Turning Big Ideas into the BEST Growth ideas for Regional Communities

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For a long time, regional communities have felt short changed by major planning and infrastructure projects. Although the national and state outcomes are well quantified in the business case of strategic projects, local communities often comment on the negative impacts they experience. For many regional communities, Big infrastructure projects are not the BEST ideas for local growth. It has been difficult to transfer the benefits of growth to the local scale.

Could there be a better way to develop catalyst infrastructure projects that protect local identity and lifestyle as well as provide long term economic vitality?

The conundrum is that the seeds of local benefits need to be embedded early in major projects by local communities. There needs to be a better way to develop major planning and infrastructure projects that is place based, regionally significant and investable.

As we continue our transition into the new economy, the repositioning of our skills and productivity is increasingly required to be undertaken in an environment of shrinking government resources.

Many urban and regional communities are seeking public investment in strategic projects that promise to facilitate strong economic growth and employment outcomes. The challenge is to identify the BEST ideas.

“The secret is to quickly move from the sea of ideas to the most investable idea”

How to turn an idea into investable innovation

Tim Brown, CEO and President of IDEO, launched the concept of corporate Design Thinking in 2009 through his book “Change by Design”. Since then, the paradigm of “Design Thinking” has been popularised globally as a new tool for business to reinvent itself and its profitability in the increasingly customer centric market place of the 21st Century.

The challenge for corporations has been their internal management cultures. Existing systems in large organisations have had a tendency to turn Design Thinking into a linear, gated, by-the-book methodology that at best delivers incremental change and ad hoc innovation. Far less than the original promise of creative, agile and profitable solutions.

The real power of Design Thinking is its purposeful application based on strong ideation and outcome ownership, a continuous journey of iteration driven by small loyal teams. Qualities that are often lost within large organisations but often found within our urban and regional communities.

Although, a lot of early work was focused on helping existing corporations transition their internal processes to deliver better products and services, it has been hard to find Design Thinking
frameworks that could readily help develop catalyst projects for urban and regional economic development.

“Design Thinking is way to get business people to think more like designers and designers to think more like business people…but design thinking is more than that...Design Thinking is not an experiment; it empowers us to experiment.”

Idris Mootee, Design Thinking for Strategic Innovation, 2013

In 2013, Idris Mootee published “Design Thinking for Strategic Innovation” driven by his belief that we are at an important tipping point in human and economic history. Through the strategic use of Design Thinking, Mootee promotes,

“...the vision that sustainable growth can only be made possible when we synthesize concepts including natural capital, creative capital, and social capital and when all are integrated into the balance sheet.”

Essentially, Design Thinking brings the creative problem solving processes of designers into the more structured environment of corporate investment to solve the critical innovation challenge of turning ideas into profits. The important concept imbedded in this paradigm is the understanding that Creativity is the generation of new ideas, Innovation is the successful implementation of a new idea and Design is the process that transforms the original idea to an innovative solution.

Lean Thinking

In 2011, Ash Maurya published the first edition of Running Lean, a book that provides a systematic process to assist start-ups to get from their idea to a business plan the works before they run out of resources.


The key innovation Osterwalder brought to the market was the one-page business plan called the “Business Model Canvas” a one-page tool to capture the rationale of how an organisation creates, delivers and captures value. The Business Model Canvas is a tool used by corporations across the globe to revise their value proposition based on deep customer insights.

Maurya found there were shortcomings in the Business Model Canvas when seeking to apply it to start up enterprises. In his Book, “Running Lean”, Maurya outlines his adaption of the open source Business Model Canvas into what he has called the Lean Start Up Canvas. This is a one-page tool better suited to testing the business model of new enterprises. The purpose of the Lean Canvas is to allow the entrepreneur to outline a business idea in a fast, concise and portable format in order to facilitate conversations with other people and therefore begin to test the business model hypothesis.

“Your Product is NOT the Product...Your Business Model is the Product.”

Ash Maurya, Lean Running 2011
New Tools for Place-based Regional growth

Mootee’s and Maurya’s work have been timely contributions to a practical 21st Century approach to developing more investable economic development projects.

Mootee’s “Design Thinking for Strategic Innovation” confirmed the value of iterative processes that consider context, place, people and authenticity in the development of business innovation and therefore employment growth. This principled based approach supports the economic development position that good growth is growth that makes the community stronger in all its dimensions, not just economic. In fact, this more interconnected value creation reaffirms the essential characteristics of the new economy we will need to thrive in, if we are to maintain our standard of living.

Maurya’s ingenious adaption of the Business Model Canvas into the Lean Start Up Canvas has created a practical and systematic doorway for further adaption. One of the more significant opportunities for Strategic Planners and Economic Development practitioners is to provide a more user friendly process of testing new and existing ideas for strategic investment initiatives. There now is the potential to develop a simple and robust tool to allow project proponents to develop better ideas before investing their increasingly scarce resources in the completion of the projects business case.

Lean Leverage

The real power of both these new paradigms lies in their potential to leverage the early ideation stages of a project. These paradigms embrace creative thinking activated by a design thinking process that can effectively and efficiently transform ideas into highly investable projects. Their combination provides a highly leveraged use of resources for proponents to identify the right project for the economic development problem they are seeking to be solve. This process inherently develops a project that is more layered and connected rather than focusing on securing justifications for narrow, single use infrastructure.

Regional Solutions Framework (RSF) Spiral
Recently, the Regional Solutions Framework (RSF) Spiral was developed by Charters and Prestipino with the support of Southern Cross University Researchers Associate Professor Jeremy Buultjens and Dr. Grant Cairncross. The RSF Spiral provides a systematic process, specifically tailored to the development and delivery of Regionally Significant Projects.

The RSF Spiral builds upon the Innovation Spiral as a conceptual framework for innovative thinking and overlays a systematic project development process that embraces the principles of Design Thinking and Lean Thinking founded upon the unique Place values of the location. The RSF Spiral provides a systematic pathway that iterates a project idea through three phases of Attitude, Agility and Alignment to ensure the most investable idea is developed for funding and that this idea is Transformational (A+A+A = T). This project development process has a number of decision gateways founded upon local values that ensure the project’s original intention is maintained as it moves towards formalising a business case for investors. The RSF Spiral guides the development of highly optimised project ideas through strong local leadership teams that evolve as design phases are completed and reviewed.

**Developing the B.E.S.T idea for Regional growth**

Early beta testing undertaken by Charters and Prestipino have revealed the essential attributes of place-based catalyst projects seeking collaborative investment partners for regionally significant projects. These attributes are defined by B.E.S.T. - Bankable, Emotive, Strategic and Team-based.

The BEST principles are applied through the CIM canvas; a new one-page tool has been developed for local leaders to quickly test the investable potential of catalyst infrastructure proposals.

Maurya’s Lean Start up Canvas has been the inspiration for Collaborative Investment Management Australia (CIMA) to develop a one-page Business Case evaluation tool for Regionally Significant Projects. The key premise in the CIM Canvas is that if catalyst infrastructure such as Regionally Significant Projects primarily need to support the emergence of new enterprises, on top of the consolidation and expansion of existing businesses, in the 21st Century economy; then this type of innovation initiative should be assessed in a similar way as to those seeking to start new enterprises. The challenge was to adjust the criteria to match the scale and value proposition required for an investable Regionally Significant Project.

The current CIM Canvas is the result of testing and iteration since its original development in late 2013 as a prototype Catalyst Infrastructure Canvas for the Tablelands Futures Corporation. The Canvas is intended to help define the investability of a Regionally Significant Project on one page so proponent teams can quickly test and adjust ideas in the very early phases of the project. As with all Business Model Canvases, their key value is as a conversation tool for project teams to highlight the areas needing further optimisation in order to strengthen the value proposition and increase their investment viability.

The CIM Canvas consists of nine project description activities that are completed in sequence, in a fast paced ‘back of the envelope’ approach to give the proponent a snapshot of the proposed projects strengths and weaknesses. It is not necessary to complete all activities at the first attempt.
The following nine action areas as follows:

1. **Problem & Solutions** – Top three addressed by the project
2. **Stakeholder Benefits** – Key stakeholder groups & how they benefit
3. **Significance** – Levels of significance and strategic partners
4. **Employment Outcomes** – Type and skill level
5. **Core Values** – Business, Health, Education & Lifestyle
6. **Regional Metrics** – Highways, Hospitals, High Schools, Housing & Hubs
7. **Delivery Channel** – Service, Growth, Catalyst
8. **Costs** – Capital & Recurring costs
9. **Financial Partners** – Investors and Operators

The CIM Business Case Canvas provides a simple and effective focusing of the proposed projects attributes for regional significance. It’s core purpose is to allow project proponents to customise the unique strengths of their project that will enhance the funding and investment opportunities whilst maintaining the project’s local significance. A facilitated canvas conversation helps to vet poor project ideas early and provides a much clearer focus for those ideas that are worthy of progressing to business case development. With just a one-hour introduction to the canvas, local leadership groups can quickly start ideation review and refinement for Regionally Significant Projects.
Conclusion

The emergence of new economic development tools such as the RSF Spiral and the CIM Canvas that incorporate and adapt new paradigms such as Design Thinking and Lean Thinking are challenging our traditional approaches to business case development. These new tools are empowering local leaders to shape more investable projects, earlier in the ideation process, where there is the highest leverage of resources and effort.

The application of Design Thinking to Strategic Planning and infrastructure issues is showing early evidence that it can in fact help projects attract funding and investors to innovative economic development initiatives embedded in Regionally Significant Projects. Clearly, it is still early days in this ‘intentional experimentation’ of new paradigms into the traditional space of business case development for catalyst projects. But one thing is for sure...

**There will be a continuing need for clarity and agility as proponents increasingly struggle with information (and idea) overload.**

What is the most investable idea? ...What is the BEST idea?... These will be defining questions that empower local leaders to secure the public funding and private investment partners for innovative economic development.

It will be exciting to see what further emerges in this space to help proponents quickly and efficiently identify investable projects that help secure their social, economic and environmental future.

References:


Charters & Prestipino; www.regionalsolutions.net.au

Collaborative Investment Management Australia; www.cimaustralia.com.au

Other Useful Reading:


Utilising the Inherent Advantages of Regional Cities to Establish a Prioritised and Agreed Infrastructure Program – the Case Study of Bendigo – Victoria

The Australian political and administrative system is bedevilled with many issues which work against establishing a prioritised and agreed infrastructure program for a city. These include:

- There are too many layers of government which often includes a fourth – regions.
- Government departments and agencies at different levels determine their own priorities based on assessments relating to their own specific responsibilities.
- Projects work their way up a priority list according to the criteria and vagaries of individual agencies.
- Election cycles are too frequent and usually result in federal, state and local projects and priorities being out of synchronisation.
- Cities – at least our metropolitan areas, contain a myriad of local government jurisdictions which hinder effective prioritisation.
- Community support is fickle and is difficult to garner and focus.

Bendigo in central Victoria – a rapidly growing city of 115,000 people, has embarked on an ambitious process with state support which is designed to cut through and establish a set of agreed priority infrastructure projects for the next twenty years.

Capitalising on a set of circumstances not available to metropolitan areas but common to most larger regional cities, Council has gained the support of the state government to commit to and fund a very different process. By the end of next year, we will know if the process has worked.

Bendigo is experiencing sustained population growth of about 1.6% pa, resulting in about 1,000 new dwellings each year and a projected population of about 200,000 people around the middle of the century, with another 100,000 in the immediate hinterland served by the city. A range of infrastructure needs to support that population can be identified and factored into the city’s long term planning.

While the historic strengths of Bendigo relied on gold and ‘old economy’ manufacturing, Bendigo’s future is now built on finance – with the national headquarters of the Bendigo and Adelaide bank, a $630m expansion of the city’s hospital which embraces the latest in health technology, a tourism and arts boom built around the city’s architectural heritage and the phenomenal success of the Bendigo Art Gallery, and some twenty stand out innovative manufactures led by Thales who were recently awarded a $1.5b contract to build the new army vehicle Hawkei.

