

# A TALE OF TWO REGIONS – CONCURRENT STRUCTURAL REORGANISATION WITHIN THE WATER SERVICE INDUSTRIES OF AUCKLAND, NEW ZEALAND AND SE QUEENSLAND, AUSTRALIA.

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## **ABSTRACT**

Two major regions of Australasia with similar population sizes are concurrently making changes to their water and wastewater industries, with the overall goal of achieving efficient and effective delivery of services to customers. Both industries are in public ownership therefore the changes are driven through public policy as opposed to pure market driven incentives.

The City and Region of Auckland, New Zealand, with a population of 1.2 million, will integrate vertically the bulk water and wastewater services and the local network operation, two-tier industry into one body responsible for all services. Overall governance will be through one single Auckland City Council driven by the outcome of the Royal Commission that was charged with reviewing the governance of the region. The final outcome of the transition for the water industry is set for October 2010.

Meanwhile in SE Queensland, Australia, with a population of 3 million will complete a reform that separates horizontally the roles of bulk water collection and treatment, bulk water transport, distribution/retail and wastewater treatment into a three tier industry. This model is very similar to that of the power industry. This reform process has been driven by the Millennium Drought that challenged to public water supplies. Recommendations were made in 2007 by the Queensland Water Commission to State Government for reform resulting in alternative structures. These reforms were completed in July 2010.

The two regions have much in common sharing technical drivers for the provision of good quality water to customers, levels of service and asset management, however, each has responded by developing a changed and arguably, a simplified model from that which preceded the reforms. These reforms appear to reverse the management models; Auckland had a horizontally disaggregated operations based structure and will have a vertically integrated structure, whereas South East Queensland has moved from one of apparent vertical integration to a horizontal separation.

## **KEYWORDS**

**Regional Structure, South East Queensland, Auckland, Water Reform,**

## **1 INTRODUCTION**

Reform of the water and wastewater services for the two regions of greater Auckland, New Zealand and South East Queensland, Australia has occurred over similar timelines. Reform for both commenced around 2007 and will be completed in 2010. In the immediate past the industries were structured in different ways to each other, yet the most recent reforms have instigated changes that appear to reverse the management models; Auckland had a horizontally disaggregated operations based structure and now has a completely vertically integrated structure whereas South East Queensland has moved from one of integration to operational separation.

This paper will summarise those concurrent structural changes to the industry in the two regions, explore the immediate background to reforms and the drivers, identify commonalities and discuss whether the apparent reversal of management models reflect the requirements of customers at this time, who expect similar if not the same, level of service.

## 2 SUMMARY OF CHANGES

### 2.1 AUCKLAND

From a macro scale the changes to Auckland's operational water management structure has seen **the removal of horizontally separated operations based responsibilities** that provided

- Raw water capture, treatment and bulk distribution;
- Local distribution and local wastewater collection; and,
- Bulk wastewater, collection, treatment and disposal.

By November 2010 the local water supply and wastewater collection responsibilities of the Local Network Operators (LNOs) of Manukau Water, MetroWater, North Shore City, Waitakere City and Rodney Water, are to be integrated with the bulk water collection, treatment and supply operations of Watercare Services Ltd. Wastewater collection and treatment was also carried out by North Shore City and Rodney water – these activities will also be integrated with those of Watercare. Trade Waste operations were divided between the LNOs and Watercare and will now be integrated. Water supply operations outsourced to United Water by Papakura District Council for its 47,000 residents will remain.

Residential charging for water and wastewater services was the responsibility of the LNOs but will be carried out by the new body. One call centre will be required instead of the individual local council customer centres. It should be possible to go to any water services office in Auckland to pay charges for a location across the region regardless of the local authority designation. By November 2010 the new integrated organisation will have one independent Board and Chairman which will oversee “source to tap” and “toilet to discharge”.

### 2.2 SOUTH EAST QUEENSLAND

As of July 2010 ten local councils no longer had responsibility for any element of the water and wastewater service provision. The historic (but inconsistent) vertical integration has been replaced by the **implementation of horizontally separated operations based responsibilities** that specialise in their specific element of the water and wastewater service provision, namely:

- Raw water capture and treatment;
- Membrane treated source water;
- Bulk Water Transport;
- Local network distribution together with the collection, treatment and disposal of wastewaters.

