AUCKLAND 2060

A paper prepared for the Royal Commission on Auckland Governance

by

Rod Oram

Adjunct Professor, Business School, Unitec

Auckland 2060

Contents

Introduction

What will the Auckland region be like in 2060?

It is a crucial question to ask. We need some idea of the future so we can prepare and build for it. Great global and local forces are influencing our lives. But we can shape the outcome through our ambitions and resources, through our strategies and governance.

Governance in its widest sense is critical to the outcome. The processes of central and local government, the running of companies and institutions, and civil society's formal and informal workings all help develop our nation. We can all play a part, whether we are individuals or families, businesses or bureaucracies.

Good governance will largely determine how well we turn our ambitions into reality, how well we capitalise on positive global trends, and how well we cope with adverse ones. Conversely, we can expect suboptimal results from bad governance.

Yet predicting the future is always fraught with difficulties. Even if we factor in variations only in ambitions and governance, we will end up with quite different outcomes.

And the exercise has become far harder across the world in recent decades. The pressures of population growth and use of natural resource are intensifying, progress in science and technology is accelerating, and the scale and complexity of problems are multiplying. Above all, the global interconnection between people and their issues is deepening.

1. Methodology

Suggesting what the Auckland region might be like in 2060 is a challenge. A hierarchy of four methodologies can help. Each has its uses and limitations.

First are forecasts. Estimating what the weather might be three days hence or the rate of economic growth three months from now is relatively straightforward. Taking the situation now, we can use knowledge of meteorology and economics, particularly of the factors influencing the outcomes, to come up with forecasts.

But the longer the time frame, the less reliable the forecasts. Small changes in only a few variables degrade forecasts. Unexpected events can invalidate them completely. Even small divergences between forecast and outcome can compound rapidly.

For example, if an economy grows at 2% a year, it will take 35 years to double in size. If it grows 5% a year, it will double in 14 years, delivering quite a different type of economy and greater prosperity.

Given the short-term nature of forecasts, none were used in preparing this view of Auckland in 2060.

Second are projections. These give a longer-term view but they simply extrapolate from the current position. They work with the status quo rather than attempt to build in changes in underlying relationships. However, a series of projections can give a useful range of outcomes to help people understand the future.

For example, Statistics New Zealand updates regularly its projections for the nation's population. In its *Demographic Trends: 2007* it produced a series of nine projections for New Zealand's population growth from 2006 to 2061. Each projection had three variables – fertility, mortality, and net migration.

Series 1 (low fertility, high mortality, and net migration of 5,000 people a year) gave a population of 4.66 million in 2061. At the other end of the scale, Series 9 (high fertility, low mortality, and 15,000 net migrants a year) gave a population of 6.55 million in 2061, a difference of more than 40%.

Unfortunately, very few key aspects of our nation or region are scrutinised in such useful detail through series projections out to the middle of this century. Where they do exist, this Auckland 2060 scenario takes the mid-point of them.

On population, for example, the mid-point in Statistics New Zealand's work, Series 5 (medium fertility, medium mortality, and 10,000 net migrants a year) gave a national population of 5.57 million in 2061. This is the population projection used in this 2060 scenario.

Another example is the long-term climate change advice for local governments prepared by the National Institute of Water and Atmospheric Research (NIWA). Its mid-range projection[1] of the rise in sea level by 2050 – which is 40 cm – is used in this scenario.

Third are models. These are highly complex exercises that seek to assess the impact of multiple factors, many variables, and the myriad interactions between them. Treasury, for example, is continuously modelling the economy to give us a view of the future. Climate change is the biggest modelling exercise yet attempted, an ongoing endeavour by the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC). It involves thousands of scientists, prodigious computing power, and lengthy debate on a five- to six-year cycle.

While this regional scenario for 2060 draws where it can on such international, long-term, comprehensive models they are few in number and rarely do any have New Zealand-specific material. For example, NIWA has taken the IPCC's fourth assessment report published in 2007 and used it as the starting point for its New Zealand-specific modelling.

---

[1] NIWA report for the Ministry for the Environment (MfE), *Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand*, 2nd edition, May 2008, page 32.

Fourth is scenario planning. This discipline seeks to rise above the complexity of modelling by working with the drivers of change. This is the Wikipedia definition:

> Scenario planning or scenario thinking is a strategic planning method that some organisations use to make flexible long-term plans. It is in large part an adaptation and generalization of classic methods used by military intelligence.
>
> The basic method is that a group of analysts generate simulation games for policy makers. The games combine known facts about the future, such as demographics, geography, military, political, industrial information, and mineral reserves, with plausible alternative social, technical, economic, environmental, educational, political and aesthetic trends which are key driving forces.
>
> Scenario planning can include systems thinking elements that are difficult to formalise, such as subjective interpretations of facts, shifts in values, new regulations or inventions. Systems thinking used in conjunction with scenario planning leads to plausible scenario story lines because the causal relationship between factors can be demonstrated.[2]

The discipline has developed great depth and sophistication over the past four or five decades. It is widely used by international organisations such as the UN, governments, and major corporations. Shell, the oil company, is particularly renowned for its use of scenario planning.

Here in New Zealand, Landcare Research, the Crown research institute, has been working since 2004 on a comprehensive scenario exercise for this country. The project, funded by the Foundation for Research, Science and Technology, to date has worked with more than 2,000 people around the country and delivered significant insight into our opportunities, challenges, and attitudes to change.

Its most recent report, *Four Future Scenarios for New Zealand, Work in Progress* (2nd edition), was published in November 2007. Much of the project's material, including future-thinking exercises the public can download for their own use, is available on Landcare Research's website.[3]

Statistics New Zealand, working with a number of other government agencies, did a similar but far less comprehensive exercise in 2006, *Environmental Scanning: Looking into the Future for Statistics New Zealand 2006-2050*. Its authors were Colin James and Claire Edmonson.

For the purpose of this regional scenario, the work drew on the UN's extensive scenarios for the global context and on Landcare Research's and Statistics New Zealand's work for the national context, both of which are very well linked to global drivers. There is no comparable work for the Auckland region. The Auckland Regional Council's work on a 100-year sustainability strategy explores many of the

---

[2] http://en.wikipedia.org/wiki/Scenario_planning, May 7th, 2008.
[3] http://www.landcareresearch.co.nz/services/sustainablesoc/futures

relevant issues but without the depth of background of the Landcare Research or UN work.

The style of scenarios can range widely. Some are formal and rather clinical; others more familiar and colloquial, seeking to "make" the future more real to readers.

Auckland 2060: methodology

This work drew on six strands of research:

1. Review of international literature about the future

The prime source for the global context was the UN's *2007 State of the Future* report. This is a comprehensive, deep analysis done as part of the UN's Millennium Development Goals programme. For example, its 400-page chapter on science and technology investigates most fields of research and makes judgments on their progress and application over the next 50 years.

Further help on science and social trends came from a recently published book, *The Way We Will Be 50 Years From Today.* It a collection of short essays by 60 Nobel prize winners and other leading scientists and experts. Each offers highly specific, often challenging predictions of how rapidly their disciplines will change in the next five decades and how profoundly they will reshape our lives. In the spirit of a more moderate, balanced view of the future, the scenario treated some of the predictions with caution.

A succinct treatise on global forces of change came from a New Zealand book, *The Seven Tsunami Drivers of Change: Strategic Foresight - the power of standing in the future.* The authors – Nick March, Mike McAllum, and Dominique Purcell – are experts in strategic foresight, the methodology of developing well-researched, well-judged scenarios about a society, economy, industry, or market, say, 20 years in the future. They then work with participants in that sector to look back to today. They "backcast" to work out the steps they took to reach that future.

Their book identifies the seven drivers as:

- "tribes and tribulations": social, cultural, ethnic, and political forces
- digital technology: communications, computing
- global convergence: the increasing interdependence of global society
- life sciences: the power of biotechnology
- "brown world–green world": the shift to sustainability
- knowledge versus value: knowledge is ubiquitous and increasingly free, making it more challenging to create value from it
- paradox: the powerful juxtaposition of forces whereby, for example, small countries or companies can exercise disproportionately large influence in their spheres.

These drivers, the authors argue, are bringing radical change to our societies and economies.

In terms of deeper analysis, the impact on manufacturing, for example, is explored well by William McDonough and Michael Braungart in their book *Cradle to Cradle: Remaking The Way We Make Things.*

In thinking about cities and how we develop them, one book in particular, *The Art of City Making* by Charles Landry, offered extensive knowledge and keen insight drawn from the experience of cities around the world.

2. Review of New Zealand literature about long-term issues

A number of local studies in recent years help to flesh out the New Zealand picture on long-term issues. As previously mentioned, Statistics New Zealand regularly updates its demographic projections and NIWA its climate models.

On long-term economic challenges, the analysis, for example, of the New Zealand Institute has contributed real insight into our past performance and current strategic choices. It has laid out in stark terms how hard it will be to transform the economy into one characterised by high-value output driven by high innovation, strong science and research, and closer integration with the global economy.

3. Review of global scenarios

Many organisations and individuals across the world offer detailed scenarios about the future of human society and the planet. They range from rather prosaic extrapolations of the present to challenging views of distant decades, and out to visions that seem to owe more to science fiction than grounded research.

From this rich choice, the UN's scenarios were chosen for their comprehensive coverage, their authors' credentials, and the stretch of their future view. In addition, a handful of sector-specific scenarios were chosen such as Shell's Energy 2050 project released earlier this year.

4. Review of New Zealand scenarios

As discussed previously, only a few New Zealand organisations have produced detailed scenarios in recent years. Landcare Research's project was chosen as the core scenario because of its scale, depth, and degree of engagement with people across the country who contributed to its development. This was supplemented by Statistics New Zealand's 20062050 scan.

While both developed their scenarios well for the country as a whole and its relationship with the rest of the world, their lack of references to the Auckland region provided insufficient insight for the Royal Commission's needs. Hence, it commissioned this Auckland 2060 work.

5. Review of regional strategies

Over the past decade, the Auckland Regional Council has undertaken extensive work on long-term issues. This has resulted, for example, in its Growth Strategy 2050 and

its 100-year framework for sustainability across environmental, economic, social, and cultural dimensions.

The latter, for example, identified eight goals: fair and connected society; pride in who we are; unique and outstanding environment; prosperity through innovation; self-sustaining Māori communities; a quality, compact urban form; resilient infrastructure; and effective collaborative leadership

And eight shifts: put people at the centre of thinking and action; think of generations not years; value te ao Māori (the Māori world); activate citizenship; create prosperity based on sustainable practices; reduce our ecological footprint; build a carbon-neutral future; integrate thinking, planning, investment, and action.

These projects are good guides to local issues. But they appear not to have drilled as deeply into long-term global trends as, say, the UN or Landcare Research works have. Thus, in form and content they are not scenarios.

