



Mackay Whitsunday 2017 Scenarios:

The Basis of a Regional Economic Development Plan

Final Report

for

**The Mackay Whitsunday Regional Economic
Development Corporation**

by

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1. Executive Summary

A scenario process involving the construction of possible futures for the Mackay Whitsunday region, and an examination of the implications of these possible futures for present planning and decision-making, has identified six areas of priority which provide a central focus for regional economic development strategy and planning:

- **Strengthening of Regional Planning, Decision-Making and Implementation Processes**

The emphasis is on lengthening the time horizon for planning, building greater contingency into the process, establishing the active engagement of all key stakeholders¹ and achieving the necessary vision and scale without being limited by historical boundaries of right and responsibility.

- **Development of a Forward-looking Strategic Economic Development Plan for the Region**

There is a need to build on the Economic Baseline Audit to identify both incremental and radical economic developments that have the potential to both grow and transform the regional economy. The central principle should be to build on the strength of existing capabilities, principally coal, sugar and tourism, by value adding through downstream processing, diversification, and the growth of a ‘halo’ of supportive industries providing specialised services. However the possibility of completely greenfield economic possibilities should not be excluded.

- **Enhancing the Knowledge Capacity of the Region**

In the short-term there is a need to enhance skills availability in the region through training and attraction, nationally and internationally. But the longer-term need is to substantially enhance the community’s knowledge capacity and to embrace global and entrepreneurial perspectives in order to transform the economic basis of the region to a much higher dependence on knowledge. Substantial investment in education, research and technology development relevant to the region will be required from both the public and private sectors.

- **A Committed Outreach Process to Build Alliances Relevant to the future of the Region**

The critical feature is the development of a regional culture that looks outward rather than inward. A process is needed to support the pursuit of alliances with

¹ Constructing a map of stakeholder interest may be a valuable precursor to engagement

relevant and comparable regions in countries that have a major interest in the Mackay-Whitsunday region eg China and India, with companies, national and international, interested in investment and skill development, and with comparable regions in Australia.

- **Development of a Proactive Capacity to Address Climate Change Issues**

While the precise extent and timing of climate change effects, be they physical, economic or regulatory, are unknown, the potential harmful impacts of a particular conjunction of events for the region suggests there would be very real value in establishing processes to assess possible impacts, review land use planning, test infrastructure for viability and setting in place the long-term measures which educate and shift behaviour with regard to resource consumption.

- **Social Change Management**

While the focus is on economic development, the social dimension cannot be neglected, because failure there will impact hugely on the achievement of economic goals. Issues to be addresses include housing affordability and density, delivery of education and health services, assimilation support programs, and programs to support cultural expression and understanding.

2. The Strategic Planning Process

The process involved four stages:

i) *Preparation of an Economic Baseline Audit*

A detailed Economic Baseline Audit was prepared, which provided data on the socio-economic profile of the region, reviewed infrastructure, identified regional context and influences, and provided information on the key characteristics, sectoral dependences, drivers and opportunities for sixteen industrial sectors.

ii) *Scenario Development*

A range of stakeholders from across the region from government, industry, education and community were brought together to construct four scenarios of the future of the Mackay Whitsunday region to 2017, under a variety of different conditions.

iii) *Scenario Implication Analysis*

After refinement of the scenarios, essentially the same group of stakeholders, somewhat broadened, examined the implications of these possible futures for the region and its planning requirements. These implications were assessed under each scenario, and subsequently under all scenarios, in order to provide an enhanced basis for the following stage of strategic planning.

iv) *Regional Strategy Formulation and Prioritisation*

On the basis of the three previous stages, a wider range of stakeholders will be assembled to assess priorities for economic and social development and to produce a detailed strategic economic development strategy and plan.