Each operating organisation has its own independent Board (with has no political appointees) and Chairman. This has resulted in six Boards for water and wastewater providers and one for the Grid Manager.

Retail and customer contact and billing are no longer the responsibility of local councils, who are now shareholders in the local network distribution entities. Local councils have no direct relationship with the bulk water providers.

## 3 DETAILED BACKGROUND

### 3.1 AUCKLAND REGION

The bulk water and wastewater provider Watercare Services was formed in 1992, owned by the local authorities of the time. Prior to that regional water sources had been developed in ranges to the west and south of the city.

#### 3.1.1 DRIVER

In October 2007 a Royal Commission was set up to investigate, and make recommendations on, local and regional government arrangements of the Auckland Region. On publication the Commission made 33 of recommendations including:

“Watercare Services Limited should assume statutory responsibility for all water and wastewater services within the Auckland Council area. The water and wastewater operations (including assets and relevant staff) of all abolished local authorities should be transferred to Watercare Services Limited on the establishment date. This includes the water and wastewater operations of Rodney District Council, North Shore City Council, Waitakere City Council, Papakura District Council, Franklin District Council, MetroWater, and Manukau Water Limited.”

The Commission also advised that one region wide city council should be formed. Three specific aspects were singled out, the second of which was:

“Auckland-wide infrastructure that can most efficiently and effectively be provided at a regional level will be delivered directly by the Auckland Council or its council-controlled organisations. The Auckland Council will be responsible for region-wide network services, including the arterial road network, water collection and supply, wastewater treatment, and solid waste management. Where networks are managed by council-controlled organisations, the Auckland Council will remain responsible for providing strategic direction.”

### **3.1.2 LEGISLATIVE RESPONSE**

The Royal Commission report proposed a model for reform of local government in Auckland that was considered by the New Zealand Government. Following debate two main bills resulted that set out the future governance structure. These were the

- *Local Government (Auckland Reorganisation) Bill 2009*
- *Local Government (Auckland Council) Bill 2009*
- With amendments to previous legislation in the *Local Government Act 2002 Amendment Bill*.

The key high-level decisions of the New Zealand Government were summarized as:

- One unitary Auckland Council as the first tier of governance.
- One mayor for Auckland with governance powers, elected at large by the region’s residents and ratepayers.
- Twenty councillors to sit on the Auckland Council (eight elected at large and 12 elected from wards).
- Twenty to 30 local boards across the region as the second tier of governance.
- The final number of local boards, and the boundaries of the Auckland Council, wards and local boards to be determined by the Local Government Commission.

(Making Auckland Greater)

### **3.1.3 OUTCOMES**

All services that are to be provided for the region (for example water frontage, roads, water, power) have been reviewed by a body (The Auckland Transition Agency) set up specifically to handle the changes. Under the guidance of the ATA the water services of all the previous organisations have been removed from the local authority bodies and amalgamated under the name of Watercare Services Limited. For water and wastewater services the strategic outcomes for the industry are identified to be:

- Protect community health and safety;
- Meet the current and future needs of our communities;
- Recognise the importance of the natural environment to the social, cultural and economic well-being of our region;
- Deliver efficient and effective services;
- Support the sustainable development of the Auckland region.

(One Plan: Auckland Regional Infrastructure Inventory and Three Waters Vision)

## **3.2 SOUTH EAST QUEENSLAND**

### **3.2.1 DRIVER**

The driver for water reform in SE Queensland developed with the Millennium drought, which commenced in 2000 and is now widely recognised as having broken by 2009. The diverse arrangements for water source management and supply that existed prior to reform provided State Government with difficulty when attempting to quantify and react to the impacts of the increasingly severe drought on the regional supply-demand balance. Few consistent practices were in place for the assessment of catchment and dam yields until a region wide study in 2006 (“Water for South East Queensland—a long-term solution” 2006). This decreased the planning volumes from those based on the Historic No Failure Yield (HNFY) using records of less than 100 years to a prudent one based on maintaining an appropriate level of service. This impacted the storage volumes by as much as 29%.

As the drought progressed during the mid 2000s calls were made to the public for restraint and it became clear that a regional response to demand management was required. The inland storages used for the metropolitan areas of greater Brisbane and Ipswich required significant rainfall events before recharge was apparent. Conversely the smaller coastal dams to the north and south responded well to the lesser but more frequent rainfall events, however the lack of integration in the pipe networks prevented transfers between water service

areas. Regionally based restrictions on use were thought to be a fairer measure despite the uneven drought impact.