With a strong economy and assured population growth Bendigo has moved into an era where critical future infrastructure needs can be identified and planned for. But like any regional city, where these rely upon funding support from a higher level, the capacity to deliver them in a timely manner and at the right location is problematical. Most regional cities have a list of priorities but they rarely match what individual departments and agencies have listed as they separately work through their own sets of priorities. Land required for future needs is often not acquired in a timely manner nor sequenced with
development pressures. Bold ideas to address infrastructure shortfalls let alone anticipating growth and getting infrastructure to drive the desired urban form are rare.

In contrast to metropolitan areas which comprise multiple local government jurisdictions, Bendigo, like most regional cities, is a single municipality. In Bendigo’s case that covers 3,000 square kilometres, so all future city growth is well within the municipal boundaries. Its regional city role means that many regional heads of various government departments and agencies based in Bendigo operate at a sufficiently high level to make decisions about priorities in the city. These decision makers cover areas such as water and sewerage, state highways and major roads, public land, long term planning of key facilities and so on, while importantly the role of a local government in a regional setting extends well beyond that of its suburban counterpart.

Both the community expectations and state government demands on a regional city council far exceed those that occur on most local governments in our metropolitan cities. Further in regional cities there are powerful community and commercial interests which can be harnessed. These interests in Bendigo’s case include; the Bendigo Bank, the local university campus, Bendigo Health (the hospital), the property development sector through a local chapter of the Urban Development Institute of Australia, the Bendigo Business Council representing the 750 largest employers and an environmental group which is an umbrella for a series of very active organisations. Importantly this set of interests have a track record working with Council and relevant government agencies on a series of projects including; the preparation of the Council’s major strategies on residential development and integrated transport and land use, the development of Bendigo Metro Rail which utilises the regional rail service as a backbone for the future urban form, and more lately the preparation of an innovative smart city bid.

‘Plan Bendigo’ captures this capacity for a unique working relationship. It facilitates a situation where about twenty-five key organisations; public, private and community can work together around the one table. The plan is simply to collectively identify and agree on the top ten or fifteen or so key pieces of infrastructure that are needed over the next twenty years, the general sequence they will need to be delivered, the general location where they will be needed and if required the land that is needed to be purchased. This package will be delivered to government for the relevant budget cycle. This process will also work with and take advantage of Victoria’s latest initiative in regional devolution. A series of Regional Partnerships have been established comprising regional groupings of about six to eight municipalities with their CEOs and appointed representative from the region who are setting bigger scale regional priorities. Will this model for ‘Plan Bendigo’ work? We will find out over the course of the next year. It has been backed by key organisations and the newly formed Victorian Planning Authority. If it proves to be an effective process the circumstances that exist in most large regional cities across Australia would facilitate it being applied elsewhere.

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ARTIFICIAL INTELLIGENCE, A SOLUTION FOR OUR REGIONS?

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Artificial Intelligence, a Solution for our Regions?

1. Setting the scene

Growing up on a farm in Africa is where I first met with Artificial Intelligence (AI), well sort of... For those who have been in my old country would know, South Africans call traffic lights “robots”, as they do it by themselves. That however, was not my first experience with AI.

Our farm is remote, and outside an electricity grid network. We used a Lister diesel engine that also doubled as a water pump, to generate electricity. The Lister was located in a neat brick shed about 400 metres from the farmhouse. Early evening, just as it turns dark a lucky boy (my brother or me) would walk through the corn fields to start up the generator, using a huge crank handle. Sometimes the handle slipped out and gave you a bloody nose. Disunity in the family arose late at night when some lucky boy had to walk, in the darkness to turn off the machine. It led to many fights and tears, and eventually, preventing civil war, my father designed and constructed an apparatus, a piece of AI to stop and start the machine. It was a gadget that, if you turn on a light, magically a battery would turn a huge fanbelt that would, in its turn, swing crank handle and spin the engine to a puffing start. Switching it off simply meant you turn off all the lights, and the Lister would fall asleep. It was cool, and it made our lives easier, and was my introduction to a machine that can do something by itself.

The question asked is, how AI can be applied to grow our regions, make it more sustainable, desirable to live in, and improve the quality of life of residents.

2. So what is artificial intelligence

Noun: artificial intelligence; abbreviation “AI”.

Google Assistant defines AI as:

“The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”

Techopedia uses this definition:

“Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with artificial intelligence are designed for include:

- Speech recognition
- Learning
- Planning
- Problem solving”

Techopedia.com explains Artificial Intelligence (AI)

Artificial intelligence is a branch of computer science that aims to create intelligent machines. It has become an essential part of the technology industry.
Research associated with artificial intelligence is highly technical and specialized. The core problems of artificial intelligence include programming computers for certain traits such as:

- Knowledge
- Reasoning
- Problem solving
- Perception
- Learning
- Planning
- Ability to manipulate and move objects

Techopedia goes on to explain Artificial Intelligence as “Knowledge engineering is a core part of AI research. Machines can often act and react like humans only if they have abundant information relating to the world. Artificial intelligence must have access to objects, categories, properties and relations between all of them to implement knowledge engineering. Initiating common sense, reasoning and problem-solving power in machines is a difficult and tedious approach.

Machine learning is another core part of AI. Learning without any kind of supervision requires an ability to identify patterns in streams of inputs, whereas learning with adequate supervision involves classification and numerical regressions. Classification determines the category an object belongs to and regression deals with obtaining a set of numerical input or output examples, thereby discovering functions enabling the generation of suitable outputs from respective inputs. Mathematical analysis of machine learning algorithms and their performance is a well-defined branch of theoretical computer science often referred to as computational learning theory.

Machine perception deals with the capability to use sensory inputs to deduce the different aspects of the world, while computer vision is the power to analyze visual inputs with few sub-problems such as facial, object and speech recognition.

Robotics is also a major field related to AI. Robots require intelligence to handle tasks such as object manipulation and navigation, along with sub-problems of localization, motion planning and mapping”.

Siri on your iPhone is a form of AI... So is Google Assistant and Facebook’s M, all becoming intelligent virtual Personal Assistants. Scientists and engineers are developing technologies that help us. These search engines and digital assistants use increasingly refined algorithms to tailor make individual searches based on previous successful searches.
3. The Good, the Bad and the Ugly: Popular perception of AI

Talking movies:
Over decades’ movies and in specific science fiction painted a picture of what they saw as the future world / the future city. In most cases a very dark picture of a dystopian polluted, crime ridden miserable place was painted.

Three movies specifically had an impact on me as a young planner.

- “Metropolis”, stark German silent movie dating back to 1927 depicting class differences where the workers operate machines, and beautiful female robots create chaos;
- “Blade Runner”, with a young Harrison Ford, portrayed Los Angles in November 2019; and
- “The Terminator”, with Arnold Schwarzenegger as the cyborg assassin, send back into the past by SKYNET to kill Sarah Connor the future mother of humanity’s saviour. Quite a thrilling movie.

As reported in The Daily News
The press knows that bad news and sensation sells, and to a large extend, reporting on AI the focus is on the “bad news”.

Jamie Walker in his article ‘Rise of the Machines’, (The Weekend Australian 6-7 August 2016) makes a dramatic statement “ AI is coming to a workplace near you. Maybe too near”. In his wide ranging article, he quotes Hamish Douglass, CEO of Magellan that we are at a tipping point, as computers learn to think, see and hear just as people do. As a result Douglass foresee AI will jeopardise employment of up to 5 million workers. Not only will AI impact on jobs, but on towns and cities and on planning, with the change of transport, and number of cars predicted to drop by 85 percent. About 25 percent of all land in Los Angeles is taken up by roads and carparks, lying dormant can be freed up for redeveloped.

The normally progressive The Guardian quoting author Calum Chase “With Artificial intelligence Homo sapiens will be split into a handful of gods and the rest of us”, focussing on a new class war; those who command AI and robots and those who do not.

Professional or white collar workers will not be immune against the onslaught of AI. According to an article in Courier Mail’s weekend Seek “Click on hi-tech changes”, 76 percent of all workers believe their industry is being disrupted by AI.

On a positive side Wilson da Silva in his “March of the Robots” (The Australian Research 12 August 2016) states “Don’t panic about machines getting smarter and behaving more like us – we’re going to need them.” In his upbeat piece he argues we should not be afraid to be taken over, we should be afraid there are not enough robots! His point of view is based on that of pioneering Australian roboticist and serial entrepreneur Rodney Brooks, founder of iRobot who have sold more than 14 million robots worldwide. With an ageing population, we will need more and better robots to take care of our frail self in later life. He points out that people will not only live longer, but will want to stay at our home for most of that period. To deal with this, society will need “social robots” that interact with humans using speech and social cues. Italian nursing homes are already employing companion robots to assist ailing residents.

Da Silva writes that society is moving to a point where we will be living in an “always on” world. This is already evident in Port of Brisbane, where 27 giant robots 10 m tall and weighing 60 tonnes each,
operate 24/7 in the world’s first fully automated marine container terminal. Similarly iron ore is moved by giant robot trucks for BHP Billiton, Fortescue Metals and Rio Tinto. This “always on” principle is coming to home, the kitchen, the fridge, the lawn mower, controlled via an App on your smartphone, and with the assistance of your e-PA like Siri.

Talk is cheap, money buys the whiskey
Business and academia’s approach towards AI is varied, depending who you ask. According to Solvex “If we stop taking great risks, we stop inspiring people”.

Richard and Daniel Susskind, put that “Technology Will Replace Many Doctors, Lawyers, and Other Professionals”. This article (Harvard Business Review 11 October 2016) focus on the believe that white collar professions will not be impacted on by AI. They conclude that two assumptions: One, computers are incapable of exercising judgement, being creative and empathetic; and Two, the insistence professional advice can only be achieved by emotional beings who are creative and empathetic, is problematic, and a fallacy. They claim that many professionals are already being “outgunned” by a combination of brute processing power, big data, and remarkable algorithms.

To rub salt in wounds, evidence already exist that AI being applied in legal work in New York have a higher accuracy rate than human lawyer. Anthony Goldbloom, an Australian AI expert states that in 2013 Oxford Uni research indicated that close to 50 per cent of all jobs have a high risk to be automated by a machine. This is driven by machine learning, scanning large volumes of data, and mimicking some task humans can do, so severely disrupting both the blue and white collar workplaces in such tasks. Be careful accounting firms, law firms and other professional businesses where the role is frequent high volume tasks. Human strength lies in being able to connect threads of information running through, we can “tackle a novel situation”, and this place a fundamental limit on what tasks a machine can automate.

In “Automation Will Make Us Rethink What a “Job” Really Is” (Harvard Business Report, 12 October 2016) Ravin Jesuthasan and colleagues explain the dilemma organisations face between proficiency roles VS pivotal roles, and calls for a re-examination of what a “job” actually is. They argue that with “machine intelligence”, machines learn by experience (similar to most people), and so improve their performance as time goes by. The classic example of the value to the organisation of the airline pilot VS the flight attendant, where at a point, investing further in already high skill levels and performance of a pilot bring no more value to the role, or to the organisation (the proficiency role), while more value would be gained by increasing performance of the flight attendant towards the delight of a passenger, especially in Business and First Class, (the pivotal role), where this can improve the airline’s competitive advantage. At what point will a robotic process add more value than the human role?