3. Participants in Stages 2-3

Beth Cooney, Mackay Regional Council for Social Development
Bob Oakes, Mayor of Nebo Shire
Darryl Camilleri, Mackay Whitsunday REDC
David Phillips, Mackay Tourism Limited
De-Anne Kelly MP, Federal Member for Dawson
Deb Jones, Mining Industry Skills Centre
Di Rollo, Mackay Region Area Consultative Committee
Frank Mason, Department of State Development
Frank Gilbert, Department of Communities
Gary Luck, Department of Natural Resources and Water
Hal Snodgrass, Mackay IT Network
Heather Norris, Department of Local Government, Planning, Sport and Recreation
Jaco Ackerman, Mackay City Council
Jan Anfruns, Hinterland Tourism and Economic Development Corporation
Jenny Descovich, Department of Education, Training and Arts
John Clarke, Mackay City Council
Julie Agnew, Mackay Chamber of Commerce
Kellie Lister, Mining Industry Skills Centre
Margaret Cameron, Mackay IT Network
Mark Crawley, Nebo Shire Council
Martin Homisan, Bowen Collinsville Enterprise
Michelle McLean, Broadsound Shire Council
Muller Mentz, Queensland Transport
Narelle Pearse, Mackay Whitsunday REDC
Peter Billing, Ergon Energy
Peter Freeleagus, Belyando Shire Council
Peter McDuff, Department of Education, Training and Arts
Reg Norman, Nebo Shire Council
Sam Faint, Rio Tinto
Sarah Buckler, Department of State Development
Scott Perkins, Mackay Canegrowers
Tanya Radke, Mackay Whitsunday REDC
Trevor Davison, Central Queensland University

Ron Johnston, Australian Centre for Innovation Limited
Lynne Cotter, Australian Centre for Innovation Limited

4. The Nature of Scenario Planning

Today's organisations are faced with a world of rapid change, increasing complexity and connectedness and great uncertainty arising from globalisation, new markets and competitors, technological change, an informed public the need to take decisions with large consequences and risks. Anticipating the future in this volatile environment calls for more than systematic analysis; it also demands creativity, insight and intuition.

Traditional methods of strategic planning, forecasting or market research, while still necessary and valuable, are limited by their reliance on extrapolating from current 'facts', structures and trends. They have no capacity for considering ways in which the future might be very different from the present.

Scenarios are powerful planning tools precisely because the future is unpredictable. A scenario is a tool for ordering perceptions about alternative future environments in which today's decisions might be played out.

Scenarios embrace qualitative perspectives and the potential for sharp discontinuities that econometric models exclude. Consequently, creating scenarios requires decision-makers to question their broadest assumptions about the way the world works so they can foresee decisions that might be missed or denied.

Applying scenarios is a means of 'rehearsing the future'. By recognising early warning signs one can avoid surprises can be avoided and appropriate adaptation initiated. Decisions which have been pre-tested against a range of what the future may offer are more likely to stand the test of time, produce robust and resilient strategies, and create distinct competitive advantage. Ultimately, the end result of scenario planning is not a more accurate picture of tomorrow but better decisions today about the future.

Scenario planning is a two-stage process. The first stage involves the construction of scenarios of plausible futures for the Mackay Whitsunday region in ten years time. The second stage takes advantage of these constructed possible futures to apply hindsight from that possible 2017 future to determine what would be appropriate strategies to adopt to achieve the best outcome under those conditions. These can then be combined into a robust basis for detailed strategic planning.

Despite its creative focus, scenario planning follows systematic stages. The process is highly interactive, intense, and imaginative. It begins by clarifying the focus and timeframe and challenging the mental maps that shape perceptions. The next steps are more analytical involving identification of driving forces and whether they are largely predictable or uncertain. These factors are used to determine the parameters about which the different scenarios of possible futures are constructed.

5. Drivers and Uncertainties for the Mackay Whitsunday Region to 2017

KEY DRIVERS

1. Demand for coal
2. Clean coal technologies
3. Demand for sugar
4. Government policies and regulations at all three levels (Commonwealth, State, local)
5. Baby-boomers mobility and spending power
6. Oil prices
7. Cost of capital borrowing/investment
8. Infrastructure
9. Currency exchange rates
10. Life style expectations
11. New mineral/energy discoveries
12. Decline in Barrier Reef
13. Global geopolitics
14. Skill shortages
15. Demographics
16. Food demand (global and local/regional)
17. Affordable housing
18. Increased regionalisation
19. Terrorism pressures

UNCERTAINTIES

1. Climate change
2. Major conflict
3. Pandemics
4. New forms of transport
5. Export of energy (in a form other than embedded in coal)
6. New technologies
7. Economic meltdown
8. Nature & role of Governments
9. Decline of importance/increased porosity of national borders
10. Water availability
11. Natural disasters
12. Cyber-terrorism (ie terrorism via the Internet)
13. Chinese/Indian investment in/ownership of local resources or assets.