The impact of the Millennium drought, the 2008 amalgamation of 18 to 10 local government and the need to provide long term water security for SE Queensland has resulted in a period of water reform over the past 3 years. By July 2010 the shape of the water industry in the region had changed completely from that when it was managed by local government, with organisational models which ranged from having a vertically integrated water system responsible for its own geographical area and rate payers for raw water capture, treatment and transmission, through to others who received a bulk supply from another Council and maintained local distribution only. Each Council managed the collection, treatment and disposal of wastewaters. Some Councils provided recycled water from their treatment facilities, either through a reticulated and metered neighbourhood network maintained by Council or via a delivery point for tanker collection and distribution. This complex system had grown historically in response to population development and presented inconsistency in approach and management. Often the roles and responsibilities were unclear to the public that was served.

### **3.2.2 LEGISLATIVE RESPONSE**

Two stages of change have impacted upon the water industry:

- *The Local Government (Reform Implementation) Act 2007 implemented on 15th March 2008, and*
- *The South East Queensland Water (Restructuring) Act 2007, together with*
- *The South-East Queensland Water Distribution and Retail Restructuring) Act 2009.*

In response to the 2007 local government legislation the 18 local government councils were 10 amalgamated to form Regional Councils. A number became geographically larger or had altered boundaries with associated changes to rate payers and assets. New bodies were created that include Sunshine Coast, Moreton Bay, Scenic Rim and Somerset Regional Councils. Others, such as Beaudesert and Pine Rivers councils, disappeared.

State Government realised that reform was required to provide the consistency of policy and service for the region and in May 2007 the Queensland Water Commission's "Final Report to the Queensland Government: Urban water supply arrangements in South East Queensland (SEQ)" was released. This set out the model for the industry that was enacted by the 2007 and 2009 legislation. The key features of the proposed reforms included:

- improved, simplified business structures to deliver water services in a coordinated manner;
- clarification of the respective roles of State and Local Governments;
- the establishment of a Water Grid Manager to ensure water is managed as a shared, regional resource;
- improved transparency and accountability for bulk transport and distribution networks with a strong asset management regime; and
- Enhanced economic regulation and pricing.

(Source: Urban Water Supply Arrangements in SE Queensland)

### **3.2.3 OUTCOMES**

In practical terms this set out to provide a simpler structure focused along specific elements of the water cycle – water storage and treatment, transmission, distribution and retail. The model is not unlike that of the electricity industry for generation, distribution and retail which is established in Australia and New Zealand.

Following the 2008 local government amalgamations each of the 10 councils maintained the responsibility for reticulated water and wastewater services to ratepayers, but the operations and management of water catchments, dams, treatment plants and large bulk transmission pipes were removed and allocated to new organisations. Councils were compensated in 2008 for the loss of their dams, treatment plants and bulk mains through a "bulk" due diligence process that established the value of the assets removed from Council ownership based on the Optimised Deprival Value (ODV) value of the assets reckoned at \$Au 1.9 Billion (KPMG 2007). This initial stage formed the:

- Bulk water catchment, raw water storage and treatment body called Seqwater;
- A network or grid of bulk transmission pipes operated by LinkWater; and,
- The capture, treatment and provision of water through membrane technology, operated by WaterSecure.

Upon completion of that process a second stage commenced under the 2009 Act which saw the removal of the local water distribution and wastewater assets from the 10 councils. This resulted in:

- Three retail and local distribution bodies supplying customers with potable water plus the capture, conveyance, treatment and in some instances the disposal of effluent and/or the supply of recycled water. These are UnityWater, Queensland Urban Utilities and Allconnex Water.

This horizontal operations based business model is overseen by the SE Queensland Grid Manager who maintains contracts between the parties for the provision and purchase of potable supplies. Compensation was not generated for these network distribution assets (about 82% of the overall infrastructure) as the Councils become shareholders and will be paid a dividend based on their proportion of the entities agreed Regulated Asset Base (RAB). The SE Queensland water Grid Manager's primary role is water security and cost efficiency.

