

ADDRESSING AFFORDABILITY FOR WATER INFRASTRUCTURE – IS THERE A “SILVER BULLET”

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ABSTRACT (500 WORDS MAXIMUM)

A common theme with regards to New Zealand water projects is one of unaffordability. The underlying cause being the lack of investment in this infrastructure over preceding decades leading to a requirement for a large capital spend that is seen as unaffordable if funded solely by rate increases.

There is no silver bullet to ‘solve’ this issue. Whilst private sector capital can be utilised to initially fund projects, the income required to repay this capital ultimately has to come from somewhere, which ultimately leads to ratepayer levies or targeted rates. For some projects, there may be opportunities to derive ancillary income from areas such as energy generation or providing water for irrigation, which would enhance affordability. Private sector capital and innovation could be key to realising these sources of ancillary income, reducing the burden on ratepayers.

Given the need for upgraded water infrastructure there is a requirement to better analyse and define this affordability issue rather than simply labelling the project financially infeasible. The starting point is a thorough analysis of local authority funding sources and potential revenue sources for projects including rate increases, targeted development rates and user charges, cross-referenced against constraints such as debt ceilings. This should allow both the drivers and the quantum of the affordability shortfall to be determined.

With this detailed knowledge, a systematic approach can then be taken to determining what would be required to solve the shortfall via increased project revenues (targeted user levies or ancillary income such as energy generation), reduced financing costs (for example, low interest loans from central government) and/or decreased capital costs (reduced project scale or grants).

Whilst this analysis will not solve the affordability gap, it will provide a more accurate picture of what is required to solve it and provide the basis for approaching the government or private sector for the required capital, subsidies, grants and/or a combination thereof. This paper will suggest the different areas of analysis through which Councils can achieve greater transparency and a higher level of understanding when elected members ask, “can we really afford new water infrastructure?”

KEYWORDS

Financial feasibility, funding, affordability, Three Waters, water infrastructure

PRESENTER PROFILE

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Garry is an expert in wastewater engineering with over 43 years' experience in a wide variety of wastewater and environmental projects, both in New Zealand and abroad. He has a high profile governance involvement in many industry organisations and is a Fellow of Engineering NZ and of WEF, as well as an Honorary Life Member of Water NZ.

1 INTRODUCTION

Local governments spend a high proportion of their funds on three waters infrastructure and operations. The current state of water assets combined with the national requirement to deliver better safety and environmental standards is expected to create additional funding pressures on local councils, with some populations potentially incurring very large cost increases. This is exacerbated in regions that require infrastructure upgrades for their existing populations and are not experiencing or forecasting significant population growth.

This often leads to projects been deemed unaffordable in the preliminary feasibility stage leaving local authorities with the dilemma of either non-compliance with current or future standards or committing to significant rates increases.

Whilst concepts such as private sector capital and cost synergies from amalgamation may provide incremental assistance with regards to affordability, there is no "silver bullet" to solve this. In a number of instances, given the magnitude of the affordability gap, government assistance will be required.

The following paper overviews analysis that can be undertaken to determine the project affordability in this space alongside some commentary as to why central government support will be required and a suggested mechanism to collect and allocate such support.

2 THREE WATERS INFRASTRUCTURE DEFICIT

2.1 NEW ZEALAND LOCAL AUTHORITIES ROLES

There are 78 local authorities representing all areas of New Zealand, including 11 Regional Councils; 12 City Councils (which are largely urban); 4 District Councils; and Auckland Council (which amalgamated 8 former councils on 1 November 2010). These Territorial Authorities and Regional Councils (referred to as local authorities or councils) deliver a very wide range of community services to their constituents, the majority of which are paid for through uniform annual rates, general rates, targeted rates or user charges.

