If we bring in natural and human capital, and add social capital, using systems that work with those four capitals, it would take us a long way down the road. The dominant one would have to be natural capital because it comes back to the ecosystem. Very good disciplines are emerging in this. Globally the accounting profession is getting its head around deeply integrated reporting. However, it will only work if we make sure there are no unexpected externalities. Everything must be on the table to understand exactly what the impact is, both positively and negatively, and who is responsible. Then we can start making far better decisions. Steve, it will come as no surprise that you are ahead of the rest of the country in this.

In November there is a symposium of CEO's of major companies in the public sector looking at new strategies around investment in natural capital assets for the country, to get some agreement on how New Zealand can protect and enhance the principle natural assets on which our economy rests, such as soils, sustainability of the fish stock, fresh water and the atmosphere. These are the ecosystems of which humans are a part, but we tend to make the mistake of thinking we are not. But human communities are so much a part of these ecosystems and we need to play a role in their protection.

Question, Warren Webber, LWQS: In the Rotorua area you will be aware that we have been first off the block in trying to allocate nutrient rights and reduce leaching

rates. It has been a huge mission undertaken by a stakeholder advisory group to work through the issues. Other councils such as Horizons, Environment Canterbury and Northland have also been trying to work out their own solutions, and we have ended up with a mishmash of policy with no consistency across the regions. That is a dangerous precedent going forward. It was encouraging today to hear that a working group has been established to consider allocation mechanisms and it is badly needed. It is also complicated by the fact that soils vary in relation to nitrogen leaching. Why don't we focus on the nitrogen leaching capacity of soil as opposed to some other blunt instrument?

What thoughts do you have about the establishment of a central government coordinated working group to define consistent national policy templates for land use management?

Rod Oram: The answer is absolutely yes. I may not be hearing the Minister quite clearly enough or I may be too harsh, but when he made a comment that there were still limits to how prescriptive central government wants to be because of natural variation around the country, I believe that central government is not fronting up to the issue. There needs to be very clear strong guidelines and understanding across the country. Yes, flexibility allows local variation but it must be strong enough to be central to all Government's environmental work. It comes back to being an ecosystem. We are getting better; we now have an aquatic ecosystem view. The Hauraki Gulf is a classic example of the terrific work on a spatial plan through the sea change process. This is a first in the world to integrate terrestrial and marine spatial planning. But the whole thing has completely fallen over because the relevant councils have different agendas and cannot work together, and the government shows no appetite for stepping in to create the legislative mechanism which would make the very good integration of that ecosystem work.

Question, Warren Webber, LWQS: *For Eamon - How can we get more young people engaged in conservation and environmental projects, initiatives and organisations?*

Eamon Walsh: The answer comes in two parts. How do we light the fire inside our young people? This is something I think about as Environmental Captain of my school. How do we get students passionate about the environment? Firstly, is to integrate environmental issues into the curriculum. This is happening at John Paul College, and other schools in the nation, by making the environment part of science, because they fit hand in hand. This starts in Year 7 and goes up to Year 10 showing young people that science is all around us and related to the environment. Students go out from the lab, down to the Utuhina Stream to take water samples and the like, showing the practical application of science and how it fits with the environment.

The second part of inspiring young people is to connect schools with communities. That was done really well by the Bay of Plenty Environment Council a few years ago by holding a Youth Environment Forum, bringing younger students together in

workshops about the environment. It is all about connecting schools and environmental leaders to talk about the same things and ensure we all go in the same direction. If we have those two things it will inspire young people to step up and take the mantle as the next generation.

Question: *Are there any thoughts of the Council investing more money into working with schools to create more programmes such as the Youth Environment Forums in the future?*

Mayor Steve Chadwick: We did very deliberately abandon a Youth Council because we got people like you Eamon, all with good parents, prefects that came and were all motivated. But I realised we were not touching the group in our community that I heard about today participating in one of the Regional Council's summer programmes doing surveillance work with our lakes. It is that interactive learning opportunity and engagement with real projects that is probably going to make a greater bigger difference than having forums.