Above this sits the Queensland Water Commission (QWC) which sets out the long term strategy and policy for water requirements, the Department of Environment and Resource Management which is responsible for environmental consenting arrangements and the Queensland Competition Authority (QCA) which is responsible for economic regulation. The first round of interim price regulation by QCA is set for later 2010, reporting in 2011. The outcomes of the reforms are:

- A simplification of the water industry structure where the roles between bodies is clear, their duties and responsibilities separated from those of local government;
- Outline contractual agreements through a standard set of Market Grid Rules administered by the QWC;
- Industry's removal from direct local government management to that of each entity having an independently appointed Board (with no elected representative) and a CEO;
- A dividend payment to be made to the local government shareholder based on the value of the RAB;
- Three retail and distribution entities that can be regulated by the Queensland Competition Authority through a process of comparison.

In 2008 the Queensland Water Commission identified that the water reforms would "deliver significant benefits to the community including:

- Improved regional co-ordination and management of water;
- More efficient delivery of water services in SEQ;
- Enhanced customer service for consumers across the region; and
- A clearer accountability framework for water supply security."

## **4 DISCUSSION - REGIONAL COMPARISONS**

### **4.1 LONG TERM CLIMATE**

Clearly there are some specific differences between the regions in terms of global and local geography and climate. Auckland is a narrow isthmus with westerly and south westerly dominated weather patterns, whilst the SE Queensland is an eastern seaboard with extensive climatic influences from the continental landmass to the west. Both regions are impacted by global changes in climate such as El Niño and the Southern Oscillation (ENSO) phenomenon. Auckland is on latitude 36 whilst Brisbane (considered here to be representative of SE Queensland) is on latitude 27. Recording and thus confirming the impacts of long term climate change for the Auckland Region may be difficult as the signals may be lost within the noise of the regular fluctuations of the ENSO. Modelling future regional climate change is complex due the scale of GCMs which contain only 3 or 4 cells to cover both North and South Islands.

Guidance from NIWA (August 2008) suggests that the region will become warmer by as much as 2°C and drier with a 2.5% reduction in mean annual precipitation by 2080 when compared to 1990. SE Queensland is thought to experience similar increases in temperature – perhaps by 3°C but with a more marked reduction in annual precipitation by around 10% by 2070 (CSIRO and Bureau of Metrology, 2007) when compared to the same baseline period.

### **4.2 SHORT TERM CLIMATE**

Short term fluctuations in climate have resulted in droughts in both regions with 1994/95 perhaps being the most relevant to Auckland and the 2000 to 2007 for SE Queensland. Both regions responded by investing significant sums to increase water security by diversifying raw water sources and increasing connectivity coupled with demand management measures such as restrictions in potable water use outdoor use of potable supplies, water wise messages to customers. Auckland invested in increased dam storage and the run of river abstraction on the

Waikato River whilst SE Queensland moved to increased storage, desalination, substitution of potable supplies through recycled water and purified water use.

### **4.3 POPULATION GROWTH**

Both regions have and continue to experience growth in population; Auckland's population was reported in the 2006 census as 1.37 million with an annual growth rate of 1.6%. Of that number 1.23 million are served by the reticulated system (Auckland Water Industry Report 2006/07). This overall regional is projected to grow by 68% to 2.29 million by 2051 (ARC, Statistics New Zealand).

South East Queensland was reported with a population of 3.04 million in 2008 growing by 87% to 5.69 million by 2056 under the medium series projection (PIFU 2009). Of that population some 200,000 residents are provided with potable water through systems operated by the incumbent organisations but are remote from the integrated grid that now covers the region. An additional 180,000 residents are completely reliant on rain tanks and bores (QWC 2008) so the current population connected to the regional grid is of the order 2.8 million.

Development is occurring on the edges of conurbation, requiring water and sewer services to be extended from the existing networks, occasionally out of sequence with preferred order of progressing networks and through densification of targeted existing suburbs.