6. Preliminary Scenarios for the Mackay Whitsunday Region to 2017

6.1 'Let The Good Times Roll'

Scenario Conditions

- Chinese economy continues to grow at 10%pa
- Major climate change effects: 3° temp rise, 0.5m sea level rise at Mackay
- International treaty requiring major greenhouse reduction
- Pandemic

Workshop Scenario

- Demand for coal increases
- Clean coal technology (becoming critical – implemented in region); 50% reduction in greenhouse gases; coal seam utilisation ramped up
- Demand for sugar increased, production increased, ethanol use increased; sugar cane industry has started to change manufacturing, processes, etc
- 3-tier government rationalised, leading to less duplication of roles, more national systems eg health, education; local government more service/outcome-oriented
- Baby-boomers – greater mobility, lower numbers
- Affordable housing not an issue
- Oil price increase leads to more alternative fuels, oil shale extraction at Proserpine
- Infrastructure better, more investment
- Lifestyle expectations – gap between haves and have-nots
- Regional centre growth
- Tourism declines as Barrier Reef dies
- Stability in global geo-politics
- Increased local food production, increased exports
- Increased regionalisation
- Increased terrorism pressure, closer to home
- Less fish
- Capacity to resource a significant knowledge economy; local economy straddles knowledge and goods economies; presence of vital resources and knowledge to capitalise.

Mackay Blog, 24 August 2017

The Mackay region has weathered the many challenges that have been encountered over the past five years. Demand for clean coal and associated technologies has been a boon for the coal producers and local research sector.

China's investment in the first entirely clean coal baseload power station in Collinsville has proved a catalyst for a wide range of green energy products being exported from our

region. Enterprises such as Condor Shale Oil are now in full production the Isaac Gas Project coming online in the next two months.

The Green Energy Group at the Coal Research Centre at CQU has been recognised as a world leader in coal liquefaction and is attracting researchers from around the world. The sugar industry has also benefited from the University's focus on coal research with spin-off centres such as the Alternative Energy Centre, where the Sugar Co-Generation Project is taking the renewable sugar energy technology to the world.

Our emerging role as a major food production centre has more than compensated for the decline in tourism brought about by the major climate effect on our Barrier Reef and the decline in travel as a result of the pandemic.

Bowen, with its plentiful rainfall and involvement in new food production technology is set to export record levels of fruit and vegetables this year. What's more, our aquaculture farms are supplying 2 million tonnes of seafood annually, 50% of which is exported.

6.2 'Economic Boom, Social Bust'

Scenario Conditions

- Chinese economy continues to grow at 10%pa
- Moderate climate change effects: 0.5° temp rise, 0.05m sea level rise at Mackay
- Oil prices increase to three times that of the 2007 level
- Federalism has been dramatically revised

Workshop Scenario

- China's economic growth of 10% produced:
 - increased demand for coal
 - increased reliance on China for local supplies
 - increased demand for expertise/knowhow from MW region
 - increased investment from China in MW and increased presence.
- Moderate climate change has lead to:
 - a hotter climate with increased cyclones
 - environmental refugees from the South Pacific and Indian Ocean regions
 - need for more energy
 - use/need for water in the mining industry
 - increased water use by agriculture crops and animals
 - changes in diversity of crops due to increased need for water
 - minimisation of waste.
- Trebling of 2007 oil rice has lead to:
 - increased inflation
 - increased investment in alternative fuels eg solar, hydrogen cell, and other renewable sources

- increased need for co-generation energy
- increased costs of coal production
- increased costs of cane production
- increased diversity of agriculture to be less fuel dependent
- decreased labour rates (ie numbers) in coal industry
- increased reliance on rail rather than road transport.

- Federalism has been dramatically revised, leading to:
 - increased strength/size of local government
 - increased decision-making at local level
 - increased responsibility for hospitals, police, education at local level\
 - increased ability to meet social needs at the local level
 - increased competition between regions.

- Financial/Economic/Political Effects
 - increased bilateral agreements between MW and China et al
 - massive social unrest in China
 - negative impact on trade relations by social unrest in China
 - need for increased skills and expertise (eg international diplomacy, international trade relations) at the local level ie Mackay Region Council
 - beyond 2017 future not so bright so need to reassess prior to this

- Social Impacts
 - increased population in this region
 - affordable housing crisis
 - increased demand for service provision, especially for childcare and youth
 - increased crime and debt
 - change to expectation of home ownership
 - access to health based on wealth, expensive new technologies to prolong life
 - increased cultural diversity
 - massive social unrest in China.

6.3 *'Worse Equals Better'*

Scenario Conditions

- Chinese economy falters to only 3% growth pa
- Moderate climate change effects: 0.5° temp rise, 0.05m sea level rise at Mackay
- Active conflict between China and Taiwan
- A 'Greater Australasia' has emerged through increased cooperation, trade and migration between Australia, New Zealand and some South Pacific countries.