6. Review of New Zealand sector strategies

A number of organisations have produced long-term visions. Some have developed them into relatively detailed strategies. Some diverse examples include AgResearch's science roadmap, Ngāti Porou's forestry strategy, the plastics industry's long-term plan, and public libraries' national strategy. Further insight was also drawn from specific conferences over the past few years such as the Māori Hui Taumata in 2005, which focused on economic development.

2. Predictions

Big drivers of change

1. Sustainability

Projections of the human population of the world in 2050 vary widely. But 9.5–10 billion, up from 6.7 billion today, is a quantum widely used. Two-thirds of world population could be urban versus 50% today. By 2030, one-third of the urban population will be living in slums and the number of slum dwellers will have doubled, the UN says.

This population growth, coupled with rising living standards for hundreds of millions of people in developing countries, is putting unprecedented demand on the planet's natural resources. This is true across all resources but the focus of much current debate is on food, water, and carbon fuels.

The UN's *2007 State of the Future*, for example, says 60% of ecosystem services (functions such as nutrient cycles, water purification, and crop pollination that ecosystems provide) are exhausted or are being used unsustainably; new technologies such as seawater agriculture along coast land will become sources of food, energy, and carbon sinks; but even so, some legislated curbs such as an environmental footprint tax for using more than 1.8 ha per person are likely; and the time available for negotiating multilateral environmental agreements, ratifying, and implementing them is shortening.

These constraints will push the world towards more sustainable uses of resources. But as important as technology change will be, the big shift will happen only if people's behaviour changes too, Landcare Research argues. One way to achieve that would be to set quantitative minimums for each resource and set a maximum rate for its sustainable use; and to ensure each resource is deployed for its most effective use.

2. Climate change

The UN IPCC's Fourth Assessment Report says that in coming decades, temperatures will rise, particularly in equatorial areas; some parts of the world will have more rain, others less; sea levels will rise; weather events will become more frequent and extreme, putting more people at risk; and habitats will change, endangering many species of flora and fauna.

3. Technology

The rate of advancement in science and technology, and the speed of implementing them, will far outpace over the next 25 years the pace of breakthroughs and adoption over the past 25 years, the UN says.

Among new technologies, it identifies nanotechnology as having the potential to decrease material use per unit of output. Closed-cycle manufacturing and closed-cycle

environmental systems (that is, complete recycling) will dramatically reduce pollution and resource use.

Moreover, the future synergies among nanotechnology, biotechnology, and information technology and cognitive science will increase material abundance and improve processes, controls, and governance.

Other recurring themes in the literature are for the likes of non-carbon energy sources and energy efficiency across sectors but particularly transport and households. These will help shift consumption to less resource-intensive modes with minimal greenhouse gas emissions.

4. Information technology

If Moore's law continues for the next 25 years, individual computers will have the power of the human brain – thus automating many aspects of decision making, the UN says. Coupled with nanosensors and transceivers, they will provide ubiquitous computing for collective intelligence with just-in-time knowledge to enable better management of the environment and other complex systems.

Rapid evolutions and communication and information technology will also lead to expanded human communication and help support participative decision-making. Robots will be in widespread use but in machine rather than human form.

5. Health

Big leaps in health technology are widely forecast. These will put less emphasis on drugs and more on discovering and using knowledge about genes, cells, and their external influencers. Diagnostic tools will be far more precise and life spans will lengthen considerably. But the world will experience epidemics. For example, Statistics New Zealand expects that by 2015 diabetes and cardiovascular disease will become major health costs and reduce some people's life expectancy.

6. Environmental trends

Landcare Research believes by 2050 New Zealand will achieve a smaller ecological footprint; less habitat losses; less marginal lands in use for the human food chain; less over-hunting/fishing; and fewer introduced species.

The country will experience improvements in air quality, soil quality, forest cover, stream water quality, and freshwater quality. But no change in efficiency of the agricultural sector, resource depletion rate, land degradation, endemic biodiversity, or the quality of coasts and oceans.

7. Water

Today, 750 million people live below the water stress threshold of 1,700 cubic metres per person per year; more than 1 billion do not have access to safe drinking water; and 2.6 billion lack adequate sanitation. Agriculture accounts for 70% of water use; the

volume needs to increase by 60% to feed another 2 billion people by 2030. By 2025, the UN estimates, 1.8 billion people could be living in water-scarce areas.

8. Agriculture

Demand for animal protein will rise 50% by 2020, the UN says, triggering massive investment in genetically modified food, in aquaculture, and for growing meat from stem cells without growing the animals; seawater agriculture on coastal land will also be prevalent.

9. Education and learning

The UN predicts that by mid-century portable artificial intelligence devices with the power equivalent to a human brain will change the nature of education and learning; virtual reality simulations will be common; and vastly more sophisticated versions of the internet will integrate knowledge and make it much more collaborative and collective.

10. Decision making

The world is moving towards ubiquitous computing with collective intelligence for just-in-time knowledge to inform decisions, the UN says. Online systems for decision making will invite broad and transparent participation by groups of experts and individuals.

Participatory democracy, monthly referenda, and devolved decision making where appropriate will make democracy extremely complicated but concrete and productive, says Landcare Research.

11. International relations

Further fragmentation of sovereign states is likely. The world will experience a decline in interest in global trade regimes, coupled with signs of emerging regional trade arrangements and changing trade patterns.

The environment will be one area where international interests are at a global scale, cemented in strong global treaties.

There will be a rise in global terrorist threats with small nuclear or pathogenic/toxic devices. Environmental refugees will number 200–250 million by 2050, the UN says.

Impact of these drivers on New Zealand

Scenario developers such as Landcare Research and Statistics New Zealand offer a range of outcomes for the impact of these big drivers on New Zealand.

For example, Statistics New Zealand suggests that by 2030 European notions of social, political, and economic organisations will be increasingly challenged by those developing in China and possibly India. And increasingly, science and technology

will come from Asia rather than Europe and North America. As a result, New Zealand will have moved further into the Asian sphere of influence.

It also suggests that by 2030 New Zealand will have a single economic market in place trans-Tasman. It also might be a republic with a president as head of State. Joining the Republic of Australia could be an alternative outcome. Central government devolves more power to consolidated local governments by 2030.

Landcare Research believes New Zealand will be an independent republic in 2025 and will also have a currency union with Republic of Australia. New Zealand will still be diplomatically non-aligned but consistent in its positions. It will be very internationally engaged but more selective on trade issues. And it will respond more rapidly than many other countries in the broader international community to the market opportunities created by global environmental accords.

In the Landcare Research scenario chosen for the national context of this regional analysis, New Zealand is a dynamic cohesive society by 2055, seeing itself as a global citizen. Outward looking, it is confident enough to be distinctly different as a South Pacific nation.

The Government seeks and coordinates solutions to climate, environmental, and social sustainability challenges. This is a slow process, which frustrates some. Sustainability is a conscious lifestyle choice for many, resulting from a value shift as Aotearoa-New Zealand decided to "go its own way". Some disagree and contribute much heat to the debate.

In this scenario, geopolitical instability and cultural/social change override the incentives for economic globalisation. There has been a clear shift from a "first-come, first-served" market economics to more participative governance and regulation. This values cultural and social well-being and long-term benefits for future generations over short-term profits.

Treaty of Waitangi historic grievances will be settled by 2015, according to Statistics New Zealand's 2006–2050 scan. Māori will increasingly shift to economic and educational development and away from rights-based issues. Māori will be more middle class and bring great changes to society, customs, and government. By 2030, New Zealand society will be more conservative.

Climate change

New Zealand will be less affected by global climate change than equatorial and some Northern Hemisphere countries, thanks to its location in lower latitudes and being surrounded by oceans, which act as temperature modifiers, according to analysis by the UN and NIWA.

For the country as a whole, NIWA's key advice to local governments[4] includes an average increase in temperature of 0.9 °C by 2040 and 2.1 °C by 2090; more extremes in daily temperature (fewer frosty nights; more hot days); higher rainfall in western

[4] NIWA report for MfE, op. cit., page 32.

parts of the country, less in eastern; heavier and/or more frequent extreme rainfalls; increase in the annual mean westerly component of windfall; possible increase in severe wind risk; at least an 18–59-cm rise in sea level between 1990 and 2090; increased frequency of heavy swells in regions exposed to westerlies; and ocean temperature increases similar to air temperature increases.

Economy

Although the knowledge-based economy is slowly growing, its benefits are shared equitably. The State's role in this, however, will discourage the individualist entrepreneurs, some of whom take their skills abroad. The amount of materials, water, and energy required to produce goods has been reduced, while economic benefits (and exports) flow from the introduction of clean, efficient technologies. Less unprocessed primary produce is exported than in 2020.

Farming will experience massive innovation in modified proteins and designer food because growing 1 kg of beef requires 10,000 litres of water, Landcare Research says. A worldwide trend to more local/home food production will continue.

New Zealand will experience a decline in commodity protein exports. Few of those will go beyond Australia. This will reduce our energy, water, and emissions profiles. The surplus land will be used for diverse tree, biofuel, and horticulture crops. Carefully controlled genetic modification (GM) and other high-tech sciences will be allowed limited use. Small-scale GM farms will produce low-volume, high-value goods for export.

Investment will be affected by regulations driving Genuine Progress Indicators based on work of Herman Daly in the US, Landcare Research believes. This methodology, for example, adds to GDP the benefits of household labour and accounts for income inequality. It subtracts social costs such as accidents, family breakdown, resource depletion, and hidden costs of climate change. And it adjusts for long-term investment and sustainability.

Structural reforms and tax reforms shift the taxation burden from income and profits to resource use and pollution. And externalities are fully costed and internalised.

The economy will also be characterised by growing use of renewables and strong, early, and effective moves towards sustainability through, for example, mechanisms such as carbon and biodiversity markets. These in turn will generate economic value for New Zealand.

A higher proportion of New Zealand companies will be exporters, concentrating on the Australasian domestic market and boutique high-value markets further afield. Good self-regulation on the environment and good markets for green products and services will underpin a strong national brand.

Landcare Research projects that the primary sector will generate 6% of GDP in 2055 compared with 10% in 2006; manufacturing will be 15% (21%); and services 67% (61%). The unemployment rate will be 5% (3.4%).

It also believes tourists will come for far longer visits and become more engaged in the community while they are here; and they are likely to come only once or a few times in their lives rather than more often as now. As a top-end tourist destination, New Zealand might charge an entry fee and require a minimum stay of two weeks. Health, self-development, and learning, rather than simply sightseeing, will become leisure activities for many of these tourists.

Media ownership will revert to local investors, a shift helped by Government rules on content and performance.