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<ul style="list-style-type: none"> <li>• Simplified structure when compared to previous model (Both)</li> <li>• Uniform dam and source yields (Both)</li> <li>• Comparative costs between sources (Both)</li> <li>• Bulk pipes and Grid provide uniform drought security (Both)</li> <li>• Regional planning can operate at on a catchment or supply basis (Auckland)</li> <li>• Simpler emergency planning and response (Auckland)</li> <li>• Regional standards of service (Auckland)</li> <li>• Regional specifications for engineering standards (Auckland)</li> <li>• Existing economic regulator charged with role (SEQ)</li> </ul>	<ul style="list-style-type: none"> <li>• Institutional change leads to uncertainty and possible loss of staff (Both)</li> <li>• Perceived democratic deficit (Both)</li> <li>• Loss of comparators for performance and prices (Auckland)</li> <li>• Increased transaction costs (SEQ)</li> <li>• Disaggregated costs for infrastructure charges (SEQ)</li> <li>• Complex drinking water quality responsibilities (SEQ)</li> <li>• Complex emergency response process (SEQ)</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>• Economy of scale in operations and maintenance (Both)</li> <li>• Focus on core business (Both)</li> <li>• Professional Boards with no elected representatives (Both)</li> <li>• Standardised trade waste agreements (Both)</li> <li>• Reduced transaction costs (Auckland)</li> <li>• “Postage stamp” volumetric based regional pricing (Auckland)</li> <li>• Regional Asset Management Plan and investment choices (Auckland)</li> <li>• Reduction in “duplicate” activities such as demand forecasts, demand management (Auckland)</li> <li>• Complete “source to tap” infrastructure charges (Auckland)</li> <li>• Distribution and retail cost comparators available (SEQ)</li> <li>• Regional specification for engineering works (SEQ)</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of “Three Waters” integration (Both)</li> <li>• Undefined economic regulator (Auckland)</li> <li>• Perceived loss of community focus (Auckland)</li> <li>• Perceived loss of local ownership of bulk assets (SEQ)</li> <li>• Increased contractual costs and overheads through monitoring performance (SEQ)</li> <li>• Pricing influenced by previous investment policies (SEQ)</li> <li>• Demand forecast detached from bulk operators (SEQ)</li> <li>• Communication between entities driven by contracts only (SEQ)</li> </ul>

*Table 1: Inter - regional comparison of Water Industry models*

## 5 DISCUSSION

The revised organisational model for both regions presents a range of outcomes that can be perceived as strengths, opportunities, weakness or threats. Some examples are captured in Table 1 and discussed further below.

### 5.1 WATER INDUSTRY SIMILARITIES

Both regions work within similar frameworks for a number of areas:

- Risk; both work to the AUSNZ 4360:2004 Risk Management Standard for the appreciation and management of risks within the industry.
- Drinking water quality; Guidance on what constitutes good quality drinking water is provided for New Zealand by Drinking-water Standards for New Zealand (New Zealand Ministry of Health 1995a) and the Guidelines for Drinking-water Quality Management (New Zealand Ministry of Health 1995b). In Australia guidance on what constitutes good quality drinking water is provided by the Australian Drinking Water Guidelines (NHMRC & ARMCANZ 1996), a companion document of the National Water Quality Management Strategy.
- Development; both industries are able to comment on developer applications.
- Organisational Structure; over the immediate past both regions have sought to identify water and wastewater services are entities separate from local councils, albeit with varying degrees of executive distance or separation. In the case of Watercare the councils remained owners and shareholders however the bulk operator had an independent Board and Chairman. Others had become Council Controlled Operations (CCO) or Local Authority Trading Enterprise (LATE). Bodies such as Gold Coast Water and Brisbane Water were sufficiently large to become standalone operations although budgets were authorised by their respective local council bodies.
- Storm water is retained by local authorities but without a strong and direct funding model.
- All residential and commercial premises are metered for water supply and billed accordingly.
- The South East Queensland organisations have Boards that do not have politically appointed representatives. Likewise Watercare will not have politically appointed representatives.
- Both will require time to adjust to their respective models.