Together our local authorities make up 3.4% (\$9.7 billion) of the total expenditure on the economy (GDP year ending March 2018). In addition, councils accounted for the following as at 30 June 2018:

Net worth (also known as "total public equity")	\$123.6 billion
Operating Income	\$9.9 billion
Operating Expenditure	\$10.3 billion
Capital Expenditure (also known as "additions to fixed assets")	\$4.9 billion
Value of Fixed Assets	\$123.4 billion

2.2 THREE WATERS REVIEW

One of the key responsibilities of local authorities is the delivery and management of water services, covering drinking water, wastewater and stormwater – collectively referred to as the “Three Waters”. Most three waters assets and services are owned and delivered by local councils.

In mid-2017, the Government initiated a review on how to improve the regulation and supply arrangements of drinking water, wastewater and stormwater to better support New Zealand’s prosperity, health, safety and environment. The review was in parallel to the latter stages of the Havelock North Inquiry into drinking water safety following the campylobacter outbreak in 2016.

The Three Waters Review is a cross-agency initiative led by the Minister of Local Government and involves other agencies and portfolios such as: Health, Environment, Finance, Business Innovation and Employment, Commerce and Consumer Affairs, Primary Industries, Climate Change, Infrastructure, Civil Defence and Emergency Management, Housing and Urban Development, Transport, Conservation, and Rural Communities. There is ongoing consultation with and submissions from a range of industry bodies, such as Local Government New Zealand (LGNZ), Infrastructure NZ, and Water New Zealand.

2.3 WATER REGULATOR AND WATER SERVICES BILL

In July 2019 (References 1, 2 and 3), based on the initial findings of the Three Waters Review and the recommendations from the Havelock North Inquiry, the Government approved a suite of regulatory reforms to help ensure safe drinking water, and deliver improved environmental outcomes from New Zealand’s wastewater and stormwater systems.

A new regulatory framework for drinking water will include:

- an extension of the regulatory coverage to all drinking water suppliers, except individual household self-suppliers;
- a multi-barrier approach to drinking water safety, including mandatory disinfection of water supplies, with exemptions only in appropriate circumstances;
- stronger obligations on water suppliers and local authorities to manage risks to sources of drinking water; and
- strengthened compliance, monitoring and enforcement of drinking water regulation.
- While regional councils will remain the primary regulators for the environment, there will be stronger central oversight of wastewater and stormwater regulation, including:
 - requirements for wastewater and stormwater operators to report annually on a set of national environmental performance measures;
 - national good practice guidelines for the design and management of wastewater and stormwater networks; and
 - monitoring of emerging contaminants in wastewater and stormwater and coordinating national responses where necessary.

A new dedicated water regulator will be established to oversee the regulatory regime. The regulator will have a range of responsibilities and functions, including sector leadership; standards setting; compliance, monitoring and enforcement; capability building; information, advice and education; and performance reporting. The scope, roles and institutional form of the regulator - including whether to include regulation of all three waters within a single regulator, or separate entities - will be the subject of further Cabinet consideration in September 2019.

The majority of these reforms will be implemented through a Water Services Bill. The Government is aiming to introduce this Bill by the end of the year, with possible enactment by mid-2020. The legislation will include transitional arrangements to allow water suppliers to adjust to the regulations, with support from the new regulator, if necessary.

2.4 THREE WATERS INFRASTRUCTURE DEFICIT

The Department of Internal Affairs (DIA) has commissioned a number of reports to establish the state of three waters management and the investment required to meet the revised Drinking Water Standards NZ (DWSNZ 2005 revised 2018), the National Policy Statement on Freshwater Management (Freshwater NPS 2014 and 2017), and other possible or promulgated environmental standards and wastewater network performance standards. The reports also noted a large number of wastewater discharges were either not meeting their consent conditions or were being undertaken under expired consents, and that in the next decade over 60 percent of these wastewater discharges would need to be renewed.

In summary, the reports estimate \$3.5-5.0 billion investment (refer Table 1) is needed across water and wastewater infrastructure – ignoring any new stormwater assets or flood management measures required to accommodate more extreme rainfall events and sea level rise as part of climate change adaptation.