4. Our region, and who we are
Rural and regional Australia has a different set of challenges to the metropolitan areas. From planning point of view experts and observers agree that low or declining population growth, ageing population, limited access to jobs, generally lower income, lower levels of education, and educated youth / younger generation with limited career opportunities leave the regions, will require different solutions than our metropolitan counterparts. Cynics claim tax dollars are being spend where votes are, leaving the regions with a deficit in tax monies spend on vital infrastructure projects.
The Queensland Government Statistician’s Office Regional Profile for Southern Downs Regional Council Local Government Area, comparing the Southern Downs with Queensland highlights specific differences:

Our regional population, over the 2011 to 2015 period grew with 1 percent to approximate total of 35,738 people, a growth rate half of the State’s average of 2 percent.

“Population by age group” paints our region’s ageing population dilemma: The economically active age group with growing families (25-44 year olds) forms 20.6 percent comparing with Queensland State 28.2 percent, while the middle age group (45-64 year olds) represents 27.4 percent comparing with Queensland 24.5 percent. The most significant however is the 65+ year olds, being 20.2 percent of the Southern Downs population, in comparison with 13.6 percent for Queensland. This distribution is expected to grow to 30 percent in the 65+ year olds by 2036, compared to 19.8 percent for the State.

Levels of education, with a low proportion of working age population having tertiary education follows the trend when compared with Queensland, and youth once qualified cannot find job opportunities in the region, and do not return home. This may explain why 18.7 percent of employed are labourers, nearly double than that of Queensland.

On the bright side, as published by the State Government in August 2016, Southern Downs as part of Darling Downs Maranoa have a lower unemployment rate (2.2 percent) than South East Queensland (5.1 percent) and the rest of Queensland (6.4 percent).

The employment figures show a significant discrepancy in wages: Wages are 23.9 percent lower than the average wage per Industry sector in rest of Queensland. Specific occupations groups reflect this: Managers earn 35.2 percent below the State average, followed by Machinery operators and Drivers 23.7 percent; and Technicians and Trade workers 23.4 percent below the State average. (Southern Downs Socio-Economic Profile, AEC Group, May 2016)

Furthermore, for an agricultural region, the ABC Radio National’s Future Tense program state, in the 30 year period ending 2011 the number of farmers declines by 40 percent, and their age profile of farmers over the age of 55 increased from 26 to 47 percent.

As our Mayor stated in her opening address, public transport is limited, and workers are reliant on their own transport between home and work. Only 0.3 percent of all working residents used public transport to travel to work compared 5.5 percent in the rest of Queensland. The private car is the most popular method of reaching work, with 68.7 percent of residents using a motorcar.

While our region, like all others face challenges, the local economy has grown strongly, according to the AEC Group, the Gross Regional Product (GRP) grew by 4.8 percent on average since 2006-7 to nearly $2 billion in 2014-15. Southern Downs’ leading sectors in 2014-15 were Transport, postal and warehouse ($191.2 million); Agriculture, forestry and fishing ($182.7 million); and manufacturing ($182.1 million).

Lawrence Consulting in their study Economic Impact of the Tourism Sector on the Southern Downs LGA finds that tourism contributed $150.6 million during the 2012-13 period.

Economic and population statistics aside, the Southern Downs is well known for two industries in specific, Agriculture and Tourism. The Granite Belt is renowned for having Queensland’s coolest climate, ideal for stone fruit such as apples, plumbs, peaches, a variety of berries and vegetables. The northern part of our region boasts potato, grains and protein production. As part of the Southern Queensland Country...
region, close to metropolitan population in South East Queensland, the Southern Downs is a popular short stay destination for tourists of all persuasions.

While not unique to the Southern Downs, 67 percent of all businesses do not employ workers, and are “owner operators”, another 20.5 percent of businesses employ between 1 and 4 workers. The challenge in this is twofold, succession planning, and finding reliable, suitably trained help in times of need. By example, a dairy farmer, and his family are required to attend / milk cows every day, 365 days per year, regardless of weather, public holiday or mood. In practise this leaves the farmer with little opportunity to take a holiday, have a day off or being sick.

For a region where farming is a significant contributor to GRP, all the factors as discussed above, is a concern. In the Granite Belt area, most farmers turn to seasonal workers, commonly known as “backpackers” to do hard manual labour. At any one time during the production season, between 4,500 and 6,000 backpackers work, live and play in and around Stanthorpe. These “backpackers” are mostly young international travellers, using this seasonal opportunity to earn an income legally, gain life experiences and travel. This industry is not without its risks and challenges, as the ongoing issue of “backpacker tax” playing out on a national level demonstrates. The slightest policy change on temporary migration rules by example can bring to a halt an entire industry, such as agriculture.

5. Sustaining our regions, AI to the rescue, or it a threat to existence?

How does further development in AI, and its application in the workplace impact on the regions?

Agriculture

As already witnessed in the agricultural sector, while production and output have increased significantly, employment in this sector has shrunk, and is still shrinking further. The agricultural sector remains the largest GRP contributor in our region, and AI is already being applied successfully to improve production, lower costs and free up time for farmers.

Sue Neales (The Australian, Research, 12 August 2016) states one of the world’s most urgent challenges is “how will we feed the world?” Food producing regions of the world will need to feed the projected 9.5 billion people by 2050. The choice is stark, we need to either increase the production of staple food like wheat or face global starvation and a catastrophe.

While it is generally agreed that Australia cannot be the “breadbasket” of Asia, CEO of Toowoomba Surat Basin Enterprise (TSBE) Ben Lyons states Australia can be the deli of middle class Asia, a sizable premium market. Australian food and agricultural produce have a reputation of being of high quality, and safe to consume. Australian agricultural produce, from beef to wine and everything in-between is therefore in demand. It is a position Australia must guard jealously.

ABC Radio National’s Future Tense reports that robotics promises to transform the agri sector and address labour shortages. With chronic labour shortages, an ageing farmer profile and young people turning to the cities, the ability of robots to take on more and more tasks is a blessing, not a curse. University of Sydney developed a robot, “Ladybird” a solar powered machine monitoring plants and spraying individual weeds. Similarly, Queensland farmer Andrew Bate developed a weed spraying
robot “Swarmpot” identifying individual weed plants and target spraying those. This is a boon for the environment, and the farmer’s pesticide budget.

Modern Farmer reports on driverless tractors, some controlled by GPS from a central location, others by ground based transponders, keeping to a predetermined area. In both cases, the new tractors have no steering wheel, or hardware to control it from the machine itself. Self-drive or driverless farm machinery is becoming commonplace, and will allow 24/7 operation.

The French have developed, and are working on self-propelled robot christened “Wall-Ye” to prune vines, remove young shoots, and monitor soil and vine health.

A labour intensive, backbreaking task on intensive horticulture farms, and in nurseries, is the watering and moving of potted plants. This can now also be done by a robot. Its manufacture Harvest Automation is very clear in the robot’s purpose; it is designed to replace human labour “the agriculture industry is facing unprecedented labor volatility with tighter federal regulations on migrant workers, and a shrinking pool of available workers.”

University of Sydney researches are also working on a robotic cowboy, called “Swagbot” designed to keep cows in line like a cattle dog. It is reported that the cows are responding well to the prototype.

Tourism

According to ArchitectureAU, online platforms such as AirBnB, YouCamp and others are reprogramming private space, allow a property owner, tourism operator easy, affordable access to a new market. Through this sharing economy platform, property owners and tourism operators can tailor-make their offering, host is on one of the growing number of platforms, and have access to a specialist market global.

Quality control in accommodation places and restaurants are also on the forefront with services such as TripAdvisor, bringing service improvement and customer feedback close to the owner, and on display for their potential future customers.

Tyranny of distance

Self-drive vehicles is said to become the norm by 2030, rendering a large workforce in the transport industry without a steering wheel to hold on to. Self-drive trucks are being tested in Germany, the United States of America and other countries. It is estimated that autonomous trucks and busses will be the norm by 2025. The 2017 Volvo S90 through its “pilot assist” can self-steer, accelerate, brake and wave through traffic up to speeds of 130 km/h. This may allow the occupants to read, work, sleep or drink a glass of champagne.

Manufacturing and construction

Manufacturing remains one of our region’s strength industries; with AI and technologies such as 3D printing, specialised manufacturing can take place locally. Following examples set by the Chinese, housing construction can be done by giant 3D printers, completing a house in less than three days.
Education

Open Universities Australia made it possible for students, regardless of your geographical location, to study undergraduate and postgraduate degrees at quality universities online. Coursera, a worldwide education establishment allows people to complete and obtain certification for an ever-increasing array of courses, from soft skills such as Emotional Intelligence to hard core science and programming. Distance for quality learning is fast disappearing.

Medicine and Health care

IBM’s Watson diagnosed lung cancer with 90 percent accuracy, while humans diagnosed it with 50 percent accuracy. James Freeman, a doctor, and Sam Holt, who runs a skin cancer detection business, developed an iPhone app that with a detachable lens over your iPhone camera, scan your body for signs of melanoma, and assist in early detection of skin cancers.

Retirement homes in Italy are already using robots to care for and assist frail residents, assisting them in movements, as well as providing companionship.

6. Conclusion

Evidence is clear; AI and robotics are here to stay, and will be immensely disruptive. It will disrupt existing business models, and the traditional way of doing things. It will bring new, previously unthought-of opportunities and solutions to society.

Although at the same time as workers have been laid off from production lines, and new jobs have been created elsewhere, the relatively low-skilled factory workers who have been displaced by robots are rarely the same people who land up with more creative and less dirty jobs as App developers or analysts. Robotisation has reduced the number of working hours needed to make things; however, this technological progress is already being blamed for exacerbating inequality, a trend Bank of America Merrill Lynch believes may continue in future.

This inequality is not only true for blue collar workers with low skills; white collar professional workers including occupations previously thought to be “untouchable” will need to be reskilled. This is where our major challenge will be.

“Do not make tomorrow’s decisions on last year’s information”. Let robots process and humans think
ARTIFICIAL INTELLIGENCE, A SOLUTION FOR OUR REGIONS?

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Theme
“FROM LITTLE THINGS, BIG THINGS GROW - Tiny Towns and areas coping with little/no growth yet planning for a future”. How do you deal with the legacy from the resource boom?”

Title: From Booms to busts to bonanzas! – How do we do it?

We have seen the resource booms (and busts) before about rural Australia. Over and over we have witnessed the promises, the short-medium term benefits, the legacies and the heartaches when the promises for ‘sustainable’ futures do not eventuate. Often the medium to longer term benefits are accumulated by externals and those in or nearer urban centres (coastal centric) to the detriment of the smaller communities where ‘boom’ development occurs. Much of the direct physical, environmental, economic, social and cultural impacts are left with the rural folk. As one of the most urbanized societies in the world, our knowledge of the rural areas, the bush, the country has diminished over time as we have become urban centric. As planners we no longer seem to have the affinity with the rural situations about Australia. We may recognize issues and needs, but do we understand them enough – to better plan for change?

The last resource boom was unique. Previously the resource booms have followed similar patterns to the urban development booms, i.e. booms every 7-10 years, for booms up to 5 to 7 years. For some rural areas of Australia pundits have talked of this boom lasting for well over 15 years and up to 20 years. A whole generation of our society has been through a period where jobs were a plenty, and while ‘on-the-books’ many of these were ‘rural’ in nature, in reality most were filled by fly-in fly outs from the coastal cities/towns. The current job seeking youth will not have the job security luxury that the past baby boomers, X and Y generation have had! Were the benefits accrued over that period (economic) well balanced against the trade-offs made and the impacts experienced (physical, environmental, economic, social and cultural)? Some of these impacts we know were/are cumulative and have lag periods that extend well into the bust periods.

Did we plan for this boom period? Did we adjust our development planning and environmental management during this last period to deal with the negative and positive impacts as they occurred? Have we ever planned for boom periods, or do we just hang-on while it … ‘goes like the clappers’…and reflect afterwards? What can we do differently? Are there parallel elements of urban planning that could be better applied in our rural areas…more concertedly? Are we planning strategically enough or are we resorting to reactionary decision-making on the run?