Impact of these drivers on the Auckland region

The region's population will reach 2 million people by 2040, up from 1.4 million in 2008, according to central projections by Statistics New Zealand. But if the growth rate accelerates, the 2 million figures will be reached in the early 2030s, according to other projections by Statistics New Zealand. Depending on the growth rate, the Auckland region could be home to 40% of the national population (33% now), the agency projects.

Modelling for the Auckland Regional Council gives a range of population from 1.9 million to 2.5 million by 2046.

Among other demographic projections by Statistics New Zealand, Pākehā will be less than 50% of the regional population by 2016. And the population will age markedly, according to its national projections. The 65+ group will grow 164% by 2031 and the retirement age will be 75 by 2030. As a result, the labour force will grow more slowly than population.

Immigration will continue as a major driver of population growth, further developing the region's mosaic of diverse cultures and languages. Although New Zealand's isolation protects it from illegal immigrants, refugees from climate change and other environmental impacts, particularly in the Pacific Islands, will be a feature of immigration. Out-migration from the Auckland region to other parts of the country will increase.

Education achievement levels will rise, and the current "long tail of poor achievers" will shorten thanks to a variety of factors. In particular, an ageing population and tight labour market will ensure pay rates will reward those with skills and education; and new teaching methodologies and technology, particularly those that are internet-based, will allow the customisation of teaching to individual student's needs.

More social cohesion will develop, Landcare Research suggests. Society will be more community oriented and inclusive, marked by consensus building. Lifestyle and identity will not be related to a single ethnicity but to more of an "Oceanic" identity. Local group and place identities will be important. Greater community involvement and interaction will mean less urban anonymity and a greater sense of pan-regional, rather than local, identity.

Climate change

NIWA's specific predictions for Auckland include slightly lower mean average annual rainfalls (a range of −10% to +6% at Mangere; and −13% to +5% at Warkworth); an additional 40 days per year with temperatures above 25 °C (by 2090 under NIWA's B2 scenario) compared with an approximate average of 21 days currently; and higher temperatures could mean more photochemical smog.

Natural hazards

The ARC's *State of the Auckland Region Report*, 2004 noted there had been four "once-in-100-year" flooding events from the early 1990s to 2004. And such events will become more frequent, NIWA advised local governments in its May 2008 report on the impact of climate change.

The region experiences one or two very small earthquakes each year but none are associated with volcanic activity, the ARC report said. In fact, volcanic activity is seen as a highly remote risk for the region.

The only active fault in the region is the Wairoa North Fault, which is likely to give rise to earthquakes every 13,000 to 43,000 years. But the Kerepehi Fault, just outside the region and running north-northeast under the Hauraki Plain and into the Firth of Thames, is likely to be active every 2,500 years. It is capable of shaking ground in South Auckland and creating small tsunamis in the Firth of Thames.

Built-environment

CityScope's analysis for the Royal Commission projects a 73% increase in housing stock by 2031, based on a high growth scenario for the region. The number of homes would increase by between 219,790 and 324,490 units (depending on low, medium, or high growth) by 2031 compared with a stock of 444,600 units in 2006.

The housing stock will grow faster than the population because more people will live on their own or with fewer co-residents. Statistics New Zealand projects fewer people will be able to afford their own homes. And a higher proportion than now will live in gated communities, apartments, and rest/retirement homes.

The variety in types of housing will increase and higher urban density will be driven by factors such as rising energy and transport costs and increased availability of public transport, Landcare Research projects. It also says timber laminates and carbon fibre laminates will largely replace steel and concrete in low- and medium-rise buildings. And smaller housing footprints will help the restoration of natural habitats in urban areas.

Energy and transport costs will rise over coming decades, leading to the introduction of new technologies and changes in housing and infrastructure patterns. Housing will become denser, particularly around transport nodes and corridors.

These neighbourhoods will develop more amenities and more opportunities to work at home or in local businesses, contributing to the neighbourhoods' development into vibrant urban villages.

New technologies such as for micro-power generation from solar and wind energy and for local collection and processing of water will make neighbourhoods partially self-sufficient for these utilities. This will take some growth pressure off existing networked utilities but they will still retain a vital role in balancing supplies across the region.

Landscape

The Auckland region will have a world-class natural environment by 2040. Forest growth of the Waitakere Ranges, revegetation of the Hauraki Gulf islands and the re-introduction and replenishment of native bird species on them (Tiritiri Mātangi, Motutapu, Motuihe, Kaikōura) and the new nature reserve/bird sanctuary within the city proposed for the Chelsea Sugarworks in Birkenhead contribute to the trend.

The rebuilding of the native bird population would further benefit if the minor trend toward native plants in home gardens accelerated and the volcanic cones were turned into nature reserves protected by predator-proof fences.

The Hauraki Gulf Marine Park Act 2000, which requires the Gulf's catchment (from Thames to the Waitakeres) to be managed in ways that enhance the natural environment, will likewise have an impact.

Transport

Higher urban density, rising energy costs, the probability road users will pay more directly for access to roads, and the limited physical scope for building more roads (particularly in the central isthmus) will be the factors that will drive more investment in public transport. Moreover, new technologies will likely make mass transit economically viable for lower-density areas than does today's technology.

Private vehicles will remain a major part of the transport mix. But the vehicles will be smaller, built from different materials (composite fibre, for example, rather than steel), controlled differently (such as some automation of speed and route by the road network computer systems), and powered differently.

Shell's 2008 energy scenarios, for example, project that one-third of passenger vehicle travel (excluding trains) will be electric by 2050, up from zero today. Such vehicles will be available on the mass market from early 2020s, and 50% of new vehicle sales will be electric by the early 2030s.

Higher urban density is in itself a driver of economic development through the power of agglomeration, according to mainstream economic analysis. And although urban villages will strengthen with the region, increasing opportunities for work, recreation, education, entertainment, and socialising across the region will ensure significant flows of people around the region each day. A growing sense of identity with the region, in addition to local identity, will contribute to the urge to travel around it.

Economy

Today in the Auckland region, the three largest private sector sources of employment are property and business services, manufacturing, and retail trade, according to the Covec analysis for the Royal Commission. Moreover, the average size of businesses across the private sector, excluding utilities, is less than 10 people. Larger-scale employment units are found mostly in the government, education, and health sectors.

Fifty years from today, the regional mix will likely shift in line with the national one cited above. Business services will make a larger contribution to employment as many new forms of consultancy and advisory businesses emerge in areas such as environmental technology, management, and trading. Science and research activity and services will likewise be more prominent in the regional mix, particularly in life sciences.

Manufacturing will remain a significant employer, but the shift to new technologies and systems such as closed-cycle and cradle-to-cradle life cycles, in which products are entirely recycled, will be a steep learning curve for the region's typically tiny businesses.

Companies are likely to remain very small by global standards. But, as current role models such as Rakon, Compac, High Modulus, Fisher & Paykel Appliances, and Fisher & Paykel Healthcare show, such companies can develop into mini-multinationals that play powerful, highly niche roles, in their sectors' value chains.

Education and entertainment will likely become relatively more important sectors of the economy. Tourism has that potential too if it succeeds in adapting to sharply shifting consumer attitudes, rising travel costs, and growing awareness of environmental impacts. It could, for example, offer longer visits, more intimate involvement with local communities, and more emphasis on learning, well-being, and personal development.

Employment in the retail sector is likely to become relatively less important as natural resource constraints and changes in manufacturing philosophy towards long-life products shift consumer behaviour towards making fewer but longer lasting purchases.

Given the long-term trend towards greater complexity of economic, environmental, social, and political systems, Auckland will engage more closely with other regions of the country and overseas to mutual benefit.

3. Scenarios

New Zealand in 2060

For the context of the nation 50 years hence, this paper drew on Landcare Research's future thinking work, among other sources. What follows is Landcare Research's summary of its scenarios, reproduced with its permission.

> New Zealand's future is uncertain, but needs to be discussed in a creative way so that we, as a nation, do not blindly stumble our way through it.
>
> Sustainable development is the core business of Landcare Research – Manaaki Whenua. One research strand looks at ways to enable change through development of tools that increase effective discourse about sustainability and build capacity for change. Four interrelated scenarios about the possible future of New Zealand over the next 20 to 50 years were developed as part of this research. The Foundation for Research, Science and Technology (FRST) funded this work.
>
> Our intention is to provide source material to anyone seeking to understand scenarios and use them to work towards greater sustainability. A goal of the New Zealand Future Scenarios research project is creating tools to help people – and especially public policy makers – come to terms with a likely resource-depleted future and socio-economic consequences of the resulting competition for resources, both between and within countries. We emphasise the need to choose early; or let human and ecological processes narrow the choices for us.
>
> The four scenarios range from an increasingly insular society that finds little benefit in diversity other than separating 'winners and losers' to one where multi-cultural aspects are heralded as a cornerstone of the nation's identity.
>
> Within these future possibilities our relationship with the natural environment and its resources, on which so much of our current economy depends, can be seen as available for short-term exploitation, at one extreme, or for stewardship and longer-term conservation.
>
> Similarly our approach to being a future 'maker' or 'taker' of new technology (such as genetic engineering, biotechnology and information/communication technology) and also the models of governance that we choose will markedly influence which, if any, of these future directions we migrate towards by 2055.
>
> The scenarios explore sustainable development as a process. This allows us to speculate about thinking styles/attitudes (paradigms) that are very different with respect to the extent to which people influence the course of ecological developments.
>
> We explore various possibilities for the evolution of the economy. Our New Zealand scenarios suggest that from 2007 looking forward, we could move towards any of:

Scenario A: An economy with unevenly distributed benefits (80% to minority elite: 20% to the rest).

Scenario B: An economy with equity and very different 'genuine progress' indicators taking the place of GDP growth targets.

Scenario C: We might stay globalised and 'hit the wall' of resource and ecosystem limitations after several decades, resulting in economic crash and social conflict.

Scenario D: We avoid that crash 'at the last minute' by creating a localised, inward-looking lifestyle on a depleted resource base.

The four scenarios are not equally likely to occur, although scenario team members believe they are all within the realm of plausibility for 20 or more years from now. They were designed to span a range of potential future conditions. The actual future is not likely to match with any one of these four images, but it will probably fall somewhere within the 'possibility space' that the scenarios explore, which means that the future will have elements that can be recognised from these scenarios, as well as things we simply cannot imagine today.

The scenarios were first developed in 2004 through lengthy explorations with a group of senior policy makers and respected thinkers, based mostly in Wellington. It is significant that they build on a critical perspective of forces influencing our future (drivers) rather than on trend projections.

The scenarios are examined for their impact on New Zealand's potential to create a genuinely sustainable future, not just in economic terms but also in terms of its social, cultural and biophysical systems and resources. Recently they have formed starting points for modelling of future economic directions by an associated research team.

