The Otawere Water Storage Reservoir Te Tai Tokerau Water Trust Application to the Expert Consenting Panel

Report compiled by Dr David Wilson, Cities and Regions Ltd, John Proctor, Robert Kaiwai, and Chris Frost, Te Tai Tokerau Water Trust

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Purpose

This report supports an application for a resource consent to construct a 4,100,000 cubic metre water storage reservoir (Otawere) off Te Ahu Ahu Rd, Northland under the Covid-19 Recovery (Fast Track Consenting) Act 2020 (the Act).

The purpose of the Act is to urgently promote employment to support New Zealand's recovery from the economic and social impacts of COVOD-19 and to support the certainty of ongoing investment in New Zealand, while continuing to promote the sustainable management of natural and physical resources.

An expert consenting panel recently granted a resource consent to Te Tai Tokerau Water Trust (the applicant) in relation to the smaller Matawii Water Storage Reservoir at Ngawha, which was a listed project in the Act. The proposed Otawere reservoir, which has been referred to an expert consenting panel by the Minister for the Environment, is part of a distributed Mid North Water Storage Scheme. Because of its larger size and more attractive commercial features the Trust regards the Otawere reservoir as the cornerstone of the entire sub-regional scheme.

Rationale

The rationale for the initial MBIE funding of the Northland Water Storage Steering Group, then the establishment of Te Tai Tokerau Water Trust, (via a $60 million loan), was to use water storage as an economic enabler, stimulating investment in horticulture and bringing economic and employment growth to one of the poorest parts of New Zealand. That rationale remains relevant.

Introduction

The Northland region has featured prominently in New Zealand's statistics relating to socio-economic disadvantage for too long. In particular, the western parts of Northland, specifically Kaikohe, Hokianga and its surrounds, and Dargaville, further South.

The Covid-19 pandemic has served to intensify disparities between disadvantaged and better off communities throughout the country. Covid lockdowns have caused widespread closures amongst smaller businesses in a region already reeling from the impact of larger structural changes like the closure of the Carter Holt Harvey plant and the impending closure of the Marsden Point Oil Refinery. While domestic tourism has provided a welcome input, the creation of a larger, sustainable base in horticulture, built in balance with the Mid North's natural climatic and soil advantages, remains key to the region's future prosperity.

This application outlines the significant benefits that will flow to the region from the establishment of the Otawere Reservoir. Not only will this scheme have direct, derived and indirect economic benefits, it will also create a range of related social and environmental benefits and contribute to New Zealand 'building back better' as we emerge from the Covid-19 pandemic.

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Local and Regional Context

Regions that have challenging socio-economic conditions tend to have limited depth and diversity in the structure of their economy. They are then locked into low return economic activities and a downward spiral of disinvestment, as competitive regions and sectors overtake them.

Rural communities with these features often face added challenges including demographic differences, lack of access to adequate health and education services, poor and inadequate infrastructure, seasonal unemployment rates, low wages, and low productivity. This in turn leads to low household incomes and limited access to economic opportunities. This describes the west and mid Far North in the last forty years in Northland.

Northland currently has one of the worst deprivation indexes in New Zealand with high over-representation in quintiles four and five[1]. In 2018, Kaikohe had the highest deprivation score in Northland, while Kerikeri South, less than 30 minutes' drive away, had one of the lowest. There are no geographic or land fertility reasons why this should be so. There are, however, infrastructural ones such as water management and availability.

In the 2018 census the total population of Kaikohe and surrounding Ngapuhi region was 6,234, an increase of approximately 12% from 2006. In Kaikohe, 79% of the population identified as of Māori descent compared to 18.5% nationally. The median age was 29.2 years while for Māori it was 24.8, compared to 42.6 and 27.2 respectively for Northland as a whole. The median income was $19,000 compared to $24,600 for Northland and $31,800 nationally. 30.5% of the Kaikohe population had no qualifications, compared to 23.7% in the Far North District and 18.2% nationally.

The NEET rate (15 – 24-year-olds not in employment education or training) for Northland was considerably improved from 2013 – 2018 where it declined from 25.5% to 13%, compared to 13.5% and 11.8% respectively for New Zealand as a whole. However, in 2020, Northland increased back to 18% compared to New Zealand which was steady on 11.9%.[2] There are underlying structural reasons for this which must be addressed. There is a high proportion of Māori and youth in Northland and a higher proportion again in the Mid North. The NEET rates demonstrate the ground lost quickly in vulnerable communities from external shocks. However, the trend also shows that youth can be engaged when the opportunities are there.