How have we judged our performance in rural planning and development. There doesn’t seem to be any recognizable ‘template’ for rural planning and development, nor research or policy authority or framework that is applicable across the nation. There are a number of rural sector based plans or strategies, and attempts at regional planning in both NSW and Qld for instance. Do these provide the impetus for better rural planning? Or are they just again ‘static’ plans that are applicable for geographic compartments within each state (the silo approach) or are they being used to deliver politically driven pathways based on varying economic principles? Should we look to the international arena or others where rural issues have been paramount or a key component for national development? There are certainly a growing number of international policy hooks (principles, policies and targets) that have come about since the World Summit for Sustainable Development (WSSD), 2002, and before that the World Summit for Environment and Development, 1992 (the Earth Summit). We now have the Sustainable Development Goals (SDGs) as well as a plethora of international agreements targeting sustainable land management, land use planning and agriculture. But do we hear about these? How are our governments scaling down the ambitions within these to the national, sub-national and local arenas? What are the lessons learned here in
Australia and overseas? With another 2bn mouths to feed by 2050, should not the rural sector be worthy of better planning and development support in the future?

(Why) Have we dropped the baton?

To answer this and related queries we need to again look at who we are? As a professional institute do we still provide for planners to have the required affinity with rural issues and understanding of rural development matters? Or do we just see rural land use planning as an extension of what we do in the city, transferred to some remote place out in whoop whoop!? Thirty years ago there was a concerted effort to get away from urban centric work and the term ‘urban and regional planner’ was preferred over ‘town planner’. It was in part to recognize the direct connectivity between urban, peri-urban and rural development, but also in recognition of the important economic, social and cultural implications of poor rural land use planning and development. However, this transition would seem to have featured in the southern states, but alarmingly (or maybe comforting for some) in Queensland the term ‘town planner’ still reigns. But these are just names. Terms we use to identify ourselves [Unfortunately for many on-line listings of occupation in Australia it is hard to find any options for: land use planner, town planner, urban planner, urban and regional planner, strategic planner or spatial planner!!].

Have we aligned ourselves professionally to have a role in rural land use and development? Or have we tended to centre on urban issues and matters. Let’s turn to the PIA website. Box 1 below includes some excerpts from there.

Box 1: Excerpts from PIA website – www.planning.org.au

PIA - “serving and guiding thousands of planning professionals in their role of creating better communities.” ✓

“The planning profession (which is also referred to as ‘urban planning’ or ‘town planning’) X ...is specifically concerned with shaping cities, towns and regions ✓ by managing development, infrastructure and services.”

“Balancing the built and natural environment, community needs, cultural significance, and economic sustainability, planners aim to improve our quality of life and create vibrant communities.” ✓

“They create new, and revitalise existing, public spaces, conserve places of heritage and enhance community value” X

& ✓

“increasingly interested in managing urban growth effectively” X

“As cities and towns continue to grow......” X

Well...not a good start with the leading intros to Planning in Australia. Later in the webpages there are descriptions of the various roles Planners can play in various sectors/ thematic work areas, however these are subsidiary to the leading paragraphs that introduce our profession.

Closer to where we are today, what are our (PIA) perceptions of rural development. Again a review of the PIA Stanthorpe web page is revealing. Following here is some commentary on some of the excerpts.
From the promotional and Home webpage......“the ‘Slow Train Coming’ best represents the slower lifestyle experienced in rural and regional areas, but also symbolises how change, community development and investment rolls slowly but surely into our towns and regions, having already made stops in urban areas.”

While obviously aimed to set the scene, this statement would upset many folks in rural areas. Often faced with constrained resources, with incomes subject to market forces (agriculture commodities), and poor provision of community services and essential infrastructure – people rely on community sharing, reciprocation and action. Community action and development is a gleaming feature of many rural and remote communities. The connotation of the ‘slow train coming’ and ‘slower lifestyle’ typifies the stereotyping that still prevails in our urban population. The ‘rural communities’ of Australia are made up of many diverse groups in diverse and often harsh geographic areas. The change to the rural landscape about CSG fields cannot be describe as slow. The investments in the wine growing districts is certainly not slow. Nor is the conversion of many physical/manual tasks to IT linked technological change ‘slow’ in comparison to take-up of similar technologies in urban suburbs. Many in rural communities are ‘conservative’ in their lifestyles but also in their investment decisions. Global market forces determine much of their income, as they do not have the same level of ‘public purse’ employment and investments that prevail in coastal cities and towns. Decisions are made more carefully as there are far less safety nets. Nurtured development is favoured over the ‘boom and bust’ mentality of their city cousins.

On the Outline page for this Conference we get a bit better...

“Our regions confront planning issues that are neither urban nor fully understood. They are a function of agricultural and mining legacies, of new energy sources, of extraordinary cultural heritage, and of long standing support for the major population centres; yet the regions suffer comparative disadvantage the further the distance from the very centres they support”

But then..... “great brown land, the tyranny of distance is compounded by the inevitable shift of the population, and their knowledge skills and investment, slowly but surely, to the more urbanised areas along the coast.”

Why is it that we feel it is inevitable? “Its gonna happen anyway .....so lets just plan for when they get here i.e. the coast!!” Have we sensibly put on the agenda decentralization of population development? For Queensland, are we going to keep filling SEQ at the detriment of other regions of the State? Have we looked at the bigger picture of state development, linked to national development and dare I say it ...regional development (i.e. South East Asia)? Why don’t we have north-south & east-west connections to our transport systems to cater for our rural production. Why do we now rely on private investment rail development or pipeline routes, determined on a project by project basis for self-serving purposes. Where is the public good in these investments? Where are the long term multipliers and benefits for rural and good state development? Are we going to continue with the ‘trickle down’ economic theory that shows its tenacity to fail over and over again? Do we understand the Northern Australia development agenda? Have we looked at scenarios (both good and bad) for the coasts and rural communities?

“...How are our regional communities positioned to address this shift? How do these communities address the post resource boom legacies...”?

Is it the role only of regional communities to address population shift? The economic machinery at Federal and State levels, foreign investment policy, State Government attitudes to mine and CSG expansion using fly-in/fly-out, Federal and state agencies decisions on infrastructure and transport,
trade negotiations (Federal, state and international), banking and financial sector decisions, technological investment and use, and commodity markets etc. etc. - all have dominant influence on where people live and work. These are the two most critical aspects to investment in financial and human capital in rural areas. If left to most communities, they would suggest that the best way to deal with ‘boom and bust’ cycles - is not to have them. They are not fete di compli.

When there is higher demand for housing in cities, we don’t open up all greenfields sites for development in one sweeping policy action determined by State and Federal politicians and bureaucrats. Where multi-national and national investors enter the residential development market we have means to determine where and when retail centres will be allocated, the intensity of activities and we plan for the nurtured extension of essential services and infrastructure. If a multi-national tourist facility is planned we can use instruments to limit the type, form and intensity of retail within these complexes. Where urban extension increases demand for peri-urban uses we use instruments to stem the supply of rampant rural-residential uses. We use land use planning at the State and local levels to achieve this. So why are we not doing the same in regional and rural areas. Why is it that we listen to multi-national entities who have access to and are able to convince Federal / State politicians & bureaucracies of a market demand (that most of them have created or control), then open up vast areas of the country for the industrialization of our food producing areas. “

“Demand .....yep we see that ....there you go guys...acres of land out there...go for it.....but there is the EPA Act, so you better put some documentation together...”

Convincing or working with farmers to ensure agriculture is developed consistent with the land’s capability and/or suitability has been a work in progress for near 100 years. Early soil conservation efforts in many states commenced with farmers requesting help from agriculture extension officers/departments. Landcare was first borne out of effort of rural landowners in western Victoria and mid-north South Australia as far back as the mid to late 1960s. Similar efforts were evident also in WA and Qld soon after. Landcare was not a Federal government construct of the 1990s as many are led to believe. Conservation agencies have led the way for the retention of remnant biodiverse areas, inland wetlands and cultural heritage areas scattered throughout the bush. This too occurred over a period of 100+ years. Why is it that now we see mining and CSG industries circumvent these past endeavours as part of what many see as the industrialization of the food bowl/s.?

What are the communication and infrastructure needs and demands of low populated areas? and how does planning cope with no or little growth, yet accommodate a future?

Now we are getting somewhere! There are particular and often unique capacity needs in the rural sector....the question is whether it is limited to communication and infrastructure only! Also let’s not get hung up on growth. While it has fed us in the urban systems to the point where we are over reliant, it is heavily slanted toward the capitalist expansionism theories (market led trickle down ethos), the premise being that expansion of the entity or the infrastructure needed to service it, will create jobs, will put money in pockets and that will be spent (Adam’s theory of the 19th Century - the ‘hidden hand’ will correct market led failures). Many in rural communities are more attuned to the Keynesian theories of investment and returns where the nurtured increase or maintaining of economic activity brings the most sustainable benefits to communities.

What are the futures for agriculture, intensive animal husbandry, and regional tourism? What can technology (such as the NBN) do to re-energise and promote e-business and services from regional areas? How does planning address food security?
Important and relevant questions…. but are the themes too limited. As mentioned rural landscapes, and rural development within, are often very unique to the spatial and geographic conditions about them. The state-pressures-impacts and past responses to macro development of the Barossa for instance may only have some consistencies with the technological needs for sustainable cropping and development within the Roma district. There are many technological advances in agriculture that are leading to new job creation in the bush. From laser & GPS based ‘hand-less’ tractor driving, to automate irrigations systems reading real-time moisture probes located by GPS, to drone based soil mapping and yield analysis. The level of take-up of technological advancements in rural Australia has always been prolific. The difference now is that machination of the rural industries from the 1950s to early 2000s led to less ‘on-farm’ jobs, the drying up of service trades in local towns and then in turn the rural population decline.

The IT based technological advancements now being rolled out will need extensive local based service trades and specialist technicians - from electrical & electronic engineers, telecommunications & radio experts, aviation expertise, mapping, satellite use & drone servicing, IT software and robotics etc. Where we are dragging the chain is the provision of local incentives for more technological advancements tied to the voluntary and legislative based carbon and biodiversity offset industries. The players in these latter areas are currently dominated by externals, most of whom have had inequitable access to government policy, methods, approaches, practices and tools. As the present IT based boom extends there will be great benefits for rural Australia, with far less leakage of multipliers as experienced during the mechanical advancement period.

The IT lead advancement in the rural sector, will assist with advancing our food security. However, against these opportunities and benefits have been the invasive and extensive threats from mining and especially CSG and associated industry. Many farms in rural Australia had achieve certification for quality against various platforms including the organic best practices. Many have now had these certifications stripped from them as CSG expansion has occurred. Controlling access, use of chemicals, the spread of alien invasive species (IAS), pollution control, sustainable use of water and soil resources, routes for stock control – are all determinants in the level of certification that a farmer can achieve. Mining and CSG located on or nearby farms usurps measures implemented to address these threats. Uncontrolled vehicle access alone (mining/gas industry vehicles) is enough to spread IAS and require use of chemicals to control environmental and agricultural weeds.

Having CSG related infrastructure near or on the farm devalues the land (despite much argument from governments to the contrary). Banks are now requiring re-assessment of extant loan facilities, driving families into bankruptcy, denying important equity for technological and management advancements and overall depleting disposable cash for land owners. The result is the inability to maintain investments in good farming practice and technology. Other than the direct bio-physical impacts from resource extraction (minerals and CSG), there will be escalating ‘non-point’ and cumulative impacts over time. Many farmers facing the bulk of CSG development expansion can no longer sell their land due to the direct and indirect impacts of CSG – with the values of their land holdings now less than their loan commitments. Conversely in many areas CSG industry players are buying up good agricultural land, to ‘reduce the objections’ to the extractive industry expansion. This too seems to be a government supported strategy!!! Would we enable the same in our coastal cities and towns?