New Zealand in this decade is at a pivotal point in its development and one that will see the country carve out a new form of identity, with marked ramifications for generations to come. The growth from 2005 to 2007 in public awareness of human-influenced climate change and of need for energy alternatives to oil has reinforced our sense of reaching a sea-change or tipping point.

As New Zealand heads further into the 21st century it is imperative that we take heed of the work and warnings set out internationally over several preceding decades, such as the sustainability principles of the Brundtland Commission on Environment and Development (1980s), United Nations Agenda 21 (1990s), The Millennium Ecosystem Assessment, Stern Report, and Reports of the Intergovernmental Panel on Climate Change (2000s). New Zealand exhibits many of the ecologically unsustainable trends of the developed world (Parliamentary Commission for the Environment, 2002), yet prompting a change of direction is proving difficult.

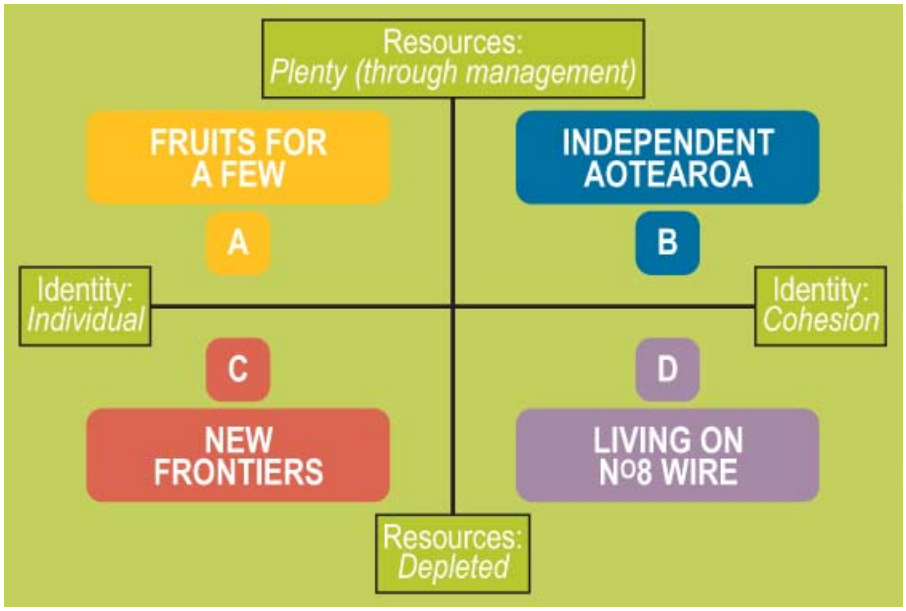
How much is New Zealand changing, and how fast? In the 20 years from 1985 to 2005, the population increased by 25%, and households significantly faster (as average household size fell), demand for consumer energy rose over 60%, and the use of urban land had risen 78%.

For New Zealand to take on principles of sustainability within public policy we will have to change from a short-term to a long-term mindset and be more focused on future generations' needs. To do this we need to think creatively, rather than continue thinking the way we did to get us to this point. This is one reason why the scenarios are, apart from demography, related to people already born, not too reliant on past trend projections.

Scenarios are recognised internationally as a way of thinking creatively about the future. Once people get used to the experience of speculating on what might be, as distinct from determining what (they hope) will be, scenarios become a useful tool. They can help people prepare to make decisions that will in the long term prove more sustainable and 'successful', despite the choices not necessarily being the most appealing or comfortable ones in the short term.

Having devised some plausible New Zealand scenarios, our next steps were to refine them through sharing them with as many diverse audiences as possible and then include their reflections and ideas in this second edition. Colleagues have also begun modelling futures based on the scenarios.

In time we hope that these can then be merged with other, more quantitative and exploratory approaches that can be used to influence decisions being made now that will affect future generations of New Zealanders. The four scenarios are summarised below.



Scenario A: Fruits for a Few

The need to adapt to climate change and accumulating environmental damage led to tight resource control in the 2020s, with benefits held in the private sector

and costs spread on the wider public. Natural resources are used more efficiently now in 2055, and access to them is limited by their rich owners, since formerly common resources and public land were mostly privatised by 2030. Those owning property and resources obtained the strongest rights and administrative roles in society, while the government role overall has diminished.

There has been moderate but variable economic growth. Due to environmental and other regulations by those holding power, the benefits of economic growth are concentrated in fewer hands. Within a divided society, there are strengthening regional and cultural identities. The poorer majority have returned to family structures and traditions of the group for support. Those in power look after each other, financially, but their culture and identity are more internationally influenced. Sustainability here is a narrow term defined by accountants and economists to maximise profit and environmental protection to the benefit of large corporates.

Scenario B: Independent Aotearoa

By 2055, Aotearoa-New Zealand is a dynamic cohesive society, seeing itself as a global citizen. Whilst outward looking, it remains critical and is confident enough to be distinctly different as a South Pacific nation. Government seeks and coordinates solutions to climate, environmental and social sustainability challenges. This is a slow process, which frustrates some. Sustainability is a conscious lifestyle choice for many, resulting from a value shift as Aotearoa-New Zealand decided to 'go its own way'. Some disagree and contribute much heat to the debate.

In this scenario, geopolitical instability and cultural/social change override the incentives for economic globalisation. There has been a clear shift from a 'first-come first-served' market economics to a more participative governance and regulation. This values social and cultural well-being and long-term benefits for future generations over short-term profits. Although the knowledge-based economy is slow-growing, its benefits are shared equitably. This demand from the State, however, discourages the individualist entrepreneurs, some of whom take their skills abroad. The amount of materials, water and energy required to produce goods has reduced, while economic benefits (and exports) flow from introduction of clean, efficient technologies. Less unprocessed primary produce is exported than in 2020.

Scenario C: New Frontiers

In 2055, identity is individualistic, defined by visible financial status, rather than by family and cultural traditions. Society is fragmented – the losers feel there is 'no fair go' (inequality) while the winners enjoy their freedoms as consumers. The State's role is reduced to maintaining law and order and governing markets, but is much less involved in environmental protection, including climate change responses, than in the 2020s. Once-public services, like health and education, have been privatised, creating new business opportunities. The entrepreneurial culture encouraged a rapid introduction and development of more efficient technology, some of which protect the environment, but the main criterion for success was profitability.

> The population still shares a faith in technology to solve problems such as resource-substitution. However, it is shaky. The exploitative and extractive mindset became increasingly desperate as the local resource base depleted, leading to an economic downturn from 2030. In 2055, the economy remains globalised and regional differences have been diminished. Market forces still prevail creating an internationally mobile workforce. The well educated often leave. Sustainability is a notion remembered by a minority without political influence, and sometimes expressed through 'eco-terrorism'.
>
> Scenario D: Living on No. 8 Wire
> Until 2025, most people pursued wealth without constraint. 'Sustainability' and responding to climate change were dismissed as the faddish beatings of a liberal minority. Concerns were largely ignored until the social impact of resource shortages, rising environmental degradation and economic downturn, combined to result in a public reappraisal of values. The damaged resource base and ecosystems had also made the country less attractive to multinational investment. After that, public and business concern rose for environmental restoration. The resulting mobilisation of innovative action is visible now, in 2055.
>
> Government began to intervene after 2025 to manage trade-offs between economic gain and environmental degradation, to increase trade barriers and promote equitable redistribution. In 2055, New Zealand has a very modest, more localised economy, with little interest in or capacity to pay for globally traded goods and services. This has created a cohesive, inward-looking society. Due to greater emphasis on living locally, within our modest means, settlements are less densely urbanised. There is a strong emphasis on community initiative and social innovation to find affordable local solutions. These are ingenious people in the Kiwi No. 8 Wire tradition.

Of the four scenarios developed by Landcare Research, Scenario B, *Independent Aotearoa,* has the highest combined score on the six measures of natural, economic, social, human, cultural, and institutional capital. It also attracts the highest support from workshop participants. The second placed, Scenario A, *Fruits for the Few*, has the highest economic outcome but at the expense of the other capitals.

Given *Independent Aotearoa* scored the highest outcomes and strongest public support, it was chosen as the national scenario for this regional analysis for the Royal Commission.

Landcare Research's fuller synopsis of the scenario follows

> This is a convergent world[5] with rapid change in economic structures, and introduction of new cleaner technologies.[6] The relative significance of industrial

[5] This scenario relates to the global IPCC SRES B1 storyline and scenario family.
[6] Thomas Clarke and Stewart Clegg (2000), *Changing Paradigms*, HarperCollins. Sustainability is seen as one of the most difficult, and yet most necessary, paradigm shifts that business must realise. There is a brief review of world environmental problems and social inequalities, and the limited success so far of governments in addressing them, such as at the Rio/Kyoto summits and with the proposed Third

production has decreased. The emphasis is on finding solutions to environmental and social sustainability, including concerted efforts for rapid clean technology development, dematerialisation of the economy, and improving equity, but from a lower base of wealth.

Here we see fewer 'advances' on the economic and trade front than in scenarios A or C. The GDP rises only slowly, once polluters pay real costs. Since climate change affecting all countries, the international community have agreed to work together where it can be done. This has created conceptual and practical openings that have not been fully explored by the broader international community, but New Zealand-Aotearoa proves able to respond more quickly to some of the market opportunities created, both domestically and within the Pacific Region.

Sustainability is a conscious lifestyle choice observed across the population. Environmental economics starts with a different index of the effectiveness and `progress' of the national economy (Genuine Progress Index), as contrasted to an economy measured by throughput (GDP and GNP), yet this can be viable.[7] The attitude–action gap is significantly reduced, as more behaviour reflects intention to care for the environmental functions upon which future generations' lives will depend.[8] The concept of 'sustainable living' connects the sustainable development agenda with the lives of the general public.[9i]

The question of what impact the public can reasonably be expected to have on sustainability is a vital one, and early work on sustainable lifestyles in the decade to 2015 essentially mapped out a role for the public to play in delivering sustainability. Without such interpretation effort, the public would have remained stalemated by endless arguments over meaning of the sustainable development concept, and competing world views.

The activities that contribute to a more-sustainable lifestyle include:

World debt write-off. The necessary role of regulation and stakeholder approaches is clear, as is the need to move from cleaning up the environment, through reducing environmental damage, to clean technologies that leave the environment undamaged. Business strategies have a key role in setting the necessary direction.

[7] HE Daly and JB Cobb (1989), *For the Common Good – Redirecting the Economy towards Community, the Environment and a Sustainable Future*, Beacon Press, Boston, MA.