Workshop Scenario

- Demand for coal increased because of increased steel demands for the War
- Increase in sugar demand for ethanol; production expanded and improved in Fiji
- Greater regionalisation

- Decline in global economy due to conflict impacts superannuation funds and hence retirees resulting in them having less disposable income; increased housing costs drive away baby-boomers
- Shale oil deposits developed at South Proserpine as a result of increased oil prices
- Decline in global economy affects housing market, leading to a drop in prices; baby-boomers buy back in
- Reduced international investment constrains infrastructure development
- A\$ increases in value, reducing coal competitiveness moderately, and sugar greatly
- Luxury goods rarer and more expensive; limitations to international travel
- Decline in tourism
- Skills shortage addressed by Chinese refugees
- Working age population increases
- Change in food demands – increased Asian groceries and vegetables from market gardens
- Three MW region Councils merge; State Government responsibilities shifted to local government
- The terrorist threat has increased domestic travel and tourism

Headlines of 2017

January – war declared between China and Taiwan; trade embargo with China announced by Commonwealth Government

February – Inflation skyrockets with shortage of whitegoods

March – Australasia welcomes refugees, thus solving MW skill shortage

April – Social unrest escalates – racial riots, housing shortage

May – Mackay becomes US base

June – State Government abolished

July – Chinese refugees embrace underground living at Goonyella

August – Plan for car component factory using bagasse and other fibres

September – Plan for BigW in Northern Beaches on hold due to shortage of imported goods

October – Refugee housing planned for Mackay Showgrounds

November – The ‘Black Wallabies pound the Springboks

6.4 *‘Mackay Whitsunday Lifestyle Highly Sought after across Asia’*

Scenario Conditions

- Chinese economy falters to only 3% growth pa
- Major climate change effects: 3° temp rise, 0.5m sea level rise at Mackay
- A national and regional water supply crisis
- Extensive cyber-terrorism impacts Internet-based financial and information services

Workshop Scenario

- Climate change had been foreseen and prepared for through;
 - improved coastal defences,
 - compulsory rainwater collection,
 - restrictions on the use of bore water,
 - building and planning standards improved, including for shade, airflow, insulation
 - housing on stilts,
 - improved building materials to resist flood damage
- Great Barrier Reef has been degraded – increase sea level, new types of tourism, retirement
- Decline in Chinese economy has lead to
 - Establishing new markets in Russia and India for coal
 - Expertise in equipment design for the export of coal
 - Training in safety focus for China, Indonesia
 - Global leader in mining education
 - New technologies/innovations
 - Agribusiness matured as a robust industry, new exports into China, Nebo cattle, 3rd world food and lifestyle
 - Development of by-products from sugar and coal
 - Fewer ships loading at Hay Point due to concentrated products/technologies
 - International flights to China from Mackay
- Water Crisis has lead to:
 - use of affordable desalination
 - gravity feed from large storage above Range
 - rainwater tanks, better water and grey water management
 - trading in water
 - man-made tourist resorts
 - manufacture of artificial plants, including grass
 - Australia has become a leading exporter of dry climate engineering
 - Improved housing design incorporating water tolerant gardens, smaller size, limited to 1 bathroom, more effective land use and housing design
- Commuter rail in the region
- Specialised steel industry

- Oil/gas exploration advanced
- Cyber-terrorism is being successfully managed globally through generational change, reliance on robotics, a reduction in reliance on the labour market and in the hours of work

A new market of Asian retirees/escapees looking for a place to holiday and retire is apparent in the MW region, bringing with them investment dollars and spending power.

MW has evolved into one of the most dynamic tropical regions, sought after in the Pacific Rim. A far more diverse multicultural community than previously experienced has evolved with South Pacific Islanders also establishing themselves in the region.

MW has become a leader in adaptation to climate change through adoption of innovative building and water codes, energy conservation and infrastructure provision. This is coupled with the maturing of diversified agribusiness and changes to energy exports. Coal is still king, but we have developed exportable by-products and made the first steps into a niche steel market. Gas and oil reserves look promising in the Bowen Basin to sustain use in the future. Moranbah has emerged as an industrial hub with a focus on industrial training for international skilled workers, supported by an international airport and commuter rail. MW has built a market for repair of international shipping because of its engineering expertise. This expertise is also being exported with a focus on safety, training and automation.

Mackay has become one of Australia's most cosmopolitan small cities and is attracting tourism around that.

Although cyber-terrorism is a growing concern, the region is able to rely on the expertise available in the major metropolitan regions, but the threat is continually monitored in the region.