I would take your lead on it if you got a group of young people together who came and said, 'This is what we would really love to do.' It is not one individual student's idea. The online feedback from our Vision 2030 showed that environment is top of most people's heads in our district.

How we get youth involved and linked is the next challenge. We have to engage very differently with young people. It is probably not a Youth Council; we need an engagement tool that is more interactive, where we get young voices. You are all good on your iPhones and social media. If we keep that connectedness going, and get the right lead from young people like yourself, that will guide us to what is best for our environment.

Sir Rod Fenwick: Steve, as a former Cabinet Minister you know that one of the failings of environmental education is that we do not have the teachers. If schools are part of the solution we need teachers who can teach about the environment. At present there is no priority given to that. That is a key to unlock potential.

Mayor Steve Chadwick: Very much so, and it is needed even before college. It should start way back with pre-schoolers. The Waste Minimisation Bill is a great lesson; it is about children and grandchildren telling us to get our act together. Put an efficient waste system and recycling in place. Young people demanded that when we asked their views. But they will not come to Council to give a submission; it is not their mechanism of engagement. For Council the secret is to find the right engagement tool.

Question, Warren Webber, LWQS: *Tomorrow we look at land pest issues in the Tarawera catchment. Feral deer, wallabies and wild pigs destroy the native bush understory in many of our lake catchments. The Predator Free 2050 programme does not deal with this threat. What would be your advice on a national policy to deal with the threat posed by these non-predators?*

Sir Rob Fenwick: Predator Free New Zealand 2050 is an interesting story. For over 100 years there have been exotic predators in New Zealand. Rats, stoats, ferrets, wild cats, pigs, and the like, have progressively destroyed our natural biodiversity and we have managed them in different ways for a long time. These pest populations have now reached a high level, while the decline in our biodiversity has plunged to such a low level, that it really is our last shot before we lose control. Extinctions are now inevitable.

Jan Wright's recent report on the state of our birds suggests that 80 different species of our native birds are on the critical list, exacerbated over the last two decades directly as a result of the increase in the population of predators. We know we must act quickly before we lose these incredibly important species. Birds are the best indicators because they are the most visible, and New Zealanders have a long affection for them, but reptiles and insects are equally threatened. This movement was initially started by the late great scientist Paul Callaghan who suggested that the concept of ridding New Zealand of all its predators to save our natural heritage would be as ambitious as putting a man on the moon. This inspired us to think differently, if we were able to combine the resources of everybody in the country, and new innovation in science and technology, it may be possible to roll back this tide of invasive predators.

I started the Predator Free New Zealand Trust with some generous help from Gareth Morgan and others. The purpose was to identify an army of volunteers throughout New Zealand, many already doing terrific work for conservation. There are literally thousands of conservation groups and tens of thousands of volunteers all over the country working on biodiversity and predator management, and many in this room. Conservation groups from Lake Okataina, Lake Okareka, the Tarawera Pest Control Group, the Land Care Group at Okataina, the Tikitapu and Kokako Groups run by Forest and Bird, are all throughout the Rotorua district and have signed up to the Predator Free New Zealand Trust. We can see you all doing this wonderful work and the gaps between, and clearly the opportunities to create a whole landscape approach to predator management.

It showed us that these groups were targeting completely different species of predators. Nobody knew what they were doing, or how successful they were. Some target rats and stoats, others possums and wild cats. It was an opportunity to bring together a collective strategy across all these people to elevate their capacity to a best practise standard, be even more effective, support ideas and show paths for funding support. So the Government launched Predator Free New Zealand 2050, a long term goal with some short term targets and attacking the problem on a landscape scale.

Your particular question relates to three species that are not in the first suite of targets and I noticed that you did not call them predators. Pigs can very quickly destroy a kiwi nest and are ferocious predators and very destructive. We need to be careful that this whole conservation movement is not an anti-hunting group because that has polarised communities. I was a hunter when younger and it is an important part of community life being able to hunt for pigs and deer. But there are

some parts of New Zealand where they are very damaging and we have to get rid of them, in other places they are tolerable. It is a region by region process. The best wallaby is a dead wallaby anywhere. They are so destructive of the understory. In the context of 1080 we must be careful not to have a campaign against hunting. We need to look at it on a case by case basis.