[8] Several models for pro-environmental behaviours derived from psychology, sociology, geography and other academic disciplines are united by the concept of the 'value-action gap' (also called the 'attitude-action gap'). A reflection of how influential this concept has become is that a special issue of the journal Environmental Education Research was devoted to it (in 2002), under the title: 'Exploring the Gap'. The key paper in that volume, 'Mind the Gap' (by Kolmuss and Agyeman), represents many of the available models for pro-environmental behaviours, and concludes that 'the question of what shapes pro-environmental behaviours is such a complex one' that no one model or framework can adequately express all the forces at work.

[9] M Clark (2001), Domestic futures and sustainable residential development, *Futures* 33: 817–836. See also www.sustainablehouseholds.org.nz

• Reduced energy use – in buildings and transport
• Water use efficiency and reduced pollution outputs to waterways
• Waste reduction and recycling (rather than landfill) of most of the remainder
• Household consumables – different food choices and more local food production
• Household durables – buying recycled, favouring durability, repairing, hiring and sharing
• Land use – smaller footprint homes and lifestyles, restoration of natural habitats.

More sociable activities also apply, such as workers' involvement in community projects and neighbourhood volunteering. This greater community interaction, coupled with greater use of public transport, reduces urban anonymity and provides a source of social capital that, for example, contributes to reducing petty crime and clinical depression well below international levels.

The cumulative effect of these value shifts means that New Zealanders consciously decide what aspects of global trends they accept and which they reject. Because decision making has become very participative, many people become frustrated with the time it takes for public decisions to be made and those that are more individually minded, potentially entrepreneurial, may leave to find opportunities overseas.

Identity

Māori and Pacific cultural flavours are strong and pervasive. Common ground is explored, as people feel more secure in themselves, and become one grouping under a new banner of ‘Oceanic’ people – a deliberately open definition that represents a lifestyle and ethic rather than an ethnic group. This creates a new 'Aotearoa' national identity, in sharp contrast to identities evolving within the new superpower blocs of China, South East Asia, India/South Asia, and Brazil, along with the United States and Europe. Diversity is embraced in the population, increasing creativity, as less value is placed on conformity (including death of the ‘tall poppy’ syndrome).

Resources

Biophysical systems have strong ecosystem integrity and people proceed to use them more cautiously. People and government are more innovative – becoming efficient in reducing impacts. A surplus of carbon credits is achieved through high levels of native forest regeneration and carbon-fuel-use reduction. The ability to trade these on the global Carbon and Biodiversity market (nicknamed the ‘CAB Rank’, formed at the demise of the UN system in 2017) is a part-saviour of the rural economy after anticipated collapse of the primary production dairy and timber bulk export sectors, due to resource taxation measures and rising transport costs. Value-added agricultural and forestry products are still exported.

Auckland 2060 scenario

When Landcare Research asks people participating in its research what sort of future would they *want* to experience, they overwhelmingly support the *Independent Aotearoa* scenario. They are drawn to many of its core characteristics, in particular social cohesion and abundant resources through good management.

But when Landcare Research asks them what sort of future they *expec*t to experience, a strong majority identify Scenario C, *New Frontiers*. This is a world characterised by depleted resources, social fragmentation, and change that is unsettling to people in terms of its nature, scale, and speed.

Thus, the following scenario for Auckland in 2060 is offered in the spirit of aspiration rather than fear, drawing on Landcare Research's *Independent Aotearoa* scenario and the wealth of material that underpins it, both from the institute's own research and the extensive body of future thinking work available globally.

As for style, this scenario is at the colloquial rather than the formal end of the scenario-planning spectrum in the hope it will help people imagine one future that could be Auckland's.

Auckland Anniversary Day, Monday, 26 January 2060[10]

Dawn

After the vicious cyclone[11] overnight, dawn breaks gently to the ebullient calls of the birds. The light spreads rapidly across the huge city and its beautiful hinterland of bush and beach. Any of the volcanic cones offers a good view of this sweeping panorama across our thriving Auckland region. Mount Hobson, though – close to the historic heart of the city where water and land, our two abundant sources of wealth, meet – has a special place in the region's story.

Today is Auckland's Anniversary Day. And Mount Hobson is named after the man who decreed it an annual holiday for the Auckland Province. That was 218 years ago.[12] But if Hobson were standing up on this namesake cone this morning, he would still readily recognise this wide vista across the Waitemata Harbour and to the scattering of islands beyond.

If his eyes were sharp, he'd spot small boats drifting in the lee of Rangitoto. If he thought those people were fishing, he'd be right. Over the years, we've learnt lots about restoring the ecosystem of our Hauraki Gulf Marine Park.[13]

---

[10] http://www.timeanddate.com/calendar/index.html?year=2060&country=30
[11] NIWA report for MfE, op. cit., page 32.
[12] http://en.wikipedia.org/wiki/Auckland_Anniversary_Day
[13] http://www.waitangi-tribunal.govt.nz/reports/viewchapter.asp?reportID=D98E5EE9-2798-40B5-B8EC-9AC2FB3B271A&chapter=3

But he'd be puzzled if he looked down below Mount Hobson. When Ngāti Whātua, the first settlers here, offered him the pick of the harbour's land to build a new city, he chose a graceful string of little hills and bays at the foot of this volcano.[14]

Now, a flat, angular shoreline reaches out into the harbour. Landfill a century or more ago formed the extra land to accommodate a booming city. It remains today home to many people, businesses, and recreational activities. In recent decades, though, we've made it one of the most admired waterfronts in the world.

Last night's storm, though, had the emergency services out. As expected, climate change has brought a 40-cm rise in sea level in the past 50 years. And weather events are more extreme and frequent. The good news is temperatures are only a couple of degrees higher.[15]

We've built well to adapt but we always worry about storm surges. And we worry a lot about the unexpected. Just a month ago, severe earth tremors along the Kerepehi Fault[16] – under the Hauraki Plain and into the Firth of Thames – caused a series of small tsunamis. They did a lot of damage both sides – Seabird Coast and the Coromandel – and up to the eastern beaches of Waiheke.[17]

Despite the severity of last night's cyclone, the waterfront has suffered no damage. We live well with the sea. And so we should. We're Oceanic People. That's how we see ourselves these days.[18] All our ancestors, Māori, Pākehā, Pacific peoples, Asians, Africans – indeed, members of almost every major ethnic group on the planet[19] – travelled from afar to build this nation, this city, and to create our distinctive, multi-stranded culture.[20]

Yet, for the first century-and-a-half after Hobson, we poured our energy and ambitions into the land. While we enjoyed our coastal waters, the vast oceans still separated us from the rest of the world. Even in the early decades of air travel and instant global communications, we still struggled to make a living, play a role in the wider world.

Our fortunes reached their lowest ebb late in the past century and early this. Dependent on commodity exports, we were short of money and ambition. [21] We

---

[14] http://www.ngatiwhatuaorakei.com/History.htm
[15] NIWA for MfE, op. cit., page 32.
[16] ARC, *State of the Auckland Region Report 2004*, page 82.
[17] http://www.gns.cri.nz/research/qmap/citymap/eqhaz.html
[18] Landcare Research, *Four Future Scenarios for New Zealand*, Edition 2, 2007, page 40.
[19] Statistics New Zealand, 2006 Census, regional summary tables. http://www.stats.govt.nz/census/2006-census-data/regional-summary-tables.htm
[20] The Office of Ethnic Affairs, Community Directory by ethnic group. http://www.ethnicaffairs.govt.nz/oeawebsite.nsf/wpg_URL/Community-Directory-By-Ethnic-Group-Index?OpenDocument&cat=--%20Show%20All%20--
[21] Multiple sources – e.g. New Zealand Institute, *No Country is an Island*, November 2005, page 6, and the institute's subsequent reports.

invested in only incremental change. We tried to build this nation and city in a piecemeal way that always lagged, never led the great forces reshaping global society.

It took the first great oil and food shocks to make the citizens of the world realise how radically we all needed to change. In the decades since, we and the rest of the world have achieved by far the most profound and fastest transformation of technology, environmental practices, economic models, and governance structures humankind has ever attempted.

Here in New Zealand, we earn most of our income, as we always have, in ways that depend on our natural environment. But it is a far bigger, more sustainable living, thanks to our advances in the science and management skills we apply to our natural resources.[22]

We've seized many of the opportunities presented by this century's global turmoil. Three international conferences this week here in Auckland will reflect on the lessons we've learnt with our most important successes. We have become world leaders in all three sets of skills. People look to us for leadership on how to rise to the endless challenges ahead.

The first will focus on the future of our global lacto-pharmaceutical industry, led by our dairy sector as it moved from commodities into very high value, sophisticated products. It was a long, hard journey. It took thoughtful public debate and good governance to get Aucklanders used to the idea of having such high-technology labs and factories in their neighbourhoods. And to get them behind winning these investments against stiff competition from many other international cities.

The second conference is about the unique model of mini-multinational businesses we have pioneered. These small, highly entrepreneurial companies are successful in global markets. They are adept at investing in research, manufacturing, and sales in key markets around the world. But they have a nimble, collaborative style born of their New Zealand culture and ingenuity.

We've proved it's possible for small companies from small economies to thrive globally. So for many decades now, we've been showing other people how to adapt the model to their own cultures and economies. The leader in this, the UN's centre for developing mini-multinationals, is based here in Auckland and is hosting the conference.

The third event is a summit on our seabed sciences and management of the ocean commons.[23] Our voyage began in 2006 when New Zealand submitted to the UN Commission on the Limits of the Continental Shelf the outline of our claim to a 200-nautical-mile Exclusive Economic Zone.[24]

---

[22] Landcare Research, *Four Future Scenarios,* op. cit., pages 39–52.
[23] Motu Economic and Public Policy Research, *New Zealand's Quota Management System: A History of the First 20 Years,* April 2007.
[24] http://www.mfat.govt.nz/Treaties-and-International-Law/04-Law-of-the-Sea-and-Fisheries/NZ-Continental-Shelf-and-Maritime-Boundaries.php

When our claim was eventually granted, we became responsible for an oceanic area nine times greater than our land mass, some 4 million square kilometres, thanks to our craggy coastline and many distant small islands. By comparison, Australia's EEZ is only twice ours because of its simpler coastline. Our EEZ brings us great wealth from fisheries and minerals. But it also presents big demands in terms of protection and careful management of its intensely complex ecosystems.

News overnight of another shipload of eco-refugees[25] from the Pacific Islands beaching on Great Barrier Island will only inflame debate. We're sharply divided on how many refugees we can settle and where we should build the next series of naval and air bases we need to help us protect our zone.

One of the mooted air base sites is up north at Bream Bay, between the Brynderwyn Hills and Whangarei. And the naval base could be part of the NorthPort[26] expansion at Marsden Point, a bit further up the coast.

These days Whangarei is only 50 minutes by train from Britomart. And that's with a couple of stops on the North Shore. The network and its interconnecting motorway system have been a big help with urban development. They've quite changed how and where we live. In addition to the route down from the north, a second line runs east to Tauranga and Whakatane and a third runs south through Hamilton, Rotorua, and Taupo and on down to Wellington.