Table 1: Estimated Capital Costs and Additional Operating Costs^{1, 2}

Three Waters Assets and Drivers for Investment	Capital Costs (\$NZ)	Additional Operating Costs (\$NZ per annum)
Drinking Water (DWSNZ 2018)		
Large Supplies (>500 persons)	277 - 286M	8M
Small Supplies (<500 persons)	154 - 409M	24 - 110M
Wastewater (Freshwater NPS 2017)	1.4 - 2.1B	120 - 200M
Wastewater (possible new coastal water discharge standards)	1.6 - 2.2B	Not available
TOTAL across New Zealand	\$3.5 - \$5.0B (approx.)	\$152 - \$318M +

1. *Costs are additional to Renewals and Growth-related investment already planned in Council Long Term Plans (LTPs) although some costs may have been already anticipated and funding identified*

2. *Refer page 30 of 42 Reference 2.*

These are very significant requirements when compared to the overall operating income of local authorities, especially considering that three waters infrastructure and services are but one aspect of many assets and services local authorities must provide.

3 ASSESSING AFFORDABILITY

Given this infrastructure deficit, there is often both the perception and reality that many of the infrastructure requirements are unaffordable for the communities in which they are required.

The following provides a suggested overview as to how affordability should be determined including the various components that make up this assessment.

3.1 DETERMINING CAPITAL AND OPERATING EXPENDITURE

Typical preliminary feasibility analysis will derive a project's capital and operational cost profile. It is important these estimates are modelled over a significant time period (e.g. the next 20 years) in line with the project's economic life. It is also important that there is the ability to sensitise and undertake scenario analysis on both of these cost profiles as changes in either cost profile can make meaningful differences to the affordability of a project, especially if elements can be deferred.

These profiles should then be compared against status quo cost forecasts (both capital and operational) to derive the net additional expenditure required. It is important to incorporate any operating synergies the project may deliver, as over longer timeframes these can be significant and therefore impact project affordability.

3.2 OVERLAYING CURRENT FINANCING ARRANGEMENTS

Once the net capital expenditure for the project is known, the next task is determining how this would be funded.

Whilst utilising Net Present Value (NPV) analysis can provide insights as to which project scenario provides better value over the project life, this does not address how the project will be financed.

The starting point for this analysis is to model the extension of existing financing arrangements, which for local authorities is traditionally a combination of LGFA and bank debt funding.

As part of this modelling, one must establish whether the funding for the upfront capital cost (in addition to existing drawings) is within the local authority financing boundaries as set out in treasury policies and Long Term Plans. Affordability analysis here is effectively assessing capital requirements against local councils 'debt ceilings'. If funding requirements go beyond these thresholds it is important to note what the nature of the breach entails, i.e. whether this is a breach of leverage ratios, serviceability ratios or both, as different constraints can have potentially different solutions.

A complicating factor here is the amalgamated nature of water assets within councils. Given the lack of direct revenue streams and/or funding for water assets, affordability is determined at a whole of council level and requires prioritisation against other council services, which is often difficult given the magnitude of the expenditure required.

3.2.1 RATEPAYER AFFORDABILITY

Ultimately expenditure will be paid for by ratepayers via rates. Therefore, the community's ability to absorb rate increases should be well understood and ultimately should be reflected in the debt ceiling thresholds within treasury policies and long term plans.

Analysis on the community's ability to absorb rates increases should also provide insight into the type of rating mechanisms that are most equitable to increase to fund projects e.g. general rates versus direct rates, development contributions or user pay charges.

3.2.2 USAGE BASED CHARGING

An element that should also be considered is that of water use charges. This can assist projects via both behavioral impacts e.g. reducing usage thereby scaling the required infrastructure, and potentially increasing revenue stream e.g. if there are significant commercial demand.