**What are the implications of the Melbourne to Brisbane Inland Freight initiative?**

Whoah! Isn’t this on the east coast? How inland is it to be? Again is it catering for our coastal urban focus or is it to assist rural Australia. There may be benefits for the near eastern coast rural areas and towns, but how far are these multipliers going to extend? What are the other options? A Townsville
to Melbourne alternative route would be better suited to nation building and will provide better for our rural development away from the eastern coast. It will provide the essential second south-north railway and infrastructure link. It will provide the means to drought-proof many existing in-land enterprises enabling better links to food and fibre stocks to the south. It would also cater better for food and fibre commodities to reach city markets to the south, south-central and eastern coastal areas. In the longer term it would provide the means to link east-west connectors between this and the Adelaide to Darwin rail link.

Our food production areas are to the east, central east, south and south-west corners of the country. Our fibre production areas extend further inland but again are mainly dominated by southern and central Australia in terms of production per hectare. But our dominant future markets are to our north. Our most prime northern port is Darwin having the closest proximity to the Asian population. There is one single rail line from southern Australia to Darwin. We have only one east – west rail connection, and it’s to the south of the country. There is no rail connectivity from Queensland, nor WA. NSW and therefore Victoria has only one east-west connection through Adelaide or Broken Hill to northern rail line. We rely on port facilities which are now owned by foreign investors and multi-nationals. There are resources won in WA (resource extraction and fruit and vegetables) which are sent to the east coast, but either flown or sent by ship. Some of these resources are processed on the east coast for domestic markets, some for export. Whichever, the value adding is at very high transport cost per unit with multipliers often leaked to foreign investors/companies.

How does the planning profession across Australia lead thinking and action in all these spaces?

At the moment this reflection reveals that as a profession ….. we just don’t get it!

But is it us, the system or the community we represent?

Is it a reflection of society becoming more attuned to the ‘individualistic’ consumer (i.e. individualism versus a sharing – caring community!). As planners are we useful as guiding agents for sustainable consumption and production, allocation of land use and promoters of best practice (Agenda 21 through to the SDGs). Are we now representing a society of individuals wanting to satisfy our own wants (not needs) – high paid jobs, entertainment, improved living roads/health/mac-mansions, holidaying in the rural areas (leave the fish guts, effluent and rubbish!), continued proliferation of resource extraction out in the bush – to maintain these individualistic comforts in the city!!!. There is no doubt western societies in the 2000s are driven more by consumerism pursuits than prior eras, despite the use of a lot more ‘end of the development pipeline’ ‘sustainability’ tools and methods.

Focus of Planning on Urban Design and Place Making?

In answering the question of whether we are “leading the thinking or actions on rural planning and development” we may need to again reflect on our recent and present focus. A reading of PIA literature (PIA magazines and policy releases) shows the key focus or at least a trend over the last 10 years toward urbanism, urban design and place making. Urban development and design focus is evident too in recent announcements of professional links with the Landscape Architects. For place making, this thematic work area did have its roots in the USA in the mid-1960s, but would seem to have a present resurgence. This is not intended to belittle such work, as there is much merit for urban cities and rural towns in reinventing public spaces which have been and will continue to be at the heart of most communities. However, strengthening the connection between people and places also requires the net to be launched at a landscape scale and this is where we seem to be lacking.

Marginalizing land use planning as a conflict management system
Much is often said about our profession centring on planning and managing of physical development. Less focus over the last 20 years has been on the broader benefits of integrated land use planning systems in addressing or managing land and development based conflict. We often hear the adage that ‘religion is the cause of all wars’, however religion historically was tied to governance and empire building. Land and its utility (use) are the home of most tension and conflict, and as we see about the globe land and its resources – are still the root of major conflict. Past work for the UN and Pacific Islands Forum (PIF) has shown correlation of the incidence of tensions and armed conflict in small island developing states (SIDS) – with the status of land use planning and development management systems. This is where we should see land use planning as being a critical governance element (as recently noted by PIA Qld in a public release). At the local scene - land, utility, current use, perceived and real opportunity can combine to cause tension, which if left to unfettered can lead to conflicts. Simply, if person “A” doesn’t know what person “B” is doing and why- then there is a source of tension. This can be exacerbated massively if party “C” steps in and makes a decision in favour of “B”, without equitably considering the rights of “A”.

The importance of land use planning in addressing conflict needs to be borne in mind when dealing with present debates of mutual use of rural land for agriculture and resource extraction. Of course there are certain critical ingredients to ensure the land use planning systems are adequately incepted and implemented to maximize the effectiveness as a means to reduce or manage conflict. Information and communication are the two key ingredients to avoiding disputes and resolving conflicts, however the efforts need to be honest, early and two way.

**Rural Conflict on the Rise**

Land use conflicts often occur when one land user is perceived to infringe upon the rights, values or amenity of another landowner or use. Historically in rural areas land use conflicts were common between agricultural and expanding residential use (urban encroachment or rural residential development). Land use conflicts have occurred between different agricultural pursuits. There may be poor farming practice leading to over-spraying of chemicals, odours from intensive farm husbandry, polluted runoff from one farm to another etc. However, over the last 15 years the level of land based conflict has rising dramatically with the expansion of resource extraction uses (mining, CSG and UCG into agricultural food bowl areas. While UCG has now been stemmed, CSG represents an invasive industrialization of agricultural areas. For places like the Surat Basin, CSG and associated development and ancillary uses have become the dominant landscape feature. While gas in the conventional form has been extracted over the last 50-60 years CSG is another animal. The impacts have been significant: environmental, physical, economic, social and cultural. The social fabric in many communities has been destroyed, there is often open conflict between parties and suicides are now being reported.

Rural landowners, farmers, rural residents, town residents and rural land users have a right to live and work in quiet enjoyment of the land about them. However, many feel, and have experienced the detrimental impacts of unplanned and the invasive form of gas field development.

**The Image versus Reality**

‘Dressing mutton up as lamb’. Often what landowners and farmers are told to expect (e.g. Figure 1), is far different to the reality (Figure 2 below). Figure 3 shows the extent of ‘foreign owned’ tenure about the Hopeland area south and south west of Chinchilla. Figure 4 shows the visibility of the CSG fields from space (Google), noting that those within State Forests (darker backdrop) are more visible. Figure 5 shows a truer identification of the extent and intensity of the gas fields.
The machinery behind CSG gas field development in Australia is very organized. Many lead ‘Australian’ companies are majority owned by overseas interests, but more alarming, behind them are some of the largest global multinational oil and gas companies. They are politically connected and can also influence the international markets. In early days they played well on the assumption that CSG development was a game-changer whether on the perspective of global climate change, or energy efficiency and security. “CSG extraction is a recent development in Australia and is projected to make a substantial contribution to the nation’s domestic and export energy supplies for the next several decades” (Environmental and Planning Law Journal, 2012). However, over the last 5-10 years many serious concerns have arisen both here in Australia and the USA with regard to CSG and UCG development (ENVIRONMENTAL AND PLANNING LAW JOURNAL Volume 29, Number 2 March 2012).

Figure 1: Schematics of what to expect – US Dept of Energy

Figure 2: The reality of gas-fields in the Surat Basin
Figure 3: ‘Foreign ownership’ – CSG Tenures about Chinchilla

Figure 4: Visible impacts of invasive CSG wells – Hopeland and surrounds (Chinchilla)

Figure 5: The Reality Highlighted
“CSG is a spatially dispersed industry with a much greater footprint on land and environment than the more modest surface area devoted to well-heads would suggest. Its potential impacts – massive demands for water, contaminated waste water, disruption of aquifers, disturbance/contamination of geosystems, atmospheric pollution, degradation of landscape aesthetics, and stress on infrastructure and sense of community – raise important issues of human and ecosystem health” (Alan Randall - ENVIRONMENTAL AND PLANNING LAW JOURNAL Volume 29, Number 2 March 2012).

What has been done?

About the states there has been little attempt to plan for the spatial distribution of CSG fields, whether through strategic assessments, project based assessments, policy frameworks or regulatory frameworks. None of the institutional and legislative frameworks are sufficiently robust to manage the cumulative environmental, social, cultural and longer term economic effects of CSG activities. The implications for groundwater aquifer integrity is still not known (precautionary principle – Australian style!). In fact, a strategic and/or detailed land use planning approach has been dismissed by Governments (and industry) and replaced with the ‘risk management’ approach, preferred by many industry sectors to usurp ‘pollution control’ based regulatory mechanisms provided by legislation such as the EPA Act, Qld, 1994.

In both NSW and Qld there have been attempts to address the CSG development issue thorough policy mechanisms but in both states these have failed to stem the conflicts.

In NSW there is the Strategic Regional Land Use Policy, in which Strategic Regional Land Use Plans were designed to play a key coordinating role (Tim Poisel, Environmental and Planning Law Journal Volume 29, Number 2 March 2012). Not related to this, the NSW government in May, 2011, implemented a 60-day moratorium on new CSG exploration licences – with the expressed aim to address concerns about land-use conflicts. However, after this it was back to business as usual (BAU) with many issues remaining unresolved.

The Strategic Regional Land Use Policy was meant to introduce a package of measures to balance land use competition between agriculture and mining (NSW Farmers, Factsheet, 2014) and covers exploration and production. These measures include the need to identify and map the NSW’s most valuable agricultural land (‘Strategic Agricultural Land’), as well as ‘Critical Industry Clusters’. Resource Extraction on Strategic Agricultural Land is subject to additional independent scientific assessment and decision-making through the Mining and Petroleum Gateway Process. Development Applications still need to be lodged, but the Gateway process needs to be used before DA lodgement. Of interest it also is able to be used to implement Coal Seam Gas Exclusion Zones. Accompanying the Policy to assist with implementation has been: the appointment of a Land and Water Commissioner; the introduction of an Aquifer Interference Policy, and the introduction of a need to produce an Agricultural Impact Statement. There are also new Codes of Practice for the CSG industry, which were released with the Policy.

Regulating CSG in Queensland very much typifies the adaptive environmental management approach, in deference to good strategic land use planning and development. It’s a ploy masterminded sometimes by Federal and State level politics / bureaucracies to circumvent established decision-making processes. Adaptive management is again suitable in some decision-making arenas, but the appropriateness for mega-industry approvals is questionable.

“The current regulatory approach to CSG projects in Queensland is based on the philosophy of adaptive environmental management. This method of “learning by doing” is implemented in Queensland primarily through the imposition of layered monitoring and reporting duties on the CSG
operator alongside obligations to compensate and “make good” harm caused (Dr Nicola Swayne - Environmental and Planning Law Journal Volume 29, Number 2 March 2012).

The ‘learn by doing’ approach of risk management is more suited to social planning and development, not physical development management of such as large scale– it flies in the face of the ‘precautionary approach’ – a key international sustainable development principle. Risk management should be included in land use planning decision-making, but be part of the system of decision-making. It shouldn’t replace the need for good land use planning.

The attempt to put some form of spatial planning realm into CSG and other mining decisions in Qld initially resolved around crude mapping and information on Strategic Cropping Land, 2011. Confusion and misunderstanding prevailed more recently through the repeal of the Strategic Cropping Land Act 2011 (SCL Act) in June 2014, via the Regional Planning Interests Act 2014 (RPI Act). Under this change, Strategic cropping areas (SCA) were nominated as of regional interest under the RPI Act.