### 5.2 WATER INDUSTRY DIFFERENCES

- Drought driven need for water security has allowed the development of reuse and recycling schemes in SE Queensland, some on a local neighbourhood scale and one large scale – the Western Corridor recycled water scheme, where purified recycled water (PRW) has been pumped up catchment to feed major SE Queensland consumers, such as power stations. Although provision has been made to return PRW to Wivenhoe Dam this will not occur until the combined capacity of the key water storages in SE Queensland fall to 40%. Some examination of the possibility of the use of recycled water as a substitute supply has been explored in Auckland – most notably for golf course irrigation and limited industrial use. However, the economics of infrastructure provision when compared to the exiting potable use and some public health concerns have prevented the further use of such schemes.
- The vertically integrated Auckland industry will now be able to directly account for network changes from source to tap whereas the SE Queensland industry will need to work closely with the local government planning institutions to develop an integrated infrastructure charges regime that is sufficiently transparent to demonstrate the validity of charges.
- Watercare will be required to produce a Statement of Corporate Intent and be accountable to the incoming Auckland Council for prices. The Royal Commission recommended (32G) that a statutory position of an independent Auckland Services Performance Auditor be created and that “Watercare Services Limited, undertake(ing) three-yearly efficiency and effectiveness reviews, incorporating international comparative industry benchmarking and an evaluation of service levels, efficiency, affordability of water, and demand management performance.”  
South East Queensland’s water organisations will be required to return submissions to the dependant regulator QCA, initially for a price check but from 2013 full economic regulation will be in place to determine the price of water.



- Wastewater charges are based on property values in SE Queensland, whereas parts of Auckland have been based on volumetric proportion of metered water volume (MetroWater and Manukau Water).
- During the South East Queensland drought incentive grants were made available to encourage the installation of domestic rain water tanks each with a volume of around 5 kilolitres (5 cubic metres). Additional regulations were enacted to mandate that all new houses would have rain tanks plumbed for internal substitution of potable water for toilet flushing and washing machines. During the drought minor rainfall events were captured to maintain gardens and levels in swimming pools, giving the appearance of a green drought. Rain water tanks are not unknown in Auckland but the more frequent rainfall impacts upon the effective yield and work by North Shore City Council has demonstrated the difficulty and cost of retrofits.
- Regardless of policy and rainfall patterns rain tanks are relatively expensive to operate due to the inefficient small pumps that each require. The Three Waters Strategic Plan for Auckland showed that the marginal cost of rain tanks exceeded desalination and was twice that of constructing a new dam (Three Waters Final Strategic Plan, 2008).

### **5.3 WATER INDUSTRY OPPORTUNITIES**

- As a result of drought communities in both regions have become more aware of water consumption. Since the regional drought in 1994/95 residential consumption in Auckland has been relatively steady at an annual daily average of around 168 litres/head/day.
- South East Queensland households have been under increasingly tough external use restrictions for a number of years and exposed to significant demand management publicity and incentive programs to become increasingly water efficient indoors (for example, the provision of shower timers, grants for efficient washing machines). At the height of the drought residential consumption fell to a minimum of 115 litres/head/day compared to the pre-drought average of some 300 litres/head/day. In July 2010 with the drought broken and dams at 95% full consumption had increased to approximately 150 litres/head/day.
- Both regions have the need to maintain demand management measures to cope with the increasing demand as a result of population growth. The post drought “bounce back” in water consumption is a major unknown for the South East Queensland industry and presents a significant challenge to negotiating bulk contracts, setting the returns to shareholders and regulation by QCA.
- Demand management measures will be those that are most effective when they are permanent. Those that have been effective include network pressure and leakage management, internal fittings replacement and measures to plant appropriate gardens.
- Both regions have trade waste contracts that have been operated and managed on a local authority or council basis. SE Queensland has moved to distribution and retail boundaries, not council boundaries. Some attempts have been made in the past to unify the contractual base through the development of a single contract but this has not always been adopted. Often during re-organisations trade waste issues have been found to be difficult to manage because enforcement powers are usually vested in local authorities, requiring additional powers to be sought to vest the regulations with the new bodies.

### **5.4 VERTICAL VS. HORIZONTAL STRUCTURE**

- By bringing all sources of supply into one organisation yields can be calculated on a like for like basis, allowing confidence in calculations when considering extreme events. Placing all water sources within one organisation or jurisdiction also allows full economic comparison between sources when determining least cost water supply provision. Using a purely “cheapest first” selection it is likely that regional dam sources will always be first to be operated because of the relative age of the dams to newer sources. This “least cost source” might present difficulty when newer assets are to be operated – such as the membrane supplies for the Waikato River source and the Tugun desalination plant on the Gold Coast.
- Within one vertical organisation the operational cost can be internally optimised to fit the operational demands placed on plants, existing storage and the regional demand pattern. Under the South East Queensland horizontal structure a broker is required to determine the volume and geographic distribution of demand plus the out turn cost. This need for a broker reflects the immaturity of the current model.