7. Some Preliminary Implications of the Scenarios

- Planning is typically too narrowly based, focussed on 'life as usual'
- Future growth of tourism cannot be assumed; new markets must be identified
- Need to engage the coal mining industry more in the longer-term issues of the whole region
- Strengthen relationship between Mackay-Whitsunday and appropriate Chinese region through sister city agreement
- Better branding of Mackay-Whitsunday needed
- Bowen Shire provides an ideal application for scenario planning, with 6000 hectares of greenfield industrial land; need to attract mineral processing and support, and tourism companies, and the necessary skills
- REDC's role is to convert barriers into opportunities
- The scenarios are very optimistic, perhaps more than justified

- Need to build greater knowledge-based activities around present key industries
- Challenge to access the required skills; as technology is accelerating so will the training to support them have to be accelerated
- The scenarios are based on exporting technologies, but Mackay does not have that capability; MW is a satellite region and should focus on export of support services
- China and India have to be part of the scenario
- Need to approach land-use planning in a more resilient way and with a broader perspective than just which patch in the city should be the site of the next housing development
- Skills shortage for the mining industry is critical; need to get undergraduates out into the workplace through cadetships, etc
- Better information is needed from industry about their future skills needs
- Need to strengthen multi-culturalism, particularly engagement of indigenous people
- Too much planning has not lead to implementation in the past; this must not be repeated in this exercise
- Explore replacing road with rail transport, particularly for mining commuters
- Need to be more innovative in providing training for the mining industry; involve industry representatives in these planning processes
- Recognise it is harder to recruit a professional than a trade person
- Skill shortages in the IT industry, particularly with the growth in the application of simulation; need to be more proactive in planning
- The three tiers of government produce huge inefficiencies and red tape
- Need to address the social consequences of economic growth
- Knowledge, R&D and innovation are central to all the scenarios; how do we develop this capability/ establish a knowledge precinct to attract the appropriately skilled people
- Seek to align CQU teaching and research more with region's needs and interests

8. The Revised Scenarios

8.1 'The Chinese Connection'

The year 2011 started well enough in The Mackay Whitsunday region. The local economy, jobs, and the major population centres had continued to grow strongly since 2007 on the back of the continuing Chinese demand for coal, and the talk was that the good times would roll on for ever.

But the cyclones – three in one season, changed all that. Until then, the steady rise in the sea level had been regularly charted, and managed with a few extra seawalls. But under cyclonic conditions the storm surge reached well into Mackay, flooding thousands of homes and killing 20 people. Power and water supply was interrupted for 2 weeks, and was just returning to normal when the second storm hit. And so it went on with the third. In all, almost 3 months of total chaos. Up the coast, beaches were swept away, marina walls breached and shipping destroyed.

Beyond all the human cost and property destruction, there were the economic impacts. A whole season of cane was destroyed. The Hay Point loader was badly damaged, so no coal was shipped for almost 6 months. And of course the tourist industry was dead on its feet. The Commonwealth and State Governments recognised it as a national disaster and provided assistance, but it was going to take some time, and a lot of effort, to get the region back on its feet again. But what turned out to be special was that the Chinese companies that had been buying the coal, and also the Chinese Government, were moved by the events to offer a significant range of financial and technical support.

By mid-2012, things were starting to get back to normal. Maybe better than normal. Because the combination of the devastation, the recognition that a new region-wide approach to planning was needed to ensure it never happened again, and the strong sense of cooperation in the region in the face of the challenges, had led to a much greater emphasis on the region as a producer of high quality horticulture, favoured by the new climate. Also, in cooperation with our Chinese friends, a new investment program was beginning in aquaculture, largely based on their expertise and investment.

So it was that in 2015, when the mandatory Xian Protocol requiring large decreases in greenhouse gas production came into force, that it seemed almost natural that the Chinese should be involved in the research, design and construction of the first entirely clean coal baseload power station in Collinsville. A specialised clean coal research facility had been identified as a priority in the 2012 round of joint planning, staffed by the brightest Australian and Chinese researchers.

Come 2017, the region was thriving on a thoroughly sustainable basis, and the region was noted for the strong, and very welcome, Chinese community.

8.2 *'It's not just the economy, stupid'*

As promised by the economists and the mining companies in 2007, the global economic boom still had a long way to run. China, and India, followed by Russia and Brazil, developed strongly. Indonesia entered a new phase of very strong economic growth. The demands for minerals and energy continued to increase. As a result, the Mackay-Whitsunday economy, jobs, and the major population centres continued to grow strongly. Chinese investment and ownership increasingly was a part of the scene.