“SCL is land that is, or is likely to be, highly suitable for cropping because of a combination of the land’s soil, climate and landscape features” (https://www.dnrm.qld.gov.au/land/accessing-using-land/strategic-cropping-land)

However, the Regional Planning Interests Act 2014 (RPI Act) also “identifies and protects”:

- Priority Agricultural Areas (PAAs)
- Priority Living Areas (PLAs)
- Strategic Environmental Areas (SEAs)

One only has to refer back to the Hopeland / Chinchilla experience to see how this is working on the ground. Figure 6 shows the SARA mapping of Regional Interest layers for the same area about Chinchilla. Much of the existing CSG fields are over areas nominated both as PAAs and SCAs.
To make matters more complex (and to heighten conflict scenarios!!) there are separate regulatory provisions governing land access in Queensland, with mounting issues for landholders, centring on negotiation of access and compensation (another paper, another time).

The industry has been endevourus. The Standing Council on Energy and Resources has generated the Multi Land Use Framework – based on work from multinational consultants (2012). While this captures all the correct principles of communication, mediation and conflict management, including approaches for decision-making, nothing seems to have changed on the ground.

Adopting an integrated risk management approach is commendable, however such approaches/methods and tools are best applied further down the planning and development pipeline. It can be instigated through EIA and related decision making, but even these tools are advocated as best being part of the Land Use Planning systems.

The policy measures for NSW and Qld do not provide an ability to restrict CSG. NSW does have ‘exclusion zones’ but these are limited to urban areas. So its ok to have CSG invade rural land, but don’t come close to us in the city!! For both states and especially in Qld, where CSG is proposed within priority agricultural areas or priority cropping areas – there are still no ‘allocation’ or ‘location’ restrictions – it just means that more rigorous assessments may be required or conditions applied.

**Impacts on the Ground**

There has been mounting evidence of issues on the ground with operationalization of approvals. These have related to hydraulic fracturing, well head leaks, high point vent releases & noise, fugitive gas, groundwater management, surface water quality management and beneficial use of CSG produced water. The governments’ means to address these mounting complaints and growing concerns (now presented with evidence) seems to rely on reducing the rights to object by individuals and communities.

Regulation and management of impacts is a major concern and can only occur at high cost in such a huge spatial area. Whereas significant development near urban centres and cities is under the
watchful eye of a well-informed community (the working of the ‘squeal principle’ in environment and development management), extensive and intense uses scattered over large spatial areas does not afford options for self or public monitoring. This is the flaw with the reliance of a ‘risk management’ approach to development decision-making. Even where ‘integrated risk management’ is incorporated as part of land use planning (not a replacement) it needs to commence with comprehensive assessments and incorporate consideration of cumulative impacts (landscape assessment approach).

Currently the adaptive management approach (in lieu of land use planning) used by both NSW and Qld is project orientated which provides a barrier for robust cumulative assessments and landscape scale risk analysis. With this scenario we see very crude environmental impact assessments (EIA), which often draw on general publicly available information and rely on post-approval construction and operational environmental management plans (CEMP & OEMPs). They do not include ‘allocation’ elements, and often are an aggregation of technical assessments and not integrated impact assessments. The processes involved in decision-making and implementation enables much re-visiting of conditions or methods advocated in EIA – outside of public scrutiny. It is highly administrative, as poor EIA necessitates the triggering of subsidiary measures under the EPA Act: e.g. transitional environmental plans, environmental protection orders, amendments to Environmental Authorities. The administrative burden then provides the industry with argument to approach State/Federal governments to reduce ‘green-tape’. Queensland state level policy now incorporates streamlined measures that reduce so called ‘green-tape’ – which plays in the hands of poorer performance on the ground. Currently in Queensland there are no legislative or policy platforms that enables an independent guide to enabling go/no-go decisions. The system has enabled greater political influence on decisions, while decreasing the ability for public scrutiny and objection (both of these outcomes are contrary to international good governance, principles of subsidiarity, and human rights).

**Where to with Land Use Planning**

Primarily the sooner we can merge legislative, regulatory and policy platforms for proper integrated land use planning about Australia the better. This systemic means to integrate decision-making – will necessitate all resource extraction uses to be captured by land use planning systems. The exclusion of mining and other resource extraction from planning law is a hang-up from the ‘nation-building’ era of the country, somewhat entrenched by the Mercantilism economic theory and practice of the 18th century.

As with urban planning, rural planning and development systems should be steered at two levels, the first being absolutely necessary to address land use conflict (Qld Farmers (QFF), 2013 Principle 4a). The first, of priority importance, is through strategic land use planning approaches which identify areas preferred for compatible agricultural/rural uses, using criteria which raises the profile of food security in rural development and management. Separating potential conflicting land uses, such as mining or other resource extraction can be addressed through specific locational criteria that enable competing uses to be robustly assessed on a whole of landscape base. This should be done in a manner that landscape cumulative impacts can be equated and planned for. In this manner Food Security is given equitable weighting to the economic benefits often argued by Government in favour of resource extraction.

Strategic land use planning systems, should institute the use of Strategic Environmental Assessment (SEA) methods, as a minimum for significant land use change. These should be targeted at the landscape or catchment scale - although this may depend on the nature of the land use change proposed. Contemporary SEA should involve elements of environmental and social safeguards (refer
to UNDP, World Bank and ADB best practices), land use change analysis (Energy and Carbon balance analysis – AFOLULU), modelling of disaster hazards and risks, and incorporation of climate change responses (in terms of mitigation and adaptation).

At the second level, decision-making (commonly referred as the DA stages) should see the use of tailored rural based criteria canvassing scale, intensity, quality of inputs, quality of outputs, design and temporal dimensions of development. Criteria can also be generated for uses where conflicts may not be initially perceived – very similar to how we address matters in urban systems, e.g. standard conditions on development approvals for adequate and effective buffer areas – dependent on the type of nuisance.

Environmental impact assessment, should be a key part of Development potential analysis, should incorporate comprehensive risk assessments, and be inclusive of contemporary environmental and social safeguards, health impact assessments and cumulative impact assessment. EIA should not be seen as a stand-alone process for development approval, but as a component of a systems approach to land use planning.

Figure 8: Elements of development – Good Location cannot be ‘conditioned’ through licences

Where do we go from here?

Governments’ current frameworks for decision-making with regard to resource extraction industries are based on an underlying presumption that CSG is able to be considered in any landscape, provided that impacts are documented, risk assessments are undertaken, textual based mechanisms are produced (e.g. CEMP and OEMPs) and activities are monitored. This premise ignores calls for broader application of land use planning for the pursuit of sustainable development outcomes, from various international agreements and protocols (e.g. UNFCCC, UNDP, the World Bank, MCED/WSSD/UNCSD – Agenda 21, UNCBD, UNCCD and UNHabitat, among others). It dismisses the universally agreed ethos that decisions need to be evidence-based, subject to objective decision-making criteria and that change needs to be nurtured to suit the situation of the people and communities, that development is meant to benefit. Simply the legislative bases need to be changed to instil an integrated land use planning systems approach to decision making.
Laws and policy platforms used to regulate CSG and other resource extraction activities should aim to achieve ecologically sustainable development (ESD), with all decision makers entities mandated to exercise their powers and functions consistent with Sustainable Development principles.¹

As planners we should be more aware of present decision-making componentry, based on a broader understanding of the englobo policy frameworks and circumstances in which decisions are currently made. We should use of world’s best practice in strategic and (then) project environmental impact assessments. SEA and EIA as tools within a land use planning system should²:

- Be comprehensive and integrative in their coverage - not unnecessarily complicated or the aggregation of technical reporting;
- fully account for all environmental, physical, economic, social and cultural impacts of resource extraction on - landscapes, catchments, localities, sub-regions, and the State;
- assist with improving the rigour and robustness of project assessment and approval;
- follow a landscape or catchment-wide approach to ensure cumulative impacts are addressed
- be integrative – by incorporating multi-dimensional analysis of a range of parameters and themes - water, biodiversity, native vegetation, soil and air quality, public health, greenhouse gas emissions, required climate change adaptation measures, mitigation measures needed, energy efficiency targets;
- include specific assessment of the climate change impacts of proposed land use change and projects (from mitigation and the adaptation perspectives);
- be thorough and undertaken by fully independent parties (i.e. not undertaken by multinational consulting firms that have a vested interest in the engineering and construction of the development);
- be science-based and evidence-driven, and cover the unique circumstances of the landscape being considered;
- be generated based on respect, early engagement and collaboration with communities, NGOs, civil society and individual stakeholders;
- incorporate the findings and directions of other publicly scrutinized strategies, plans and guidelines, including sub-regional natural resource management (NRM) plans;
- include responses that are substantiated through ‘triple bottom line’ costs benefit analysis, not just economic impact analysis or market analysis; and,

¹ Sustainable Development principles include:
- The precautionary principle (if there is a threat of serious or irreversible harm, lack of full scientific certainty should not be a reason to postpone measures to prevent environmental degradation);
- Conservation of biodiversity and ecological integrity as a fundamental consideration in decision-making;
- Intergenerational equity (maintaining and protecting the health, diversity and productivity of the environment and natural resources for future generations);
- Improved valuation, pricing and incentive mechanisms – so that the valuation of goods and services includes environmental factors (assets, services, and costs); and
- The polluter pays principle (related to the principle above – that those who generate pollution or waste should bear the cost of containing, avoiding and abating it).
- Access and Benefit sharing is at the centre of all development decisions (UNCBD)
- Free and prior informed consent is a prerequisite for all development decisions (Johannesburg Plan of Implementation)
- Sustainable consumption & production is to be pursued (Johannesburg Plan of Implementation)
• supported by **quality assurance processes** – including harsher offences and penalties for inaccurate or incomplete information; audits and enforcement; and clear ‘whole of life’ regulatory responsibilities.

We should seek the revision of laws and policy frameworks to **ensure that local communities and individuals receive fair and equitable information**, are fully informed of development implications and have their human rights maintained throughout the development approval, implementation and operation processes. These objectives should be instigated through legislative means to improve notification of development or land use change, ensure use of community awareness methods, early public participation, as well as strengthened objection, appeal and compensation rights.

Laws, policies and best practices should be amended to place the burden on proponents and operators to:

• **strategically engage and listen to communities**, to present a range of options, including go/no go options, with honest portrayal of positive and negative consequences for communities to consider;

• ensure all **environmental assets are properly value**, and ecological services, functions and social benefits are incorporated within ‘triple bottom line’ cost – benefit - analysis;

• protect areas of natural vegetation of **landscape significance**, as well as **high conservation value areas** and a range of **key agricultural areas** (not just cropping areas) determined through agriculture impact assessment;

• ensure **corporate social responsibility systems** (within company) cascade to implementation and operation tools and methods (external to company) where **sustainability targets and indicators** are consistent with regional, state and federal ESD principles and targets;

• accept **user-pay principles**, including the provision of adequate bonds to cover all site and off-site disturbance and rehabilitation works, to bring disused assets back to prior approval conditions, or alternatively to the point where post operation conditions suits the next best use of the land;

• ensure **protection of communities and individuals** from the detrimental impacts of resource extraction, including the protection of rural landowners from hazards, risks and nuisances which will impinge on their quiet enjoyment of their land and premises.

To ensure that there are regimes of ongoing responsibility and liability, laws and policy platforms are needed to improve compliance and response mechanisms. There should be widespread and effective **monitoring, reporting and verification (MRV)** of performance. MRV systems will need to incorporate:

• rational and practical steps to **measure, analyse and share environmental data** across jurisdictions;

• measures to avail **transparent and publicly accessible information**, before, during and post-approval stages;

• **independent monitoring of key determinants and audits of compliance**;

• **use of MRV systems** to report on the satisfying of Development, Environmental Authority and/or licence conditions, as well as **determining the compliance** with effective site rehabilitation; and,

• clear lines of responsibility for operations, **enforcement** and **accountability** for performance.
Finally - what do we plan for?

The paper was initiated to address the PIA call to cover the theme of small towns and areas coping with no or low ‘growth’. Smartly it was titled “From booms to bust to bonanzas”...[I just needed the third “B”!!!]. The question was posed: ‘how do we plan for booms?’ The insolent answer would be ...that we should plan not to have them!!