- One vertical organisation will limit the number and extent of the transaction costs. Auckland can be expected to reduce now that Watercare Services Ltd will no longer be working with seven LNOs for
  - Monthly meter readings and billing;
  - Pressure management;
  - Potable water quality monitoring; and,
  - Wastewater volumetric calculations at the nominal hydraulic intercept points between the local and bulk wastewater system.

This should provide a benefit to customers through the reduction of costs. Bulk meter readings and accuracy will need to be maintained for water balance and loss management purposes.

- Economies of scale will be available to both models – although the exact quantity is yet to be determined. Auckland had already realised the benefit of combined purchase of chemicals for wastewater treatment at Mangere (Watercare Services Ltd) and Rosedale (North Shore City Council) plants. Large councils in South East Queensland would have done so too, such as Brisbane and Gold Coast Councils. However, additional efficiencies might be obtained in Auckland through the integration of wastewater treatment plant operator teams. In the longer term benefits may be obtained in the changed operation of the wastewater conveyance and storage within one large network where political boundaries do not limit the hydraulic possibilities.
- South East Queensland bulk water treatment will be able to optimise the production of water to meet the needs of planned maintenance. This should also have the benefit of reducing unplanned maintenance as condition assessment can determine when a plant will need to be out of operation. The addition of a regional grid of bulk pipes presents an additional element of “redundancy” in the treatment plants.
- Horizontal analysis of costs and unit rates across the three distribution entities in South East Queensland will allow the economic regulator to use comparative indices and bench marks from other water industries.

## 5.5 REFLECTION ON THE FUTURE

Electricity and mobile phone service operators have moved further within the models of possible structures. Figure 1 describes how these organisational structures have evolved and the water industry might move in a similar direction in the future. Municipal bodies managed the growth from local to regional transition, which became CCOs and then in some cases went on to become privatised entities. Customers have been given the choice of providers for the retail of power supplies and for phone handset services, yet the “backbone” behind the systems are often the legacy of the earlier investment to meet growth based expansion. These retailers have to be more responsive to customers needs to ensure they capture and keep a viable sector of the market.

These evolutions have been driven by the need to

- Raise capital for improvements;
- Have customers at the centre of service provision.

The two regions’ water industries could follow the actions seen in Sydney and South Australia with the targeted outsourcing of some operations - already in place for services for Papakura District. That model could further evolve to that seen in England and Wales over the past 20 years with the businesses floated publically resulting in customers having real ownership of the business. In England and Wales third party other operators can offer services to customers (usually large industrial organisations) through Inset Agreements. This is equivalent to the sewer mining operations ruled possible in Sydney. Even within municipal models some customers seek to opt out, preferring to be responsible for their own drinking water quality either through privately operated filters or use of rain water tanks.