Northland has some of the poorest outcomes nationally in educational success, youth unemployment and youth offending. It also consistently performs poorly in terms of childhood poverty rates.

The impact of external shocks is often accentuated in communities that are less diversified, less specialised or are heavily reliant on low return industries and government support activities. As can be seen from figure 1 below, the Kaikohe-Hokianga Community Economic Profile has just under 80% of its GDP focussed on the domestic economy with export potential primarily in Agriculture, Forestry and Fishing at 20.3%. Further, the public sector accounts for just under 40% of the economy.

[1] Quintiles 4 and 5 represent the highest rates of deprivation – see https://www.health.govt.nz/new-zealand-health-system/my-dhb/northland-dhb/population-northland-dhb

[2] Stats NZ https://www.stats.govt.nz/tools/2018-census-place-summaries/new-zealand and FNDC community profiles https://profile.idnz.co.nz/far-north

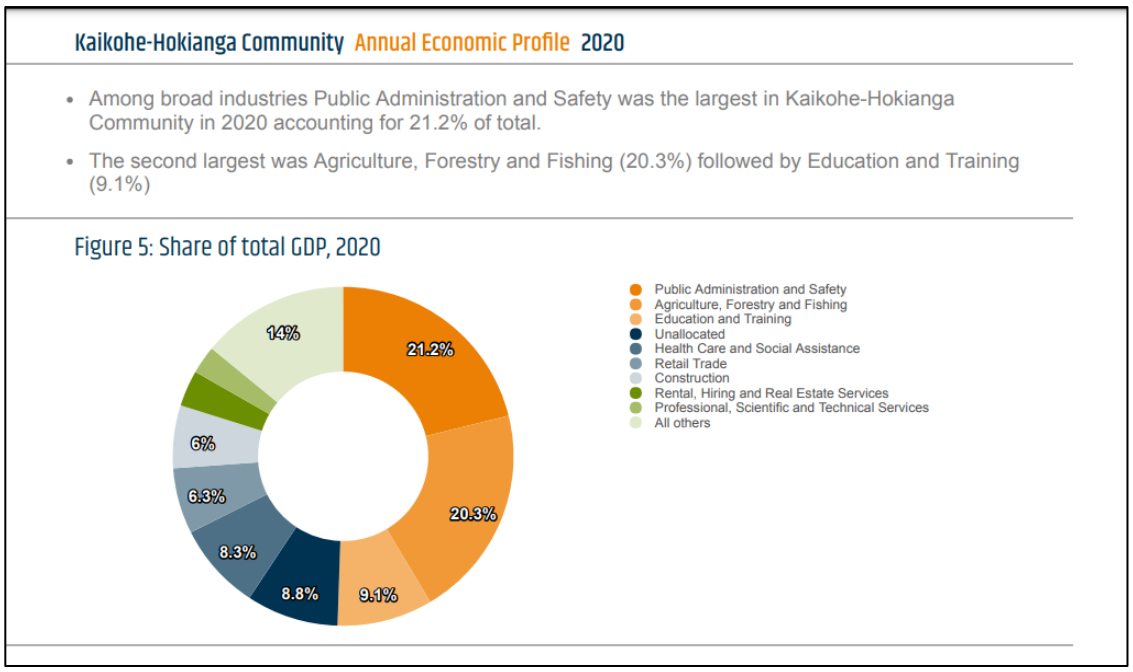

Figure 1 Source: Northland Inc, Infometrics Northland Annual Economic Report, 2020, (Figure 5)

Economic growth in the Kaikohe-Hokianga Community averaged -0.7%pa over the last 10 years compared with average growth of 2.8%pa nationally. As the first impacts of Covid-19 began to be felt across the country, GDP in the Kaikohe-Hokianga Community measured $373m in the year to March 2020, down 3.7% from a year earlier. Meanwhile New Zealand's GDP increased by 1.6% over the same period. Consumer spending in the Far North District was down 3.8%,[3] while New Zealand increased 1.7% in the year to March 2021.[4]

While primary industries accounted for 20.5% in the Kaikohe-Hokianga economy, which has held the community in good stead during the pandemic, this reliance compares to 6.2% in the national economy. Goods-producing industries on the other hand, where value is added, accounted for the smallest proportion in Kaikohe-Hokianga Community economy at 8.1% compared with 18.7% in the national economy.[5]

These statistics are sobering. The structure of the local economy has a marked impact on resilience and a lack of prosperity hampers long term development. Arresting this cycle and turning it around requires targeted investment. Investment that catalyses further investment that leads to local economic development and prosperity.