So what is a bonanza? What are we planning for? There are two separate definitions of a bonanza, the first is something many people would normally relate to when hearing the word ....” a very large amount”. Now this might be what the agents for resource extraction had in mind when planning the extent of CSG development in rural Australia. But is it what we want? Bigger is not always better!

The second definition is more suited to the people and communities in the bush..... "something that is very valuable, profitable, or rewarding”. What is valuable to rural folk often is not aligned directly with the consumption needs or wants of urbanites and industry. Their values often lie in the country, the land, the bush, the waterways, the soil. It’s the lifestyle pursuit not the economic pursuit which drives many. Profitability is determined on the basis of sufficient production to cover bank loan costs, living costs, re-investments and lifestyle – not with the intent of expansion, intensification and dominance. What many producers find as rewarding is to be able to continue to produce, with a commitment and connection to the land (and often to the animals upon it).

As explained previously there is a conservative element to many in rural Australia, but much of this imagery is perceived based on people’s pragmatic approach to their lifestyle and livelihood pursuits. Many as producers are at the mercy of international trade, commodity markets, banking nuances and politics directly impacting on their incomes (e.g. overnight decision on live cattle sales to Indonesia). They are therefore careful in their decision-making.
References


UN-Habitat, UN Human Settlements Programme, www.un-habitat.org


Abstract

Title: The impact of infrastructure charging on township economic growth

Author Josie Raftery BAppSc,BA/BSc

Toowoomba Regional Council’s Charges Resolution maps out township charge areas where residents currently have access to a basic level of trunk infrastructure (at least 3 networks). All other areas are charged as either Urban (5 networks) or Rural (1 network).

Township charges are around 10% less than urban infrastructure charges (which include charges for the stormwater network that is assumed absent from townships). The township charge recovers the cumulative cost of demand caused by development on existing and future infrastructure networks.

Criticism of Council’s former Adopted Infrastructure Charges Resolution charging policy from the rural and regional community was based on claims that excessive charges were stifling growth. This prompted Council officers to re-examine the effect of charging on development feasibility in the townships.

It was found that not all townships are the same. In rural and regional Australia, towns are often subjected to a broad-brush approach to definition and identity. There are well defined hierarchies of capital cities and big urban centres leaving the ‘rest’ defined as rural and regional Australia. In reality, the diversity in scale, economics, geography and community in rural and regional townships does not translate well into state-wide policy and regulations.

Using residential development as a test case, Council ran a multi-criteria analysis of townships to determine what point of difference had the biggest impact on development feasibility in order to come up with a more refined application of regulatory policy around infrastructure and development charging.

The results of this analysis provided a number of policy options that shaped a differential charging framework for the new Charges Resolution and informed the adoption of an economic development incentive for townships.

One year on, in a regional Council with strong urban growth, the new Charges Resolution and targeted incentive policy have had a positive response in areas experiencing less spectacular growth.
The impact of infrastructure charging on township economic growth

Toowoomba Region now and in the future

The Toowoomba region is home to over 160,000 people and covers roughly 13,000 square kilometres. The urbanised area in and around Toowoomba City is home to over 90% of this population. Our Urban area is part of the SEQ Region and is the focus of future growth with another 80,000 people projected to become part of our community by 2041. This puts Toowoomba Regional Council in the unique position of managing strong urban growth while at the same time planning for communities with no or little growth. As a region both inside and outside of SEQ, and a member of Regional Capitals Australia the diversity of challenges facing planners in Toowoomba required careful consideration of evidence and out of the box solutions.

Recent investment by Government and the private sector in significant national transport infrastructure such as a privately built internationally capable airport, the construction of the $1.8 billion Second Range Crossing and progression of the Inland Rail project recognises our role as an inland port and transport hub of National significance. The improved connections these major projects provide to SEQ and the Port of Brisbane are critical to the economic strength of even the smallest town in our region.

However the projected prosperity that comes with regional growth is not evenly distributed and the Toowoomba region is made up a diverse range of communities and economies that are growing at different rates. The challenge is to support these smaller communities in the most appropriate way possible while maintaining a level of fairness for investors across the region.

Based on the planning assumptions and aligned with projections from the State Government Statistician, Figure 1 shows the range of growth expected across townships in the region, with a greater number of new people expected in larger more urban towns and in towns within close proximity to the services offered by Toowoomba City.

The optimistic high growth figures expected in Crows Nest and Oakey are in opposition to the high cost of development especially in relation to infrastructure costs and charges as a proportion of development costs. While the price of raw land in these towns is relatively low, the selling price of developed lots is also lower than in the Toowoomba urban area and surrounds. Concomitantly, the cost of providing infrastructure to service new developments and therefore the recovery of costs through infrastructure charges is relatively constant across the region. The feasibility of development therefore in towns – even larger towns where growth is predicted - is harder to accomplish.

When it came time to update their charging policy in 2015, Toowoomba Regional Council was interested in analysing the effect that charging policy had on development in towns and the cost to Council of varying the policy in favour of providing discounts for township development.
Toowoomba Regional Council recognises the importance of economic development in the district townships in achieving a vibrant city region. All growth in the region regardless of where it occurs is dependent on investment by developers in housing and in industries to support the local economy. It is also dependent on the timely provision of capacity in trunk infrastructure to service the demand on services generated by growth.
At the time of its development, Toowoomba Regional Council’s Adopted Infrastructure Charges Resolution No.2 (AICR) was the overarching policy that defined how council intended to recover the cumulative cost of demand on our trunk infrastructure networks caused by development that:

- Reduces the spare capacity in existing networks
- Requires that council upgrade existing infrastructure to meet demand generated by the development
- Requires that council extend the network or build new infrastructure to meet demand generated by the development

Toowoomba Regional Council’s AICR was in effect until the end of June 2015. It mapped out township charge areas where residents currently have access to a basic level of trunk infrastructure - at least 3 networks and a maximum of 4. (There was no stormwater charge for areas mapped as township.) All other areas were mapped as either Urban (5 networks) or Rural (1 network).

There were 22 localities within the PIA mapped as township as per the figure below.

*Figure 2 – Township Charge Areas – (AICR)*
Under the AICR, Township Charge Areas were charged less than urban areas. For non-residential development the charge on impervious area for stormwater was not applied to the development. For residential development there was a discount in the adopted charge rate for township of 10% less than the urban rate.

Areas outside of the Urban and Township charge areas made up the rural charge balance. Rural charges were set at $7,500 for residential - a charge levied against the roads network, which is the only network to which rural residents are applying demand. The charge rate was set at more than 20% of the allowable capped charge rate because of the assumption that the one network to which the rural charge applies is the most expensive to provide. As with the Township Charge Areas, non-residential development in the rural charge areas was charged at the capped rate with a discount for no stormwater charges.

A summary of residential charges base rates under AICR for the different charge areas is shown in Figure 3

Figure 3 - Residential Charges base rate under AICR

<table>
<thead>
<tr>
<th>Urban Charges</th>
<th>Township Charges</th>
<th>Rural Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>$25 500</td>
<td>$21 500</td>
<td>$7 500</td>
</tr>
<tr>
<td>$20 000</td>
<td>$20 000</td>
<td>$7 500</td>
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</table>

Indexed as at June 2015...

<table>
<thead>
<tr>
<th>Urban Charges</th>
<th>Township Charges</th>
<th>Rural Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>$26 895</td>
<td>$22 676</td>
<td>$7 500</td>
</tr>
<tr>
<td>$20 000</td>
<td>$20 000</td>
<td>$7 500</td>
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</tbody>
</table>

Township charging policy review

There was criticism levelled at the charge rates for townships in the AICR that they do not represent a fair reduction from urban charges, given the standards of infrastructure and services expected in rural townships compared to Toowoomba City. The criticism was based on the assumption that the expenditure on townships is assumed to be less than for the urban zone and expected growth is low to non-existent. With this in mind, a multi-criteria analysis was done of the 22 localities that are classed as township charge areas (Attachment 1).

There was enough supporting evidence to recommend a differentiation of the townships according to factors such as distance from the principal centre (Toowoomba), size, infrastructure networks (planned and available) and expected growth vs spare capacity in networks. There was no evidence to support the claim that expenditure on infrastructure on a per person basis is less in townships than in urban areas.

The Analysis found a logical grouping of localities based on multiple criteria that responded to the diversity in the reason behind and concerns about growth and affordability.
The three groupings found were:

**Group 1** - Townships that are an extension of the Toowoomba and Highfields urban areas and through their proximity place pressure on the capacity of the urban networks. This includes proximal villages and rural residential suburbs that are experiencing significant growth or are projected to experience significant growth in the future.

- Gowrie Junction
- Meringandan West
- Kingsthorpe
- Vale View
- Top Camp / Hodgson Vale
- Wyreema
- Cambooya

**Group 2** – Townships that are regional centres of a size approaching self-sufficiency that have access to all 4 key infrastructure networks and are expected to experience steady and reasonable growth that will require investment in network extensions and upgrades.

- Oakey
- Pittsworth
- Crows Nest

**Group 3** – Smaller townships that are remote and expecting low growth with access to as little as 2 trunk infrastructure networks (roads and water) but up to 4 networks in rural service centres such as Millmerran and Clifton. Two localities that were left out of the township charge area that have water supply infrastructure are Brookstead and Southbrook. They are included in Group 3 towns.

In updating (AICR) to a Charges Resolution under the new planning act, Council took the opportunity to change the charge area maps to reflect these groupings.

The new base charge rates that were set in the Charges Resolution were changed to reflect indexation of rates that are below the capped charge rate but no significant changes were made to the base rates based on analysis of affordability in townships.

The (under the cap) base charge rates for residential dwellings in the Charges Resolution were updated as per Figure 4.

**Figure 4 - Charge rates for residential dwellings in Council’s Charges Resolution No.1**

<table>
<thead>
<tr>
<th>Urban Charges</th>
<th>Township Charges</th>
<th>Rural Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>$27,500</td>
<td>$22,500</td>
<td>$7,500</td>
</tr>
<tr>
<td>$20,000</td>
<td>$20,000</td>
<td>$7,500</td>
</tr>
</tbody>
</table>

The improvements to fairness and affordability were achieved through a reclassification of localities and a discounting methodology as follows.
New Charge Areas
The recommendation for setting new charge areas was:

Group 1 towns and localities were moved into the Urban Charge area. These localities are also part of the SEQ Regional Plan area that overlaps the region. In the future stormwater planning will be expected to cover these catchments.

Group 3 rural villages and localities were removed from the township charges area and fall back into the rural balance.

Group 2 towns remained in the township charge area.

The distribution of new charging areas can be seen in Figure 5.

*Figure 5 – New Charge Areas – CR1*
Network Discounting
Until such time as full 5 networks are provided or planned, for newly created urban charge areas, a
discounting policy ensures that infrastructure costs remain relatively the same as under former
charge areas.

Having determined the base charge rate for each geographical location in the Region, discounts can
be applied to further differentiate based on the number of networks planned or available. It is not
practical to set a unique charge rate for each set of circumstances under which networks are
provided. Instead, the new charging policy allows for discounting to occur for each infrastructure
network that is missing from what is assumed under each charge class.

For example, in Urban charge area, where less than the assumed 5 networks are available (as would
apply to the former township charge localities) a discount rate could be applied for each network
that is not available and not planned to be provided in the next 10 years. Options of 10% or 20% per
network were modelled.

Likewise, within the 3 towns covered by the township charge area in places where the networks do
not extend and are not planned to be provided, a discount will be applied for each of the networks
that is not available.

The rural charge area base rate for residential is already discounted ($7500) to charge for only one
network (road). In the new Charges Resolution for rural villages and localities that have access to
more than the roads network, particularly those that have been moved back into the rural charge
balance, the base charge rate will be increased for each of the networks available above the
assumed base (a reverse discount).