Question, Warren Webber, LWQS: *Environment Canterbury claims that to meet national water quality standards for Lake Ellesmere nearly every dairy farmer in the Selwyn District would need to shut down, resulting in a \$300 million annual loss in the District's operating surplus and a reduction in employment, depopulation and bankruptcies. Similar compliance issues are faced by other districts with highly polluted water bodies including the Waikato peat lakes and here locally. What is your take on how councils and communities deal with such challenges?*

Rod Oram: I am a bit surprised that Environment Canterbury is so black and white about Lake Ellesmere, but if that is right, clearly the whole district needs to make a decision on whether they want the lake or not? If there is to be a lake then probably there has to be an alternative to dairy farming. But deep down I do not believe it is as black and white. There is a lot of progress in nutrient management and farming systems and it maybe that dairy farming in that district will not impinge on Lake Ellesmere at all. The challenge is to make sure that enough pressure is taken off the lake in the short term to enable recovery, whilst that farm evolution goes on.

Obviously there is some scope for public funding because people have made decisions to farm there in the absence of the knowledge that we now have. People who have made those decisions in past decades should not bear the entire cost of changing land use. But I am convinced that there is scope to dairy farm around the country, but in less intensive ways, totally unobtrusive ways would be my hope. It is about people in those intense situations being able to work together through that process over some decades.

Mayor Steve Chadwick: We would not have embarked on our journey for the lakes' water recovery if we did not have the LakesWater Quality Society, an advocacy group which saw the degradation of the lakes every day and felt that neither the Territorial Authority nor the Regional Council was taking ownership of the problem, so they got active. It was people power that really began that journey and they are still with us today. It worries me that the less populated parts of New Zealand, whose environment is just as important, do not have community voices with a level of influence to get change at the national level. I was a little back bencher and very nervous when we put the business case to cabinet for \$36 million. Michael Cullen said, 'You can't do much with \$36 million, let's double it.' That is how we got \$72 million. He was right, it is now more than a \$243 million programme. We need community voices.

Rod Oram: I would like to put one other really big issue on the table because this steers my thinking on direction for New Zealand's future as a food producer. The global impact of food production on the total ecosystem is severe. It is the second

largest source of greenhouse gases and there are all the problems of land use change and thus degradation of land and water. So global food production is a total mess. We need to get to where food production has zero environmental impact in 30 years' time, and even better would be when ecosystems are restoring.

I thought the competitors to our farming model were still some time off but they are already here in cellular and contained agriculture such as growing produce under LED lights. They already have zero environmental impact, and like all new technology the cost curve is plunging fast. That is the competition. If we want to be pastoral farmers there must be zero environmental impact within 30 years. Of course at that point you would be able to farm around Lake Ellesmere.

Tipene Marr, Regional Councillor, BOPRC: Sir Rob talked about milking sheep. He did not include goats but that is where farming has to go, organic. We cannot keep on the way we are, water belongs to all New Zealanders and we need to get away from fertilisers. Organic sheep and goat milk gets five times the price, and both the Middle East and Asia are keen to buy. The Selwyn River dried up last year and we had the big drought in the summer. So what Sir Rob said is the answer. Farmers have to think differently or shut down. They get their resource consents and then the wash up from their farms goes into the rivers and streams and that water belongs to everyone.

Question, Nicki Douglas, Te Arawa Lakes Trust: *Tena tatou. I am here on behalf of Te Arawa Lakes Trust. I am also a conservationist, a vegan and I do not own a car. So I am very much about sustainability and adhere to the korero around agricultural sustainability. What are your views on the role of indigenous knowledge and values from a global perspective in terms of restoring the environment? We are keen to apply our matakauranga and knowledge to the restoration of these lakes and our environment. Tena tatou.*

Sir Rob Fenwick: We have come late to this in the western approach to solving the problems of the last century, but there is growing enlightenment within the science community of the value of indigenous knowledge and Vision Matakauranga in the way we look at the sustainable use of capital and natural assets. I chair a couple of national science challenges, one to do with the sustainability of our salt water fish stocks. It is all about ecosystem based management and indigenous Maori people have been part of that ecosystem for a lot longer than anyone else. They bring a lens to the values of the marine ecosystem that is much more profound than a western view. Knowledge and history and the way in which Maori people look at the value of the marine environment needs to be valued. It is not about either Maori or Pakeha, rather more about integration of this knowledge into long term sensible solutions.