One of the fascinating shifts in the Australian scene, which started in the lead-up to the Federal elections in 2007, was the strong emphasis on revising the fundamental governance structure of the country. The growing community and corporate dissatisfaction with inefficient and overlapping governments, and the demonstrated inability of the Federal Government to deliver effective outcomes through its interventions at a local level, lead to much public debate, and a series of constitutional conventions over 2008-2010. The outcome was the 'New Regionalism' introduced in 2012.. The three tiers of Government remained, but funding and general policy responsibility was concentrated in Canberra, and the delivery of services was largely the

responsibility of super-regions. There were six in Queensland, and they were quite fiercely competitive.

But by far the biggest shaper of the economy of the region was the rocketing global price for oil, which lead to pump prices of \$2.40/litre by 2010 and \$3.60 by 2012. These price increases, themselves driven by oil shortage, opened the way to great new opportunities. In particular, with application of the latest technologies, oil shale extraction from the large resource near Proserpine became economically attractive. Also, the national drive to reduce reliance on imported oil gave a great boost to the production of biofuels, including from sugar. Mini-plants could be added onto the sugar mills to ferment sugar directly to ethanol. The special feature of each of these developments was the investment from Chinese companies in these two projects, While full production would not be achieved until 2015, the economic potential was huge.

So the local economy looked good and prospects fair. But along the way, a lot of social issues seemed to have been forgotten. The New Regionalism was taking a long time to be established and the Super-Regions were slow in recruiting suitable staff and developing effective delivery systems. Housing for the steadily growing population was scarce and expensive. Under high levels of social pressure arising from debt and family breakdown, social services were patently inadequate, and gangs of warring youths were producing increasing lawlessness, insecurity and violence. This situation seemed to mirror that of China, where, according to news reports, there was massive social unrest.

8.3 ‘Swings and Roundabouts’

It was on the 1st January 2010 that the People’s Republic of China made a formal announcement that the peaceful reunification of Chinese Taipei (Taiwan) with the mainland would be completed within two years. The major nations expressed strong concern for human rights and constitutional freedoms, but even in the case of the US made it clear that this would not automatically lead to military intervention, but rather that they hoped an appropriate resolution that accommodated all interests could be achieved.

That was not the way the Taiwanese Government saw it, and with their considerable industrial, technological and financial power, set about trying to destroy the economic and political standing of China. While this represented a ‘David versus Goliath’ confrontation, they cleverly used their strengths in IT, and their understanding of the frailties of global financial markets to set a major scare campaign going about the quality of Chinese goods, their use of child, slave and prisoner labour, and their reliance on intellectual piracy. This, together with a level of social unrest inside China, resulted in a dramatic decline in the performance of the Chinese economy, such that it grew only 3.5% in 2011. Facing a sudden reversal in its balance of trade, the Chinese Government acted quickly to cut back on imports, particularly of commodities. The price of coal dived.

Meanwhile, the skills shortage of 2007 continued and was exacerbated. The strong economic growth on offer in 2007-10 was so constrained that the Government extended

its ‘guest worker’ provisions, particularly through agreements with New Zealand and Fiji, which eased temporary migration for work and education, and linked it to shared trade opportunities. Then in 2010, there was a flood of immigrants from Taiwan taking up residence options in Australia that they had previously put in place.

For Mackay Whitsunday, the decade was a rollercoaster. For four years the economy boomed, but there were significant social problems because of a lack of housing and services, and some racially inspired violence. From 2011-2014, mining exports collapsed, unemployment soared, young people left the region looking for jobs. But then from 2015, things started to pick up, as the Taiwanese developed businesses based on Asian foods, and on their previous experience in IT. The biggest challenges for governments, and planning, were managing the extreme swings.

8.4 ‘Mackay-Whitsunday Cosmopolis’

In the face of limited action from the Commonwealth Government on climate change in 2007, and a strong concern in the Mackay Whitsunday region of possible devastating effects, the Councils and industry of the region formed a taskforce and commissioned a major inquiry into potential impacts. This led to an agreed regional plan to focus public and private investment over the next five years on a coordinated plan to address the priority climate change threats. Measures ranged from coastal defences, rainwater collection, and tough building codes to reef protection.

Linked to an effective sponsorship and marketing campaign promoting the ‘Green Whitsunday Cosmopolis’, the region became internationally recognised from 2010 as a model for response to climate change, and attracted visitors interested in learning and sharing the experience. Seen as a region with a sound economy, good lifestyle and environmental awareness, a wave of settlers began to arrive from around Australia and the world to live in this delight, bringing their cultures, values and capital with them.

Thus the region was well equipped to deal with the water crisis of 2012-13, through water production, storage, management and recycling, which only served to enhance the region’s environmental standing.