This road and rail system has allowed us to develop our towns, old ones and some new ones, into beautiful, compact, eco-urban areas, each close to bush and beach. All up, 3.4 million of us live in this "string of pearls" as we call them.[27] About 2.2 million[28] here in greater Auckland and 1.2 million from Whangarei around to Whakatane and down to Taupo.[29]

Another 850,000 live elsewhere in the North Island and 1.35 million in the South Island making 5.6 million for the nation.[30] That's a big change from the start of the new millennium when the Auckland region was only just over 1 million and the country 4 million.

---

[25] Statistics New Zealand, *Environmental Scanning: Looking into the Future for Statistics New Zealand 2006-2050*, page 21.
[26] Container ships are getting larger, needing deeper ports, according to Maersk and other shipping lines. NorthPort and Tauranga can be dredged to accommodate them. Tauranga is rail-connected; Northland Regional Council and other parties are working on connecting NorthPort to the rail network.
[27] A term coined by Philip McDermott of CityScope Consulting in various reports for Auckland Regional Council and the Metro Auckland project.
[28] Author's extrapolation from mid-range projections by various source e.g. 2 million people by 2040 (CityScope Consultants, *Auckland's Population*, commissioned by the Royal Commission) and 1.9–2.5 million by 2046 (ARC models).
[29] Author's extrapolations from Statistics New Zealand, *Demographic Trends: 2007*, http://www.stats.govt.nz/analytical-reports/dem-trends-07/default.htm, pages 160–167.
[30] Statistics New Zealand, ibid., Series 5 projection for 2061, page 149.

The region's urban area had grown very fast after the Second World War. But the density was very low, lower even than Los Angeles.[31] Everybody wanted his or her quarter acre. Nobody was keen to pay for the infrastructure so we always ended up expensively retrofitting it piecemeal long after we needed it.

What changed things? A whole bunch of things, really. Frustration with delays and failures, a strong sense we weren't on top of our economic and social problems. Those were two big ones. But it was the energy and economic shocks some 50 years ago that finally brought people together. We realised we had to rethink how we lived, worked, and governed ourselves. These were issues everybody the world over was wrestling with, and still are.

A growing population over the past 50 years gave plenty of scope for reshaping the urban landscape. We've doubled the number of homes in Auckland and we've replaced about a quarter of the old, badly built ones.[32] New building materials have helped, particularly the timber laminates and composite bioplastics[33] that have displaced much of the steel and concrete even in tall buildings.

Given all that new construction, we've been able to remake this into a very liveable, eco-city. Getting a high concentration of homes and workplaces around the rail and road networks has allowed us to keep the urban area relatively compact.[34] This has helped us develop more diverse neighbourhoods with more amenities and more opportunities to work at home or in local businesses.

This vibrancy across the region ensures people still do plenty of travelling for work, entertainment, education, socialising, and recreation. And that in turn has helped develop a stronger sense of regional identity.

The remaking of much of the urban area has also given us the chance to create more open spaces and green corridors. Lots of regeneration of native plants in those places and in people's gardens has attracted flocks of native birds from the island sanctuaries out in the Hauraki Gulf.[35] Even kiwis nest on Mount Hobson and the other volcanic cones we turned into true nature reserves protected by predator-proof fences.

The city has evolved in many other ways too. For example, buildings and neighbourhoods do some of their own power generation, water capture, and waste treatment. These partially self-supporting local systems are linked through automated networks for the rest of their needs.

---

[31] http://www.teara.govt.nz/Places/Auckland/Auckland/5/ENZ-Resources/Standard/1/en

[32] Author's extrapolation from CityScope Consultants, *Auckland's Population*, commissioned by the Royal Commission.

[33] Scion, http://www.scionresearch.com/about+biomaterials+engineering.aspx

[34] ARC, 2050 regional growth strategy, http://www.arc.govt.nz/economy/aucklands-growth/aucklands-growth_home.cfm

[35] Department of Conservation, http://www.doc.govt.nz/upload/documents/parks-and-recreation/places-to-visit/auckland/hauraki-gulf-islands-and-marine-reserves-brochurefeb-06.pdf

This has taken a lot of pressure off the highly centralised services, freeing them up in part for other uses. One showcase is the Mangere water treatment plant. From the algae it grows in its waste-processing stream,[36] it makes enough biofuel for one-third of our vehicles. The other two-thirds, of course, are electric.[37, 38]

How could we afford all this investment? We could because we played our part to pioneer some of the big new technologies: cellulosic ethanol from trees[39] as a second-generation biofuel; lacto-pharmaceuticals; and telepresencing,[40] which gives us multi-sensory, real-time connection with people around the world, overcoming much of our sense of isolation.

Overseas investment has played its part too. For example, SinoBioChem came to explore for oil shortly after we signed our 2008 free trade agreement with China. Their consortium found our first billion-barrel oilfield in the Great South Basin,[41] off Stewart Island.

With prices sky high, they pumped like crazy. But when they failed to find any more fields, they wised up. The crude had some special qualities so they saved the rest for feedstock for the very high-value pharmaceuticals, plastics, and other compounds they make down at Bluff.

As they ramped up their investment in science, manufacturing, and commercial operations around the country, SinoBioChem's Australasian-South Pacific headquarters grew here in Auckland. Its presence is one of many reasons that Mandarin is widely taught in local schools these days.

We've also done well growing many of our own international companies across a range of industries. But we've also lost some. The biggest blow was Fonterra's decision to move its global headquarters to Singapore in 2017. It argued it needed to be nearer to its customers and its rapidly growing number of farmers overseas.[42] You couldn't run a major multinational from down here, it said.

---

[36] New Zealand's biofuel potential, various sources, e.g. Aquaflow, http://www.aquaflowgroup.com/about.html

[37] EECA, Biofuels and Electric Vehicles conference, 2008, http://www.eeca.govt.nz/renewable-energy/biofuels/biofuels-conference-08/index.html

[38] Shell Oil's 2050 energy scenarios, http://www.shell.com/home/content/aboutshell/our_strategy/shell_global_scenarios/dir_global_scenarios_07112006.html

[39] Scion http://www.scionresearch.com/media+releases.aspx?PageContentID=1175

[40] http://en.wikipedia.org/wiki/Telepresence

[41] Great South Basin exploration programme, various sources, e.g. NZT&E, *Bright*, January 2008 edition, pages 14–17, http://www.nzte.govt.nz/common/files/br26-p14-17.pdf and http://www.beehive.govt.nz/release/great+south+basin+oil+and+gas+quest+set+begin+0

[42] At some point in the future, half of Fonterra's milk will be supplied by overseas farmers and half by New Zealand farmers (the split is currently 20% to 80%): Henry

But it came back. What happened was a new chief executive took over Fonterra about 10 years after it went offshore. He was a Kiwi who'd had a great career at Nestlé but he was pipped for the top post so Fonterra headhunted him.

But he'd come to realise how important Nestlé's corporate culture was, a powerful blend of its Swiss origins and European, American, and Asian influences. And being true to its roots was the absolute key to creating this strong, unique, global culture for staff from 140 countries.

Nestlé has had its headquarters in Vevey, a town on Lake Geneva, since the 1870s.[43] It grew to be the world's largest food company. Yet, its home town was only one-third the size of Invercargill was before we had our oil boom. Now Vevey's about a fifth the size.

So, Fonterra came home from its OE and has never looked back. While it has remained a global dairy commodity producer and seller, it needed to find a much higher value, more specialised role for dairy farmers here. They could no longer compete in commodity markets. So Fonterra used its strong cash flow from commodities to invest heavily in research, becoming one of the world leaders in making pharmaceuticals from compounds within milk. Its senior executives, a mini-UN of nationalities, enjoy being based here in Auckland.

Growing businesses remains a challenge, particularly as the science becomes ever more demanding. When things go wrong, though, they can do so in spectacular fashion. Last week, a nano-biotechnology[44] plant in Rodney suffered a serious failure.

A huge global response kicked in almost instantaneously. Thanks to the power of Web 17.0, our emergency services were helped from around the world to model the potential disaster in real-time in virtual reality. So, thankfully no crisis developed. A monitoring drone is still hovering high in the sky over the site. It's directing the army of robots[45] still seeking out and capturing the escaped nano-particles with the help of overseas expertise.

This is just one demonstration of collective, global intelligence and decision making,[46] the sorts of skills we apply to hugely complex issues such as ecosystem measuring and monitoring.

---

van der Heyden, Fonterra's chairman, said in a presentation to the Large Herds Conference, New Plymouth, 3 April 2008.

[43] http://www.nestle.com/AllAbout/History/HistoryList.htm

[44] UN, The Millennium Project, *2007 State of the Future* report, Chapter 4, Science and Technology, page 10.

[45] Hirose, Shigeo (Tokyo Institute of Technology), in *The Way We Will Be 50 Years From Today*, editors Mike Wallace and Bill Adler, publisher Thomas Nelson, 2008, page 86.

[46] UN, *2007 State of the Future*, Chapter 4, multiple references pages 5–364.

Morning

The Mayor, splendid in sari and chains of office, fires the starting gun for a large class of little boats in the Auckland Day Regatta. The President[47] had done the honours for the biggest boats earlier in the morning,

The Mayor is standing far above the boats on the bridge of one of the city's fast ferries. These whisk people up the harbour, almost as quick as the train, to North City, the new centre for the north shore built three decades ago at Whenuapai.

And we've done well revitalising this old part of town where Hobson staked out Auckland more than 200 years ago. Beginning early this century, we started opening vistas through the city right up to the ridge at K Road. This helped re-reveal the topography of the city, it's natural skeleton and form. Studded with art works and other delights, they help integrate the old city on a very human scale.[48]

Viewed from the water, the city offers fine vistas. One is the diagonal from Viaduct Harbour past the spire of St Matthew-in-the-City to the top of Symonds Street. It took 30 years to create as buildings along its line were gradually redeveloped.

People are thronging the waterfront by the old ferry building, as they are all the way from the iconic entertainment complex in the Wynyard Wharf park right along to the new ocean passenger terminal in Mechanics Bay.

Regatta Day is one of many festivals through the year. One of the most popular is the WaterFire Festival at Matariki. We borrowed the idea 50 years or so ago from Providence, Rhode Island, in the United States.[49] But we've made it our own. On the longest night of the year, seven huge floating fire sculptures, representing the seven stars of Matariki/Pleiades, are anchored 100 m off the waterfront.

From sunset to past midnight, black-clad performers in torch-lit boats quietly tend the fires while music from around the world plays along the waterfront. Despite it being a long and usually chill evening, many hardy souls linger in cafes, bars, and parks until about half an hour before dawn. Then they gaze at the northeast horizon, watching Matariki rising. It is such a wonderfully contemplative, hopeful time of year, of new plantings, of new beginnings.