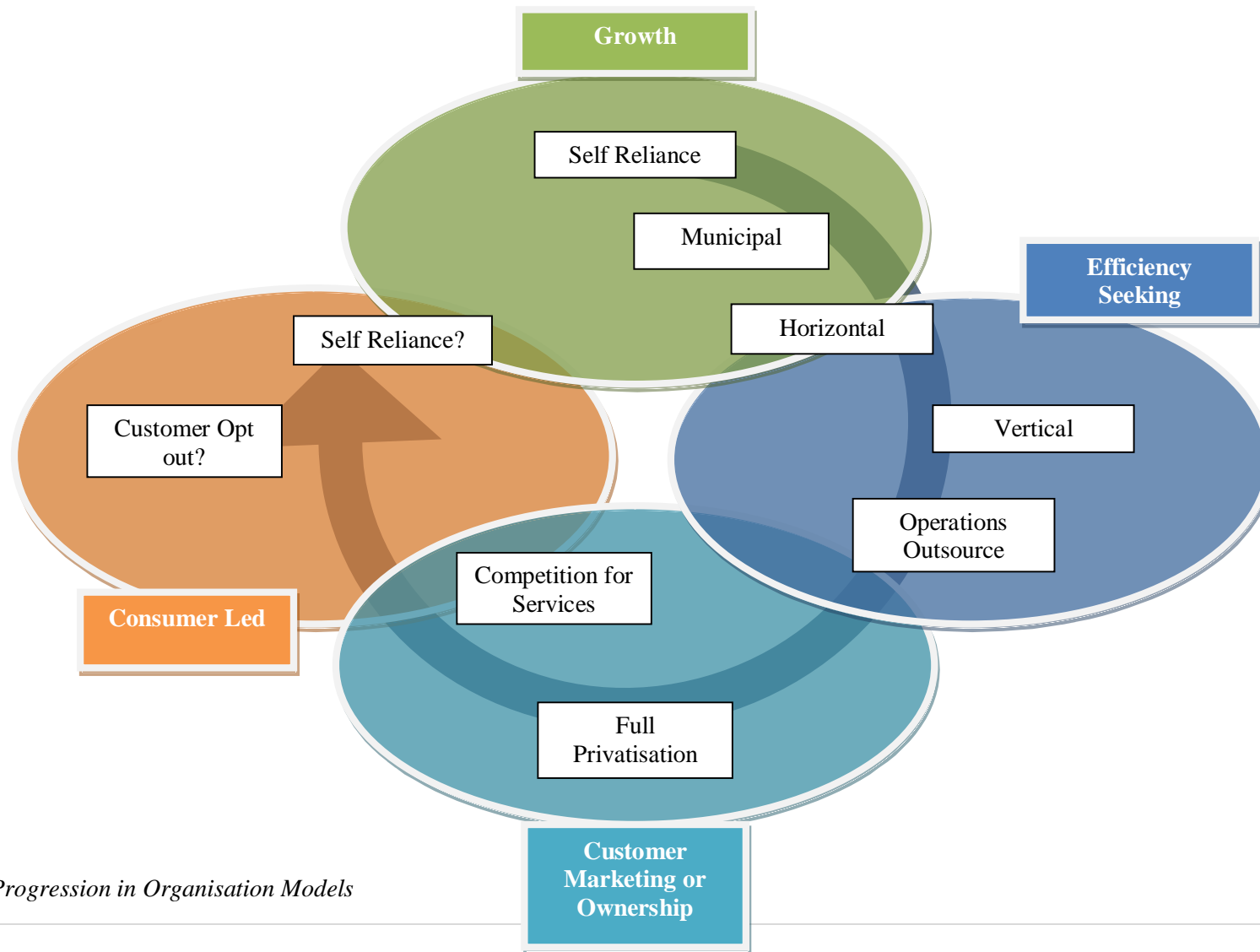


Figure 1. Progression in Organisation Models

## 6 CONCLUSION

Organisational models of the water industry have evolved over time in response to the complexities of operations, the size of the populations served, water availability / security and market conditions. Small local authority, municipal organisations expand with their populations until the scale of the system determine that they best sit as an independent body, albeit related to their original parent body, perhaps as a Council Controlled Organisation. This stage can clearly be seen in the recent history of both regions. At a regional scale there is an argument that “horizontal specialism” will be required to enable a focus on the planning and implementation of large scale assets that are of benefit to all customers. This model affords an economy of scale and a transparency in cost. This reflects the South East Queensland position where extensive investment has had to be made to ensure drought security and can also be seen in the past management of bulk infrastructure by Watercare in Auckland. These investments are made through regional leadership where varying customer views might prevent timely investment in essential assets. Once security of supply has been established customer views on levels of service can then determine the overall performance, usually driven to a least cost model. This suits a vertically integrated structure such as that in Auckland.

Once an integrated structure is established the overall costs can be determined driven by customer standards. At this stage the organisation may wish to explore the out sourcing of some elements of operations – such has been done by South Australia Water in Adelaide and Sydney Water for water treatment plant operations. At this stage in the United Kingdom the industry was privatised. The driver on that occasion was to raise capital to fund significant backlogs in customer service caused by continuous public sector under investment. Provided that the correct prices are charged to cover growth and depreciation this option may not need to be considered.

South East Queensland may appear from a distance to be disaggregating a vertical industry; however the very complex and independent nature of the multitude of regional models required them to be simplified, allowing a specialist focus on each tier of the industry. For the future once the immediate pressures on the security of supply have been satisfied regional focus will move to standards of service and consultation with customers. This might trigger further reforms in the future. Reviewing the models suggests that vertical integration at a regional scale has more benefits than a horizontal structure based on operations. Whether the Auckland Region or the Queensland industry moves to the next generation of structures remains to be seen.

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