By the introduction of universal user charges, there would be the potential to introduce the concept of a national water levy, the proceeds of which could be utilised to fund the unaffordable aspects of water infrastructure projects on a national basis. The concept is akin to the current Waste Disposal Levy and is detailed later in the paper.

3.3 COST REDUCTIONS AND ALTERNATIVE REVENUE SOURCES

If the above analysis determines the required project expenditure is unaffordable, the next aspects to consider are cost reductions or alternative revenues.

Traditionally the first consideration is that of cost reduction, which includes the down-scaling, delay or phasing of project components. This is valid process and should be thoroughly tested.

In parallel, seeking additional revenues the project could access should also be explored. This will often involve working with companies with expertise in project adjacencies, for instance supply of water for irrigation purposes or electricity generation. Any additional revenues the project can access are significant in terms of affordability given revenue can be leveraged to access additional funding.

3.4 PRIVATE SECTOR CAPITAL

If projects are unaffordable, the introduction of private sector capital to finance the upfront expenditure will not solve this issue.

The private sector has the ability to assume project risks such as cost and time overruns but will ultimately look to have their capital repaid from the same revenues sources as local authorities would, that is from collection of rates or water usage charges. Private sector capital will generally require higher returns than that of local authorities as they do not benefit from project externalities, and therefore the introduction of private sector capital will in most instances will make projects more unaffordable unless additional revenue and/or cost innovations can be found.

However, the private sector does bring innovation to projects including adjacencies that can assist in project affordability. For example, in some instances it may be feasible for the private sector to fund elements of the project in consideration for revenues from project adjacencies, without requiring recourse to ratepayers.

There is also the consideration of the private sector owning and operating water assets. Whilst there are merits in such an approach, this is outside the subject matter of this paper.

3.5 DETERMINING THE AFFORDABILITY GAP

Summarising the above, the affordability can be calculated as;

- Net expenditure requirements for the life of the project; minus
 - a. Financing headroom determined with reference to;
 - i. Current treasury policy thresholds
 - ii. Ratepayer affordability (direct & indirect).
 - b. Cost reductions.
 - c. Financing headroom created by additional revenues from project adjacencies.

If this is greater than zero, this implies there is an affordability gap that needs to be addressed.

3.6 GOVERNMENT SUPPORT

The logical source of this required funding is central government given their much greater balance sheet and the fact that water management incorporates environmental, health and tourism externalities beyond the directly affected region.

Depending on the nature and extend of the affordability gap, central government solutions can include grants or long-term low/no interest loans.

How this funding is provisioned and allocated from a government perspective is open to debate. As mentioned previously, a more direct source of funding would be a direct water levy (either per connection or on a volumetric basis), with proceeds ring-fenced for water infrastructure upgrades. Allocation criteria for these funds could include affordability, environmental benefits, national benefits and scalability.

4 CONCLUSION

Whilst there is significant discussion with regards to reform of the three waters sector and the cost efficiencies that could be realised, it is acknowledged there is an affordability gap given the future performance requirements expected by central government in this sector. This is will be more keenly experienced in smaller communities with slower population growth and meeting the proposed performance requirements will ultimately require central government financial assistance.

In these situations, a detailed analysis of affordability needs to be undertaken to fully understand the underlying components of the local affordability gap, which will in turn will help derive the concise forms of central government assistance, supported by the wider externalities the projects bring.

REFERENCES

1. NZ Government CAB-19-MIN-0332 Minute (1 July 2019): *Strengthening the Regulation of Drinking Water, Wastewater and Stormwater, Cabinet Office.*
2. NZ Government Cabinet Paper (1 July 2019).: *Strengthening the Regulation of Drinking Water, Wastewater and Stormwater, Offices of the Ministers of/for Local Government, Health and Environment.*
3. NZ Government, Department of Internal Affairs (1 July 2019): *Regulatory Impact Assessment: Strengthening the Regulation of Drinking Water, Wastewater and Stormwater.*