The other national science challenge is biological heritage, specifically looking at biosecurity issues in the country. Again the Vision Matakauranga aspect is hugely important and the value that indigenous people place on the flora and fauna that

has been part of their ecosystem for so long is fundamental to understanding where it goes to the future.

Eamon Walsh: My perspective is that John Paul College is in a beautiful location right beside the Uthina Stream. We work a lot with the Fordland community and especially the Iwi community that reside there. A few years ago they came over to talk and impressed on us the concept of kaitiakitanga, being guardians for the environment. As young people it is good to have people who have such strong values to instil in us the idea that we too need to use their values and look after the environment.

Sir Rob Fenwick: Extending the National Science Challenge further, I am involved from time to time with the Science for Technology and Industry and Vision Maturanga is in that too, which is quite fascinating because that is about new fields of technology for industry. It is trying to find a way to make that relevant in an indigenous way and making that a two way connection.

Deliah Balle, Te Arawa River Trust Iwi: I recently went to Monash University with a United Nations Global City Compact. While we beat ourselves up here about not having that spiritual and Iwi perspective, they have nothing. We talked about environmental sustainability on a world stage but the indigenous view was totally missing from the whole plenary. That was so strange to me. I believe that fabric is being woven well into our thinking here.

Question, Steve Chadwick, Mayor: *David, now you live in Australia, you might want to give a comment from your Australian Rivers Institute perspective?*

Prof David Hamilton: Times are changing and typically in a public meeting there is an acknowledgement to the owners and caretakers of the land. But there is still a lot of work to do.

Question: *My concern is around the responsibilities and mandate of regional and district councils. Warren mentioned the Canterbury Regional Council and the \$300 million loss which, to be a little facetious, is perhaps used as a justification for doing nothing to encourage change. Lake Ellesmere/Te Waihora is a taonga to the Te Taumutu Runanga and one of our most diverse fisheries with 43 species of fish, one third of New Zealand's commercial eel catch and 167 species of birds. So there is more to consider beyond potential economic loss. What is the mandate of regional councils regarding environment versus economic impact?*

Rod Oram: I had no idea Lake Ellesmere was that amazing. To me there is no contest; it is the lake rather than dairy farming that takes priority. That is just the sort of decision which needs to be made at a local level, although nationally this lake could be designated as a place of national significance. Under the RMA places of national significance are vetted by the EPA rather than the regional council. Perhaps we should lobby for Lake Ellesmere to be considered at a national level. Clearly decision making authority should be considered on a case by case basis, but areas of national significance should be at the top of the tree.

When we hear those facts about the value of that whole Ellesmere ecosystem to the community, in social, economic and environmental terms, it is a complete failing that the continuing degradation of that lake has been allowed.

To give some credit, some years ago several groups including Fonterra, Ngai Tahu and Environment Canterbury committed to a process to save the lake. How it has got to its current state is a tragedy and a failure of the system. The RMA was set up to ensure that this should not happen, through a process designed to protect land relative to its value and significance, and it clearly this process has not delivered. Geoffrey Palmer was the architect of the RMA and said it was intended to have a whole suite of national policy statements to support the original document, but that has not happened. Inconsistencies between one regional council and another have prevailed and created these diverse outcomes. Whether a national policy statement with an agreed suite of values on fresh water for New Zealand would have saved Lake Ellesmere who knows? I suspect alarm bells would have started a couple of decades ago which would have saved a lot of angst.

There is a call in the legal community and groups like the Environmental Defence Society (EDS), and many others, for a royal commission to work out what the next generation of environmental legislation should look like. That would be immensely helpful and a number of parties in the election campaign are calling for that. I argued in my Salmon Lecture for replacing the RMA with the ERA - the Ecosystem Restoration Act. We could improve the fundamental principles of the RMA to achieve the same effect, but it might be better to have a very big change so long as it was supported by case history and precedent so there was no relitigation of 20 years of environmental legislation. EDS has a 20 month project funded by the Law Foundation to work on that very issue and my hope is it would be an even bigger leap forward than the RMA was in 1991.