For non-residential charges, expenditure on the following 3 networks is assumed to make up the
base charge rate: Roads, Water and Sewer. Parks are not provided for non-residential uses and
Stormwater is charged separately where trunk stormwater infrastructure is provided or planned to
be provided (in the Urban Charge Area). For this reason, outside of the urban charge area the option
to discount by a third for each absent network was considered (33%) along with the option of a 20%
discount.

Impacts of charging policy
The new charging policy was tested in the LGIP Financial model against future growth assumptions
to test the effect on revenue recovery of applying the new charge areas and discounting policy.

Impact on Council Revenue
A number of different charging options were considered by council and modelled to determine the
effect of discounting policy on revenue as given below.

Option 1 models a 10% discount per absent network using the proposed new charge areas and base
charge rates.
Option 2 models a 20% discount per absent network using the proposed new charge areas and base charge rates.

Option 3 models a 20% discount per absent network using the proposed new charge areas and new base charge rates except that the charge for a 3+bedroom dwelling is indexed up to $27,500 rather than rounding up current charges to $27,000 as in the other options.

Option 4 models a 20% discount per absent network for residential using the base rate of $27,500 as in Option 3 using the proposed new charge areas. The base rate for non-residential in township and rural areas is set at the capped amount (with no stormwater charges) and for non-residential development the discount rate for each absent network is set at 33%.

The table below shows the effects that the 4 discounting options have when applied to the base rate of charges for each charges class across a number of development types.

<table>
<thead>
<tr>
<th>Networks</th>
<th>Res 3+ Brm</th>
<th>Res 1-2 Brm</th>
<th>Comm-office</th>
<th>Comm-retail</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10% Op1</td>
<td>20% Op2</td>
<td>10% Op1</td>
<td>20% Op2</td>
<td>10% Op1</td>
</tr>
<tr>
<td>Urban</td>
<td>27 (Base rate)</td>
<td>20 (Base Rate)</td>
<td>140 (+Stormwater)</td>
<td>180 (+Stormwater)</td>
<td>50 (+Stormwater)</td>
</tr>
<tr>
<td>Town</td>
<td>22.5</td>
<td>21.5</td>
<td>16</td>
<td>14</td>
<td>140 (No Stormwater)</td>
</tr>
<tr>
<td>Rural</td>
<td>9.75</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
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<td>Rural</td>
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<tr>
<td>Rural</td>
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<td>7.5</td>
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<td>84</td>
<td>144</td>
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<td>Networks</td>
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<td>Res 1-2 Brm</td>
<td>Comm-office</td>
<td>Comm-retail</td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td>20% Op3 &amp; 4</td>
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<td>33% Op4</td>
<td>20% Op3</td>
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Figure 6 - The effect of discounting options on infrastructure charges for a number of development types under Option 1 (10%) Option 2 (20%) Option 3 (20%) and Option 4 (33%)
The impact of the different options on the forecast revenue from infrastructure charges is summarised as follows.

**Option 1**

Compared to the base case (existing infrastructure charges framework), Option 1 results in a reduction in the value of infrastructure charges revenue of approximately $586,000 over the 10 year modelling period. This represents a decrease of 0.2%. This Option gives very similar results in overall revenue to the base case. The overall revenue is shifted across zones, with more revenue from new high growth urban charge areas offsetting the loss of revenue in the low growth former townships that have moved to rural.

**Option 2**

Compared to the base case, Option 2 results in a reduction in the value of infrastructure charges revenue of approximately $3.48M over the 10 year modelling period. This represents a decrease of 1.3%. This Option results in an overall loss in revenue of approximately $3.2m over the 10 year period. Council would need to make up this money from elsewhere in order to deliver the Local Government Infrastructure Plan (LGIP).

**Option 3**

Compared to the base case, Option 3 results in a reduction in the value of infrastructure charges revenue of approximately $0.9M over the 10 year modelling period. This represents a decrease of 0.3%. This Option results in only a slight decrease in revenue by adopting a higher base rate for high growth areas (urban) making it a more affordable option than Option 2. Improvements to affordability mean that council have set up a base case where they will be in a better position to apply incentive policies where and when they are most needed and where they will be most effective.

**Option 4**

Compared to the base case, Option 4 results in a reduction in the value of infrastructure charges revenue of approximately $1M over the 10 year modelling period. This represents a decrease of 0.4% over the modelling period or, a decrease in revenue of around $100,000 more than Option 3 over the 10 year period.

**Impact on Townships/Rural Localities**

If we look at the assumed number of networks for each charge area, and the number of available or planned networks in each of the 22 former township localities, by applying the charges discount we can get a reasonably accurate indication of the likely charge for each location and we can get an idea of whether the changes address the issue of fairness and equity in setting infrastructure charges.

While the impact on revenue favours Options 1 and 3 (and 4) over Option 2, the impact of charging on townships needs to show improvement to meet the original purpose of reforming the charging framework.
In the Figures 7 and 8 on the following page, the difference between the current charge rate and what will be charged currently in each locality for a 3 bedroom residential is shown either below the line (as total savings, or above the line, where charges are likely to increase).

The Blue bar represents the total reduction in charges (from current charge rates) under Option 1 (10% discount with a base rate of $27,000)

The Red bar represents the total reduction in charges (from current charge rates) under Option 2 (20% discount with a base rate of $27,000)

The Green bar represents the effect of increasing the base rate to $27,500 to account for indexing and applying a 20% discount rate. This represents residential charging under Options 3 and 4.

**Figure 7 - Impact of discounting options on new rural area localities (Savings on Business as usual) for 3+Bedroom Residential**

**Figure 8 - Impact of discounting options on townships and new urban area localities (Savings on Business as usual) for 3+Bedroom Residential**

**Figure 9 - Impact of charges reform options on rural, townships and new urban area localities (Savings on Business as usual) for Industrial (non-residential) Uses**
Figure 9 above shows the impact of the discounting options on all charge areas for non-residential development using industrial as an example.

For Figure 9, the Blue Bar represents the total reduction in charges (from current charge rates) for non-residential (Industrial used as an example) under Option 1 (10% discount from the capped base charge)

The Red bar represents the total reduction in charges (from current charge rates) for non-residential (Industrial used as an example) under Options 2 and 3 (20% discount from the capped base charge)

The Green bar represents the total reduction in charges (from current charge rates) for non-residential (Industrial used as an example) under Option 4 (33% discount from the capped base charge)

The impact of the different options on the cost of development from infrastructure charges is summarised as follows.

**Option 1**
The impact of Option 1 on charges in new urban charge areas is a small increase in total charges. For example, for residential development in un-sewered areas the increase will be $1,192 and for localities with access to full 4 networks the increase will be $1,624. These amounts are reasonable to recovering the cost of servicing these faster growing developments.

The ability to discount for non-residential development means lower charging for some non-residential (which is based on full rate less the discount and not ‘up’ from a base) is not significant.

In new rural charge areas, Option 1 provides the greatest benefit, with reduction in infrastructure charges of around $10,000-$13,000 per residential lot. However, discounts for non-residential (3 or more bedroom residential).

**Option 2**
Option 2 results in a reduction in charges from the base case for all urban, rural and township charge areas for all development types that have been previously charged at a rate under the cap (3 or more bedroom residential).
Compared to Option 1, Option 2 increases the cost of residential and decreases the cost of non-residential for localities with more than one network in the rural charge zone. Since most of these localities have been previously charged under higher township charge rates, there will be an overall reduction in charges compared to the current charging framework.

**Option 3 and 4**

By indexing the current base charge rate, Option 3 and Option 4 remove some of the burden of forgone revenue but will result in smaller decrease in charges in the urban charge area than in Option 2 because charges start at a higher base.

Option 4 decreases the cost of non-residential development in township and rural charge areas more than any of the other options. It does so without impacting significantly on the total revenue.
Summary of impacts

Figure 10 – Summary of charges Options Impacts

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<th>Impact on Revenue</th>
<th>Impact on Charges</th>
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<td>Non-residential</td>
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Impact of charges for the three remaining towns are neutral under Option 1, 3 and 4 and very slightly less ($1000) under Option 2. This is because the base charge rate has been reduced by $750 by not indexing and rounding down from a lower base rate. It is unlikely that any option will drastically reduce the charges in the 3 towns. Charges for localities with less infrastructure networks will increase as they are built, however it is expected the value of the land would also increase for fully serviced lots. The charge rate for the towns is a reasonable expectation for recovering the cost of servicing these towns with 4 urban infrastructure networks.

The three towns also have very different characteristics particularly in terms of quality of infrastructure, self-sufficiency, cost of land and housing the mean while the impact is identical in terms of quantum of charge; it is felt uniquely according to which of the three towns it applies to.

It was recommended that further discounts to improve development feasibility and encourage growth and economic development of the towns is better dealt with through a capped temporary incentive policy that could be tailored to the needs of the towns, monitored and adjusted according to requirements of the communities and council’s ability to afford it.

Council’s economic development policy for townships

Upon adopting Charges Resolution No1 (CR1) Council released a temporary capped discount incentive on infrastructure charges to stimulate (or remove barriers to) growth in the townships. The incentive was capped in terms of the cost to council in foregone revenue and in time to stimulate immediate results. Previous incentives for economic development in townships were not successful in terms of number of applicants and actual outcomes. Instead of just extending the incentive for further years, the incentives were increased and given a dollar and time limit.

The incentive is capped to a maximum of $1Million annually to be allocated on a first-come first-served basis with the policy expiring on 30 June 2018. This date is the date by which all applications must be completed. The discounts are designed to create preferred outcomes consistent with the
communities’ vision for the economic development of the towns. This includes the following discounts:

- For Reconfiguring a lot or Material Change of Use residential applications a discount to a base charge rate of $14,500 per dwelling or accommodation suite in townships.
- For Industrial Activities in townships and rural charge areas, a 75% discount applies to infrastructure charges up to a maximum discount of $50,000 per application.
- For Business Activities or Veterinary Services in townships and rural charges areas a 55% discount on infrastructure charges up to a maximum discount of $50,000 per application.
- For Essential Services the discounted amount is determined at the discretion of Council.

Since the public release of the incentives policy in July 2015 there have been 12 applications (as shown in Figure 11 below) totalling $1.65M. However the actual cost to Council in the first year was only $106,720 as there is some lag time between the applicant getting ready to lodge the application and the use commencing when the charges become due.

Figure 11  Temporary Economic Incentive policy take-up

<table>
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<th># Applications</th>
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<td>Crows Nest</td>
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<td>Millmerran</td>
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<td>Clifton</td>
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<td>Oakey</td>
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It is expected that the cost to Council in terms of foregone infrastructure revenue will intensify towards the final year of the incentive, at which time the real success of the policy will be measured.

Summary

In combination the new Charges Resolution’s differential infrastructure charges and the temporary economic incentive discounts in townships have generated an increase in development interest in the townships. This is being bolstered by a regionally focussed economic development plan, community engagement in parks planning and place making in both our larger urban towns and tiny towns – making sure that as our city region grows in size and reputation, no small part of it is left behind.
References

Toowoomba Regional Council Adopted Infrastructure Charges Resolution (Toowoomba Regional Council) July 2012

Toowoomba Regional Council Charges Resolution (Toowoomba Regional Council) July 2015

Background information Paper for Infrastructure Charges Resolution No3; J.Raftery, Toowoomba Regional Council, April 2015.

Modelling Report for Options Analysis Charges Resolution No3; Damon Elhers, PIE Solutions, March 2015.

Temporary Economic Development Incentive for District Townships Policy 2.32 (Toowoomba Regional Council, July 2015.)
# Appendix 1 – Multi-Criteria Analysis

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<th>Oakey</th>
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<th>SWQ Env</th>
<th>Toowoomba</th>
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## Infrastructure

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