China’s economy, inevitably, could not maintain its 10% pa growth, and gradually started to slow by 1.5% per year from 2009. This led to a strong drive to diversify the customers for the existing industries, for example in new markets for coal in Russia and India. But the bigger push was to diversify the local economy into agribusiness, mining management and safety training, specialist shipping repair and specialised steel production.

9. Initiatives under each Scenario

9.1 'The Chinese Connection'

Issues to be addressed

- Support for inland (non-coastal) economic development
- Alternate coal port infrastructure
- Australian-sourced support versus Chinese support
- Australia-China relationships in Queensland
- language barrier – need for language training in schools and for the community
- Planning & process implications
- Coastal housing shift
- Sugar industry impacts
- Regional unity pre-disaster
- Tourism – still coastal
- River relocation
- Subsidence
- Water capture & storage
- Transport infrastructure
- Attract and retain technology and R&D facilities, based on a shift from opportunistic to proactive
- Attracting Chinese mining students
- More horticulture and aquaculture
- Increased educational opportunities
- Creating a magnet for skills, knowledge and training
- Disaster planning and management
- Building a proactive relationship with China

Some Initiatives

- Contingency planning for disaster
 - Alternate ports, rail for coal production
 - Disaster mitigation - housing and public services location (shift from coast), river relocation
 - Planning for subsidence in coal mines
 - Loss of sugar land for alternative uses/developments
- Develop strong Australian-Chinese relationships
- Expand coal sales to achieve a greater involvement with and market for our other businesses
- Improve water capture and storage
- Improve knowledge of more intensive agriculture and support development of horticulture industry
- Explore and pursue educational opportunities
- Attract and retain technology and research facilities

9.2 *'It's not just the economy, stupid'*

- Develop knowledge capability through:
 - exploration of research data
 - pursuit of strategic partnerships with multi-national energy companies eg BP, agricultural manufacturing companies eg CSR and genetic research companies
- Develop a Statutory Regional Plan based on a shared decision process, leading to a defined land use for the next twenty years, including a move to denser housing, which leads to the establishment of the Mackay-Whitsunday Housing Corporation which is a public-private partnership
- Mackay Regional Council adopts a plan to balance economic and social development, involving Social and Economic monitoring and development of economic infrastructure and a social infrastructure investment plans

9.3 *'Swings and Roundabouts'*

- Develop strategic alliances with other trade partners
- Develop value added markets for knowledge & IP
- Facilitate a task group to investigate value and opportunities (eg ethanol, paper, steel)
- Targeted overseas skill attraction eg Taiwan specialty construction
- Improve the efficiencies of existing industries (including supply chain logistics) to maintain competitive advantage
- Accelerated upskilling programs for unskilled workers
- Lobby govt & industry stakeholders to invest in infrastructure and education
- Accelerate alignment of education system with industry needs
- Attraction of new industries across the region (pre-fabricated housing, robotics)
- Assimilate migrants into wider community
- ICT infrastructure development program

9.4 *'Mackay-Whitsunday Cosmopolis'*

2007 – Mackay-Whitsunday taskforce, composed of representatives from regional council, REDC, industry, State Govt, mining/engineering to investigate potential impacts of climate change in the region

2008 – Report on issues to be addressed – coastal defence, rainwater collection, tougher building codes, reef protection

2009 – new coal contracts with India & Russia; Burdekin river pipeline to Bowen extended to Proserpine & Mackay

2010 – Queensland Building Standards Association (QBSA) introduces tough new building codes for Mackay-Whitsunday region in relation to design favouring the traditional 'Queenslander' with compulsory rainwater tanks; new industry develops to make best use of natural resources eg specialty steel for shipbuilding

2012 – The regional plan addressing climate change is released; Green Whitsunday Cosmopolis is launched; the second regional council elections evidence a stronger focus on larger regions, having learnt from the first term the need to establish stronger political power

2013 – International recognition of the region’s climate change initiatives – best practice design and mitigation practices and skills are exported around Australia and the world

2014- Strong international visitation attracted by climate change programs and resultant environment and lifestyle.