Mayor Steve Chadwick: I agree with you, we need a quantum leap. We keep blaming the RMA. How do we get the very best of expertise from regional councils working with local authorities with a national environmental body guiding us? We have gone down a pathway of reform of local government that just put us to war and have wasted millions of dollars. We have lost the ability to work in a relationship model that is most protective of our ecosystem. The tools that we work with are far too blunt. When a local authority does not like a regulation there is no other address other than in the Environment Court. It is not right.

John Green, LWQS: I am very interested in this conversation, particularly Prof Hamilton's question which I do not feel you answered. Going back to the experience we had here in Rotorua in 2000 – 2003 it was the politicians saying there was no way to fix the lakes once they were in algal bloom. They did not worry too much about dairy farming, the environment would be fine. Ultimately Lake Rotoiti sorted us out in 2002/2003 with an algae bloom across the whole lake. Dogs were dying, people swimming were itchy, and the water was green and foamy. We had the local ratepayers AGM at the Ngati Pikiao Rugby League Club and 900 very irate, aggressive Rotoiti people turned up. No longer could the

councils turn their backs on the Rotorua Lakes. I have been involved through the 15 year community journey with programmes of \$235 million to sort out the lakes. Prof Hamilton was very instrumental in ensuring that everything was backed by science and the learning continues all the time. Working together, the Rotorua community has focussed on the real issues that count. Perhaps Lake Ellesmere never had such a proactive community around it?

In 2008 on a journey down to Wanaka passing through land that used to be pine forest and stony dry grassland farming sheep and cattle we were amazed to see how things had changed. The trees gone, green, green grass, thousands of dairy cows and kilometre long irrigators. Clearly an economic focus from Environment Canterbury despite the environmental impacts of these activities.

Why would you leave the decision making of land use in this country to politicians who are only there for 3 years? Their decision making cycle is not long enough to properly balance the environmental and economic considerations they are challenged with. You need an EPA, you need people who have the long term future of this country in their control and their understanding. We cannot allow the politicians to make short term commercial decisions for us. It simply does not work.

Rod Oram: That is the point John and the problem with the RMA without national policy statements that set a national standard for these really important issues. There is a coastal policy but not enough to set a bar that is non-negotiable. Looking at the Nordic countries, they have been infinitely more successful than we have around protecting their natural assets. They have non-negotiable standards on fresh water, on soil health, on biodiversity, on fish stock and coastal development. Then politics is at the margin and the basic standards cannot be breached, which means control has been wrenched away from the political milieu.

Warren Parker: My mind is on Houston, Bangladesh, poverty in South Auckland and increasing tourism. We are in a globally connected economy and I am not sure people understand what tomorrow will look like. You alluded to Sir Paul Callaghan, who seems to have become the default vision for New Zealand's future, and the importance of vision and aspiration and helping people to be able to engage in a future that is plausible and reasonable, in which a child in South Auckland has the same opportunities as a child in Southland or Rotorua.

Lots of capital is allocated into land and buildings and less into innovation and new jobs necessary as computers change the future. In this view we must have an ecosystem that is healthy. But it is not going to revert back to what it was like with a billion people on earth, it has to adapt to 9½ billion. I welcome gene technologies, I welcome innovation; plants four times more efficient, reducing methane from animals, and so forth. But could you both talk about creating a national version that is plausible, that we can get behind, support and work toward over several decades.

Sir Rob Fenwick: You are absolutely right and the risk for some of us old tree huggers is to get swamped in nostalgia and the way things were. They will never be the way they were. We need to look to people like my friend on the right (Eamon) for the world that they and their children will inherit. If we are going to protect New Zealand we must have a shared vision around what it stands for in the world and things within that are precious to us, where we can add value to products and why people want to visit us. It is these natural assets that we must protect, such as the biodiversity of fresh water and soil health. The current framework is failing us and the only way it can be restored is through a different framework, a leap forward that affects the values that we aspire to, not just based on narrow economic values, but including a holistic and ecosystem approach.