Today's almost as busy on the waterfront. Many of the people are heading into the main square for a referendum rally. This coming week is the next monthly vote and it's a very big one: on the region's next 20-year eco-budget.[50]

---

[47] Statistics New Zealand, *2006-50*, op. cit., page 12.

[48] Reid, Richard. *Auckland City CBD Public Artwork Development Plan* http://www.aucklandcity.govt.nz/council/documents/cbdpublicart/default.asp. Mr Reid's work was winner of the Charlie Challenger Supreme Award in the 2006 New Zealand Institute of Landscape Architects Awards.

[49] Landry, Charles, "Bonding across cultures and groups", in *The Art of City Making,* London: Earthscan, 2006, page 182.

[50] ICLEI http://www.iclei.org and http://en.wikipedia.org/wiki/ICLEI; and ICLEI's eco-budget tools, http://ecobudget.com/index.php?id=4631

This is causing a lot of soul-searching. Since we learnt how to precisely monitor our role in the ecosystem, we've set and met demanding goals. Thanks to this, better technology and the likes of closed-cycle manufacturing and resource processes,[51] we've allowed the ecosystem to recover some of its health. We think we're back up to 1985 levels but we aren't sure because our knowledge was so limited then.

It's always taken us a long time and a lot of debate to agree on these budgets. And then a lot of discipline, reinforced by stiff penalties, to keep them. They underpin every environmental, economic, and social policy we implement.

Yet they have delivered what a lot of people said they wanted – a healthy environment, a cohesive society, and a robust economy.[52] There was a time when many believed that was impossible.

This sentiment came to light more than 50 years ago in the work of Landcare Research. It spent several years on a big future-thinking exercise. With a high degree of unanimity, citizens involved in the study said they wanted to live in a wealthy, sustainable society in all senses of the word: environmental, economic, cultural, and social. But they expected they'd get the opposite. [53]

Many factors have helped us get what we want rather than what we feared. But crucially, local governance was ambitious in its strategies, efficient in its operations, and responsive to its citizens.

While we have achieved a lot as a region, the debate over our next eco-budget has inevitably given voice to a wide range of opinions. One of our most successful international entrepreneurs is campaigning for more flexible goals. He says our decision making is too slow, our adoption of new technology too timid, and our independent line in international bodies too risky. If we don't change course, he says he'll move his operations to Singapore.

At the other end of the spectrum, a fair few people are as unhappy as ever with our engagement with the world and use of the environment. We're doing well on most of the measures in the global Genuine Progress Indicator,[54] which benchmarks us against a wide range of economic, environmental, and society factors. But some people want an even stricter eco-budget just to be sure we're doing the right thing by the planet. Some of them even want to shut down the WaterFire Festival because of the CO_2 emissions from the fire sculptures.

---

[51] Multiple sources including: McDonough, William and Braungart, Michael. *Cradle to Cradle: Remaking The Way we Make Things*: New York, 2002; and other McDonough writings, http://www.mcdonough.com/writings.htm; The New Industrial Revolution, http://en.wikipedia.org/wiki/New_Industrial_Revolution; Life cycle assessment, http://en.wikipedia.org/wiki/Life_cycle_assessment

[52] Landcare Research, *Four Scenarios*, page 76.
[53] Landcare Research, ibid.
[54] http://en.wikipedia.org/wiki/Genuine_Progress_Indicator

All these views and many more matter. Thanks to the power of communications, we citizens are truly empowered. We aren't voting in this referendum on an eco-budget proposed by politicians or bureaucrats. We will shape and agree it together online, just as we first learned to do in much simpler forms with collective knowledge banks such as the very first, Wikipedia. What we decide, our local government implements.[55]

Most people are pretty savvy these days. They know the prices of fresh water, carbon, amino acids, precious metals for fuel cells, and all the other resource commodities traded on the global enviro-markets. They know we need to conserve very carefully, particularly given the increasing volatility of the markets.

They had a timely reminder with this morning's shocks through global markets. This time, it was triggered by fears for Pacific fisheries after this week's series of cyclones right up to Hawaii.

Noon

A very special bunch of young people has gathered in one of Waitakere's libraries. They are taking part in a great, old international competition that challenges secondary school students to solve our future problems. Ten Kiwi teams, winners of categories in the hard-fought national competition, are competing live but virtually in the Global Future Problem Solving Competition[56] being held this year in Bangalore, India.

This year, they have been set a particularly tough challenge, one our scientists are working on. "Given that animal protein is in very short supply in the world, that feeding animals remains an energy-inefficient way to grow protein and that we can grow meat in laboratories from stem cells,[57] what are the ethical, environmental, economic, and social issues about using this technology and banning animal farming?"

New Zealand teams have consistently done well in global future problem solving competitions because they think differently. Our teams have long had students from all sorts of ethnic backgrounds. Pākehā, for example, ceased to be a majority of the population in Auckland back in 2016.[58] And many team members down through the years have been recent immigrants. Yet, we learnt to rapidly acculturate them into New Zealand while they bring their own distinctive knowledge and insights to us.

And this library venue for this year's competition is a story in itself. Back in the early days of the internet, librarians realised the revolutionary technology was turning their

---

[55] International Association for Public Participation, http://www.iap2.org and Participation Spectrum tools, http://www.iap2.org/associations/4748/files/IAP2%20Spectrum_vertical.pdf
[56] Future Problem Solving Program International, http://www.fpspi.org
[57] UN, *2007 State of the Future,* Chapter 4, page 336.
[58] CityScope, ibid., page 13.

world inside out.[59] People might still come in for a few books. But increasingly, they were reaching out to the world for information.

Yes, they could do that from computers at home or office. But libraries learnt to offer more. They helped to make sense of distant information and helped to create, share, and keep local knowledge.[60] They are pulsing places of creativity and communication, locally and with the world. In a rapidly homogenising world where one culture ever more melds with another, they demonstrate the enduring power of sharing and learning together in our own distinctive way.

The community board did a great job helping to turn this library into one of the best in the country. Drawing on its local support, powers and ample financial resources from local government, it brought together this library and local schools in life-long learning and storytelling for the community.

Across the region, these boards play a powerful role. At the last local government election, candidates from more than 60 ethnicities gained seats on council and community boards. These non-Pākehā representatives are the majority overall but not on some boards. In terms of representation, the biggest problem these days is getting more men to stand.

Thanks to these boards, many of our communities have developed strong senses of local purpose and identity. They keep building on their diverse ethnicities, particularly through local projects, festivals, and events. They are many and varied.

So, sweetness and light dawn across the region? Far from it. Crime, racial tension, and social deprivation still rack some of our neighbourhoods. Don't blame the communities. Many of their boards have helped improve the delivery of devolved social services. But, as ever, society as a whole still struggles to help all progress.

Afternoon

In mid-afternoon, a large crowd gathers at the marae at the heart of the Unitec campus in Mount Albert. Completed 50 years ago, the whare whakairo (carved meeting house) is an intriguing blend of traditional building techniques and modern sustainability technology. Its carvings and other art works tell the interwoven story of Māori and Pākehā in our region, Tāmaki-makau-rau, down through more than 200 years.

Today, the marae is hosting many people for a great celebration of a great person. They soon fill the ātea in front of the whare. Everyone has some connection with each other, given it's so easy in a tiny country such as ours for people to work together. But this is a particularly rich network. In chronological order from the beginning of the saga the gathering includes

---

[59] New Zealand Public Libraries Summit, Wellington, 26-27 February 2007, http://www.natlib.govt.nz/files/summit/index.html

[60] New Zealand's Digital Strategy, http://www.digitalstrategy.govt.nz/Parts-of-the-Digital-Strategy/Content

- long-term survivors from a Māori diabetes self-care programme that started in Auckland
- the now elderly medical researchers and doctors who pioneered the early-diagnosis tools, drugs, and therapies that tackled the disease, as well as the community health workers who developed the self-care and prevention programmes that combated the raging epidemic[61]
- the Ngāti Whātua entrepreneurs who developed these skills and intellectual property into a diabetes prevention business they took national, then international via floating their company on the New York Stock Exchange.

In its early days, the latter company went through a business school programme for enterprises born with global ambitions. A dozen other start-ups were in its cohort on the programme. The founders of many of them are here today because they too have become successfully internationally. They exemplify the unique business model we've developed in New Zealand: mini-multinational companies that play to their quintessential Kiwi strengths yet maximise their talents globally[62] – hence the M3 designation by which the model is known.

M3 has been widely adapted and emulated by other small companies in other small countries seeking their fortunes in the global economy. M3Global, an Auckland-based organisation, has helped them along the journey. For many years now, it has taught the M3 skills here and in dozens of developed and developing countries. These days it also offers a virtual reality programme from Auckland.

At the centre of this scrum of people is a slight woman, in her late 60s, with an abundance of quiet, natural mana and a muckle of mokopuna around her. She is Min Te Ua, the founder and former head of research at M3Global. Today's celebration is in her honour.

Her husband, Haare te Ua, is trying to divert the kids. Haare's very good at rounding people up. He's chief executive of Ngāti Porou's 30,000 ha of permanent forests sink that his iwi set up on the East Cape back in 2006 as a joint venture with Sustainable Forestry Management of the UK.[63]

Way back when Min[64] was a shy young teenager not long after her family emigrated from Seoul, she was involved in the UpStart programme in South Auckland that still today helps kids in some of our toughest neighbourhoods develop their entrepreneurial skills.

---

[61] Multiple sources, e.g. Diabetes New Zealand, http://www.diabetes.org.nz/about_diabetes/diabetes_in_new_zealand_in_2025

[62] Chris Liddell and Rod Oram, presentation at Microsoft Connect '06 conferences, November 2006.

[63] See "Sustainable Forestry Management (SFM) Ltd and Rakaikura Ltd" in News section: http://www.sfm.bm/Home/LibraryF.htm

[64] Min, Korean girl's name meaning "eternal, cleverness and intelligence", http://www.babynology.com/meaning-min-f38.html

Later as a university student, Min led a team that won the global Students in Free Enterprise[65] competition two years in a row. Studying for her MBA, she began working with Māori entrepreneurs. Min then went overseas to earn her PhD in behavioural economics from the University of Chicago[66] and then teach at University of the Witwatersrand, Johannesburg,[67] and Chongqing[68] Technology and Business University, Sichuan province, China.

When she came home to her Auckland alma mater after seven years abroad, she started a "going global"[69] programme for small New Zealand companies attempting to build business overseas. The Ngāti Whātua start-up was in her first cohort.

Over the next 20 years, M3Global developed a worldwide reach and reputation. Many of its alumni businesses from more than a dozen countries developed into sizable companies.