10. Key Initiatives under all Scenarios

Group 1

1. Land use studies

Urban

- low cost/affordable housing
- land release policies
- emergency provisions

Industrial

- manufacturing and processing development
- diverse regional income
- jobs/education

Agricultural

- food
- biofuels

2. Research and development

- Energy
- Biofuels
- Clean coal
- Technology/intellectual property
- Export energy
- Linkages with academia and R&D
- Academic research eg robotics

3. Geopolitical shifts

- Strategic alliances with China, India, Brazil and Russia eg through sister city twinning
- Joint research with overseas educators
- Stronger influence from collaborative regional councils

4. Disaster recovery

- Environment
 - Climate change
 - Policy
- Economic
 - Shift in political powers

- Terrorism
- Downturn in economy

5. Social Change Management

- Education
- Accelerated assimilation of migrants (predominantly Asian)
- Try to avoid enclaves of ethnic groups
- High density/social education

Group 2

1. Regional Decision Making

- Entitlement
- Information sharing
- Models of decisions (per issue)
 - Driving commitment
 - Supporting flexibility

2. Research and Development Capacity

- Linked to core industries
- Northern Australia creating solutions and products for a 21st century market
- IP building ownership

3. Education/training/learning diversity

- Whole of person concept – what do you have in terms of a natural/skill set; what do you need to manage earning/learning opportunities
- Personalised learning programs for existing population and those yet to be born

4. Global Connections

- International awareness/relationships
- Improving capacity to use opportunity

Group 3

1. Strategic Alliances

- Internationally with China, India, Russia, Brazil
- Company to company
- Regionally, both inter- and intra-

2. Value adding to current activities across industries incorporating world best practice

- New by-products (e.g. ethanol, furfural)
- Improving business practices
- Clean coal technologies

3. Regional diversification to achieve a more balanced economy

- New industries
 - Agribusiness

- Shale oil
- New tourism products

4. Regional Skills Development Strategy (regional training plans)

- Coal slump – unemployment?
- Reskilling/upskilling
- University/TAFE roles – R&D
- Become knowledge exporters

5. Anticipate and address social consequences of economic change

- Social impact studies
- Regional plan for community

Group 4

1. Creation of a statutory regional plan reviewed annually with a twenty-year timeframe and five year major reviews. Driven by regional leaders with triggers to signal options as required ie highly flexible
2. Early and accurate adaptation to climate change – turn it into a positive wherever possible – facilitate the necessary changes e.g. building codes, support new industries etc
3. Diversify trading partnerships and international relationships – encourage viable new exports beyond commodities
4. Success will require increased skilled labour and hence immigration, which requires cultural integration, which requires community education
5. Development of our community's intellectual capacity, to become more global and entrepreneurial, which will increase our knowledge base and enable IP exports. This will require a focus on community education.

11. Conclusions

Six areas of priority emerge as a central focus for regional economic development strategy and planning:

- **Strengthening of Regional Planning, Decision-Making and Implementation Processes**

The emphasis is on lengthening the time horizon for planning, building greater contingency into the process, establishing the active engagement of all key stakeholders² and achieving the necessary vision and scale without being limited by historical boundaries of right and responsibility.

² Constructing a map of stakeholder interest may be a valuable precursor to engagement

- **Development of a Forward-looking Strategic Economic Development Plan for the Region**

There is a need to build on the Economic Baseline Audit to identify both incremental and radical economic developments that have the potential to both grow and transform the regional economy. The central principle should be to build on the strength of existing capabilities, principally coal, sugar and tourism, by value adding through downstream processing, diversification, and the growth of a ‘halo’ of supportive industries providing specialised services. However the possibility of completely greenfield economic possibilities should not be excluded.

- **Enhancing the Knowledge Capacity of the Region**

In the short-term there is a need to enhance skills availability in the region through training and attraction, nationally and internationally. But the longer-term need is to substantially enhance the community’s knowledge capacity and to embrace global and entrepreneurial perspectives in order to transform the economic basis of the region to a much higher dependence on knowledge. Substantial investment in education, research and technology development relevant to the region will be required from both the public and private sectors.

- **A Committed Outreach Process to Build Alliances Relevant to the future of the Region**

The critical feature is the development of a regional culture that looks outward rather than inward. A process is needed to support the pursuit of alliances with relevant and comparable regions in countries that have a major interest in the Mackay-Whitsunday region eg China and India, with companies, national and international, interested in investment and skill development, and with comparable regions in Australia.

- **Development of a Proactive Capacity to Address Climate Change Issues**

While the precise extent and timing of climate change effects, be they physical, economic or regulatory, are unknown, the potential harmful impacts of a particular conjunction of events for the region suggests there would be very real value in establishing processes to assess possible impacts, review land use planning, test infrastructure for viability and setting in place the long-term measures which educate and shift behaviour with regard to resource consumption.

- **Social Change Management**

While the focus is on economic development, the social dimension cannot be neglected, because failure there will impact hugely on the achievement of economic goals. Issues to be addresses include housing affordability and density, delivery of education and health services, assimilation support programs, and programs to support cultural expression and understanding.