Rod Oram: Human society covers a range of people from those who are really visionary and progressive to those who are intensely conservative. For the last 9 years we have been led by conservative and short term thinking, and I believe it has squelched an awful lot of stuff in the country so I am very interested in the election debates going on now and whether there is a shift. Of course everybody tries to catch votes around the centre, but the question is whether that centre has been redefined. The increased interest around water with the public is a very good example and maybe things are changing.

Many people have an understanding of what they want, but I am haunted by the outcome of the work that Landcare Research did 10 years ago that came down to 4 scenarios. The vertical axis was from depleted resources to abundant resources and the horizontal axis was from an individualist society to a cohesive society. When that work was canvassed around the country a lot of people picked the independent Aotearoa scenario which was for abundant resources in a cohesive society. But scarily those same people feared that the way we were going would be with depleted resources in an individualist society, the new frontiers scenario.

The research found that it was as pervasive in school children and average citizens as it was amongst senior civil servants and politicians. There was a sense that we are not in control of our destiny because the vested interests are too strong and prefer the status quo because it suits them. Landcare has some new funding to revisit that work and I am intrigued to see whether the mood has changed. Do we now feel more capable of taking things into our own hands? I think that is the big change underway which is crucial to achieving what we want to achieve.

Eamon Walsh: Yes it is an issue that a lot of young people do care about and with the elections coming, we can vote. Young people are leaning towards parties that offer solutions to climate change.

Question, Mayor Steve Chadwick: *So Eamon, why are quarter of young people not enrolled to vote and yet the election is only 3 weeks away?*

Eamon Walsh: That is a huge issue. One of the main reasons is because they are not educated about the political landscape. Schools are now tackling the issue

by teaching young people about what political parties are offering so they can make an informed decision. So often they do not know, nor do they think it is important to vote. We need a mind shift because it is incredibly important for young people to vote. We are a large part of society and obviously decisions that are made now will affect us in 5 to 10 years' time.

Max Gibbs, NIWA: I have a whole raft of questions but will stick to one. I am a practical technical scientist and always have been, my family came up through number 8 wire technology. My two fields of research are lake research and sediment tracking and training, conservation of soil for sustainable food production around the world. These fields may seem totally different but the sediment that comes off the land gets into the lakes and carries nutrients which cause pollution in the lakes, so the two fields actually work very well together.

It is the people responsible for what goes on around lakes that are not working together. In Lake Ellesmere some people try to restore the lake with certain conditions set up. Another group want to change the settings for the lake level to 1½ metres, the next group come along without consultation and open the gate so that it drops down to 0.6 metres. There is a lack of coordination between the various parties.

Question: *How do you get a community to communicate together? We have a perfect example here in Rotorua, the LakesWater Quality Society and the councils have done a fantastic job together, but how do you transmit that to other communities to coordinate their efforts rather than wasting money by one group doing a set of research and another group taking the benefits of that work away?*

In the absence of a stronger set of regulatory settings it is probably the random process of finding leadership. Here it is people like John Green, Steve Chadwick and others. When leaders coalesce around a great idea things change. That is how people power manifests itself in a random process. In parts of the country there has been an absence of it, or leadership has been vested in the hands of those that do not rank the values of the natural environment highly. It is a high risk game to wait for a leader to come along. Hopefully technology will help in communication and enable us to work together in a more collaborative way, which leads to new forms of participatory democracy.

We need a much greater common understanding about what we are trying to do and thus a common purpose. However, there is still an important case for a competition of ideas, because the moment we have 100% agreement we go to sleep and stop challenging ourselves. Are we on the right track? Are we making the right decisions? I am all for a greater sense of common purpose but it is important to have legitimate and well based competition for what we are trying to achieve.

Mayor Steve Chadwick: It has to come from outside the political domain, but democracy is the tool we use, its imperfect, it is not a popularity contest and it is hard. Fellow community board members and councillors would say we hardly

inspire the right people to engage in politics, either at a local or national level. It is more and more difficult with media scrutiny and one has to be really brave to stick to lofty ideas, which come from outside.