As a result, Min was invited to deliver a series of lectures on the role of small businesses in the global economy at the 2042 Earth Summit, the series of once-a-decade sustainable development conferences the UN had begun in Rio de Janeiro in 1992.

Min's speeches were electrifying. Soon afterwards, the United Nations Industrial Development Organisation asked her to found a global equivalent of her organisation under the UN banner.

She was very keen to do so but it took nearly three years to get it up and running. The UN kept insisting on headquartering M3G in a developing country. But Min was adamant it had to be in Auckland. The people coming to M3G needed to get away, get a fresh perspective, learn some new things. Coming as far away as anybody could, all the way to New Zealand, was essential she said.

Min eventually got her way. So tomorrow, she opens the United Nation's M3G conference downtown. More than 1,000 delegates have already arrived. This global whānau will be celebrating not just UN M3G's first 15 years. It will be honouring

---

[65] http://www.sife.org/Pages/default.aspx

[66] Richard Thaler of the University of Chicago is today one of the pioneers of behavioural economics, http://en.wikipedia.org/wiki/Richard_Thaler

[67] Witwatersrand University, http://en.wikipedia.org/wiki/University_of_the_Witwatersrand and Graduate School of Public and Development Management, http://web.wits.ac.za/Academic/CLM/Schools/PublicDevelopmentManagement.htm and Mandela Institute, http://www.law.wits.ac.za/mi/

[68] From the late 1990s, Chongqing "became the spearhead of China's effort to develop its western regions and coordinate the resettlement of residents from the reservoir areas of the Three Gorges Dam project", http://en.wikipedia.org/wiki/Chongqing

[69] The ICE House, the entrepreneurship centre of the University of Auckland Business School, began a similar programme called ICE Global in 2006, http://theicehouse.co.nz/export.html

Min for the Nobel Prize for Economics she won last year. Her citation at the award ceremony in Stockholm early last December read in part:

"Professor Min Park Te Ua's work has brought significant economic prosperity and social progress to both rich and poor societies alike. By pioneering business skills that enable small organisations to participate fully in the global economy, she has helped hundreds of millions of people fulfil much more of their potential.

"Her work is distinguished by its intellectual rigour, its creativity, its practicality, its accessibility to people…and above all by its profound and fresh insights into the human relationships at the heart of economic and social progress."

Evening

In the Auckland Town Hall, a great occasion and some marvellous music is promised by the Auckland Philharmonia and its sister ensemble, the Leipzig Gewandhaus Orchestra.

The hall is packed and Aotea Square is filling up quite nicely with the overflow, people who are happy enough with the outdoor screens.

But this isn't the only show in town tonight. For example, there's a jazz festival down at the historic Villa Maria cellar and restaurant near Auckland International Airport. In addition to the music, they're offering a food and wine matching with some of the latest nutraceuticals, foods with medicinal benefits, from the nearby food innovation centre of excellence.

And then, of course, there's the All Blacks test tonight at Eden Park. It'll be a great game. The ABs are taking on the winners of last year's World Cup, Japan. A great row still rumbles on over the Japanese players' use of bio-mechanical enhancements.

Ever the optimist, many people believe the ABs – "100% pure; no enhancements" – have a chance against the Japanese tonight. But if they win, nobody's sure they can keep up their form all the way through to the next World Cup in 2063 in Buenos Aires.

No doubt more than a few concert-goers will be keeping a discreet eye on the game via their unobtrusive retinal visualisers. The audience quietens as the members of the Leipzig Orchestra take the stage of the Town Hall. The Germans look so real, even though their holograms are beamed all the way from Leipzig.

The gala concert tonight marks the 50th anniversary of the establishment of the link between the two orchestras. They bonded because of fascinating quirk of history. Our Town Hall was built 150 years ago as an exact replica of Leipzig's second Gewandhaus ("Cloth Hall").[70] It was chosen as the model because it had reputedly

[70] http://en.wikipedia.org/wiki/Gewandhaus

one of the best concert hall acoustics in Europe at the time.[71] And we're still the beneficiaries today.

That precious Leipzig landmark was destroyed by Allied bombers in 1944. In a very real sense our Town Hall is the living embodiment of it. So back in 2010 when our Town Hall premiered the rebuilding of its massive pipe organ by the Johannes Klais Orgelbau[72] workshop of Bonn, the Leipzig orchestra made their first trip down here to play. Of course, back then, they had to come in person.

This evening's concert taps right into the roots of each orchestra's repertoire and identity. The Germans will do one of the Bach pieces they had on the programme of their concert in 1781[73] at the opening of the first Gewandhaus. It will be followed by a new work by a Turko-German composer. The Auckland Philharmonia will play an old favourite of local audiences, Gareth Farr's *From the Depths Sound the Sea Gongs,* and a new work by an Auckland composer featuring a prodigious array of Māori nose flutes and Chinese lutes. It will be interesting to watch the faces of the Leipzig audience, beamed in from their post-war Gewandhaus.

Over the past 50 years the two orchestras have worked very closely together, learning, inspiring, and supporting each other. The Leipzig orchestra's annual visit is a centrepiece of Auckland's international arts festival each July, which attracts large numbers of visitors and performers from around the world.

A very unusual feature of the festival is the way it showcases collaborations between Aucklanders of various ethnic backgrounds with artists from their home countries such as Pacific peoples, Indians, and Chinese. The overseas visitors – artists and festival-goers – refresh our cultural roots; and we enrich them with South Pacific variations of their cultures.

Late Evening

Buoyed by the stimulating music, the audience leaves the hall and spills out on to Queen Street. One couple is approached by a pair of tourists seeking directions. It turns out they're from the Comoros Islands.[74] While we all fly less than we used to, there are real benefits. These days, tourists typically come to New Zealand only once or twice in their lives but stay on average six weeks. They want to get to know us, share our lives.

The local couple offer to show the tourists the way down to the waterfront. They lead the way boarding the tram, although the husband is moving a little gingerly. He is

---

[71] http://en.wikipedia.org/wiki/Auckland_Town_Hall
[72] http://www.aucklandorgan.org.nz/
[73] http://www.gewandhaus.de/gwh.site,postext,history-gewandhausorchester.html

[74] "Comoros Islands is the country most vulnerable to climate change": Global risk assessment, July 2008, by Maplecroft, http://www.maplecroft.com; Media report, http://www.independent.co.uk/environment/climate-change/why-canada-is-the-best-haven-from-climate-change-860001.html

waiting for his new pair of lungs. A lab in Otara is custom-growing them from his stem cells.[75]

As they ride down Queen Street, a scuffle of people up Durham Street East catches their attention of the quartet. A bunch of young women are beating each other up, cheered on by a gang of drunken lads. Sirens wailing, lights flashing, a police car races up Queen Street. A couple of officers jump out to quell them. If they are first-time offenders, they'll probably be given a spell helping out in the reception centre for eco-refugees.

Down the length of Queen Street, the lights are burning late in some of the office buildings. These are the trading floors of the big global enviro-trading firms and they are preparing for an anxious night. Markets have had a rough couple of trading days because of the series of storms across the Pacific.

We play a crucial role as an international trading centre, thanks to the early start we made on carbon trading 50 years or so ago. So, it will be another stormy night – but this one financial rather than physical.

Yet, as day follows night, so the nocturnal calls of the kiwi on Mount Hobson will give way to the dawn chorus of chortling tuis,[76] once again energising Aucklanders for a new and challenging day.

[75] Multiple sources e.g. Francis Collins, leader of the Human Genome Project, in *50 Years From Today*, page 4; and UN, *2007 State of the Future*, Chapter 4, page 163.
[76] Ka tangi te tui (The tui celebrates life), Māori proverb, Haare Williams, broadcaster, Manukau City Council Tikanga Māori adviser.

Selected bibliography

Auckland Regional Council, *Regional Growth Strategy 2050.*

Auckland Regional Council*, Draft Long Term Sustainability Framework for the Auckland Region (December 2006).*

Auckland Regional Council, *State of the Auckland Region Report 2004.*

Auckland Regional Council, 2006 Census series: *Pacific Peoples; Immigration & Ethnicity; Housing & Households; Growth of Auckland.*

Auckland Regional Growth Forum, *Auckland Sustainability Framework*

CityScope Consultants, *Auckland's Population*, prepared for the Royal Commission.

CityScope Consultants, *Transport Governance in Auckland: Situation Analysis,* prepared for the Royal Commission.

Boston, Jonathan (editor), *Towards a New Climate Change Treaty: Looking beyond 2012,* Wellington: Victoria University Institute of Policy Studies, 2007.

Carden, Steven, *New Zealand Unleashed: The country, its future and the people who will get it there,* Auckland: Random House, 2007.

Covec, *Drivers of Economic Growth in Auckland,* prepared for the Royal Commission.

Covec, *The Scope and Scale of Auckland's Economy*, prepared for the Royal Commission.

Frame, R., Molisa, P., Taylor, R.E., Toia, H., and Liu, J.H., *100% Pure Conjecture: Accounts of our future state(s)*, Landcare Research.

James, Colin and Edmonson, Claire, *Environmental Scanning: Looking into the Future for Statistics New Zealand 2006-2050.*

Landcare Research, *Four Future Scenarios for New Zealand*, Edition 2, 2007.

Liu, J.H., Frame, R., Molisa, P., Taylor, R.E., and Toia, H., *New Zealand Identities: departures and destinations,* Wellington: Victoria University Press.

Landry, Charles, *The Art of City Making,* London: Earthscan, 2006.

McDonough, William and Braungart, Michael, *Cradle to Cradle: Remaking The Way We Make Things*, New York, 2002.

Marsh, Nick, McAllum, Mike, and Purcell, Dominique, "The Seven Tsunami Drivers of Change: Strategic Foresight – the power of standing in the future," NextCorporation.com.

Motu Economic and Public Policy Research, *New Zealand's Quota Management System: A History of the First 20 Years,* April 2007.

National Institute of Water and Atmospheric Research (NIWA) report for the Ministry for the Environment, *Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand*, 2nd edition, May 2008.

New Zealand Institute, *No Country is an Island*, November 2005.

Oram, Rod, *Reinventing Paradise: How New Zealand is starting to earn a bigger, sustainable living in the world economy,* Auckland: Penguin, 2007.

Shell, *Shell Energy Scenarios to 2050.*

Statistics New Zealand, 2006 Census.

Statistics New Zealand, *Demographic Trends: 2007*.

Wallace, Mike and Adler, Bill (editors), *The Way We Will Be 50 Years From Today*, Thomas Nelson, Nashville, Tennessee, 2008.

United Nations, The Millennium Project*, 2007 State of the Future*, Washington D.C., 2007.

United Nations, IPCC, Climate Change 2007 Synthesis Report.