Question, Sir Rob Fenwick: *Eamon would you consider politics?*

Eamon Walsh: No not for me, it is a dirty game, but we do need people who have strong morals who stand up for what they believe, people who care about our nation and for the things that matter, such as the environment, which is a pressing issue that will affect young people.

Question, Geoff Rice, AFOMA: Once you have been a doctor for 10 years Eamon, maybe you should be Minister of Health.

I will start by saying I am not a vegan, I love my meat, I love dairy, I probably eat all the other bad stuff too. I have owned thousands of cars because I am a retired car dealer. I am the elephant in the room when we start talking about predators, which tells me that we need to change our behaviour. We do not have a choice. Iwi are in the business of protecting our mana and that is our responsibility. Over the years I have watched producers grow more dairy to make more. I have been a kiwifruit grower, growing more trays of kiwifruit to make more. It was not that long ago when 90 million trays per annum produced by New Zealand was an impossible thought. This year we will produce 140 million and it could tip 200 million in the not too distant future. That is a huge mistake, if we are going to produce quality products we should go the other way - produce less, protect our environment and our land, create a better product, sell it to the right people and make more money.

Concentrate on quality, not quantity, your thoughts around that please?

Rod Oram: Yes absolutely, however we also need to be very mindful that cellular agricultural contained farming with its zero emissions in food production seems to be the overriding key issue. That is what we are going to have to meet. So yes to quality, but making sure we do not become some quaint back water of the totally natural because that is ultimately not going to work.

The other challenge is to change the incentives. Dairy farmers farm for capital gains, not for income, because drivers are there for that. We need to change those drivers as well as our societal values. Lastly, we still give away a great deal before ensuring that we have captured a fair proportion of the value, thus generating a value chain. A lot is captured down the value chain by other parties before the final customers. This requires a big change in our relationship with the end consumers, reinventing or inventing a parallel value chain closer to the end consumer.

The Primary Growth Partnership (PGP) is a joint venture between government and industry that invests in long-term innovation programmes to increase the market success of the primary industries. Unfortunately, almost half the funds have gone into the red meat industry which has not changed very much. Another big chunk

has gone into the dairy industry, mostly to on-farm not downstream issues. We have continued to underinvest in that downstream activity.

Exactly the same concerns raised about the primary sector apply to the tourism sector where our quest for high volume at the expense of value is not only shrinking the margin for everybody but destroying the product on offer. It is a result of a de-regulated aviation industry that has allowed everybody to come to New Zealand as tourists with hardly any barriers to entry and no fee at the border. That may change with this election. Currently it is a pathway to self-annihilation of a wonderful industry, and the perversity of this quest for volume rather than value based growth is mad.

Could I just defend growth in one important way because it is a discussion that often comes up. People say to stop growing because of the damage to the planet. I say the human population is 7½ billion now, heading for 10 billion. We have already got several billion people on the planet seriously starving or underfed. Therefore, we need to supply a lot more to 10 billion people in due course. We will have to produce more but wealthy countries cutting back will not solve the problem even though we are already damaging the environment.

In very simplistic terms we need good growth where the technology, economics and values that drive the restoration of a healthier ecosystem sustainably provide us with more food. Concepts such as biomimicry, technology borrowed from nature, or the circular economy ideas reusing everything we make which is completely unmade, which is well beyond waste minimisation or recycling. This means reusing things down to parts per million, not just the natural input, but the compounds that we humans make. Conceptually we can have good growth delivering more for people as opposed to the very bad growth that we have now. Imagine a world that looks like that. However, we have an astonishing amount of work to do over the next two or three decades, working out what that means and how.

Warren Webber, Facilitator: Thank you Rod. We will draw things to a close because we could go on all night; it is an extremely intriguing and interesting discussion.

Mayor Steve Chadwick: Thank you everyone. There have been some wonderful messages and it is very affirming thinking of the Rotorua district in which we live with our spatial planning, looking at what is a sustainable population. Our community has said very clearly they do not want a boom bust growth. They want sustainable growth to about 100,000, and at present we are 74,000. We are looking at land use in the spatial plan to sustain that growth, with a connected, innovative community, looking after our forests, lakes and land.