[3] Northland Inc, Infometrics Northland Annual Economic Report, 2020
[4] https://www.nrc.govt.nz/Your-Council/Economic-development/northland-economic-data-and-information/
[5] Northland Inc, ibid

The Mid North Water Scheme

The proposed Otawere reservoir is the cornerstone of the Mid North Water Scheme. Constructed to hold 4,000,000 cubic metres of water, Otawere would hold more than 50% of the capacity of the distributed Mid North Scheme upon completion. Its scale and construction efficiencies would underwrite the future commercial success of a sub-regional scheme bringing substantial social and economic benefits to Northland.

In the eastern part of the Mid North, around Kerikeri, the Kerikeri Water Scheme has directly contributed to building sustainable high-value horticulture businesses on the fertile soils and has experienced decades of prosperity as a result.

The Mid North Water Scheme outlined here plans to achieve similar outcomes for the western part of the Mid North. Soils and climate are the equal of their eastern counterparts, but water storage is the missing ingredient. The proposed Otawere reservoir is, therefore, a critical component in the Mid North's development.

Based on extensive feasibility work the applicant proposes a distributed, connected, scheme leading ultimately to five water storage facilities operating from Waimate North to the south-west of Kaikohe. In sequence, these facilities are:

- Matawii, a 750,000 cubic metre reservoir at Ngawha already under construction.
- Otawere, the subject of this application, a 4,000,000 cubic metre reservoir at the eastern extremity of the command area.
- Mangatoa, a proposed 2,600,000 cubic metre facility in partnership with Pamu, at the southwestern extremity of the command area.
- Ruatehauhau, a proposed 1,400,000 cubic metre facility for which a consent application is ready in the centre of the command area.
- Lake Omapere, a memorandum of understanding is in place with the Trustees of Lake Omapere to explore raising the lake to restore its ecological balance. This could supplement the Mid North scheme in eight to ten years without affecting the ecological benefits.

All these facilities must meet demand and investment hurdles. These vital factors will be accounted for individually in feasibility studies and market research conducted for each facility.

Demand

Having completed an expression of interest process and led a programme of active engagement with interested parties, the applicant is now confident that strong demand for water shares exists among current and potential landowners. The Trust has determined that first options would fetch $30,000 per water share. A second tranche of shares will be issued at a premium of at least 10% to meet anticipated increases in construction costs.

Discussions to date show interest from around 30 parties with potential purchases of a combined 1,311 shares equating to more than $39 million invested in the Mid North Water company. These interested parties range from large corporates, iwi, through to existing landowners on smaller land holdings.

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Direct Economic Impact

As Table 1 below predicts direct economic benefits from the construction of the Otawere reservoir over the following two years would include:

- $24m of contracted reservoir construction works on the Te Ahu Ahu site near Waimate North, 20 minutes by road from Kaikohe.
- $9m of work on pipeline infrastructure stretching from the reservoir site, west towards Kaikohe.
- An estimated 108 construction jobs across several local contractors.

Otawere Reservoir			Estimated Expenditure	Calculation of labour input			
				% Labour	Cost $/hr	Hours	FTE
Feasibility and consenting			$1,100,000	100%	200	5,500	3
Land procurement			$2,500,000				
Design, tender compliance			$1,300,000	100%	200	6,500	4
Construction			$18,500,000	30%	50	111,000	62
Management and services			$900,000	100%	180	5,000	3
Total Reservoir			**$24,300,000**			**122,500**	**68**
Distribution							
Design and tender			$200,000	100%	200	1,000	1
Easement and access rights			$200,000	10%	150	133	1
Pipe manufacture			$5,000,000	50%	50	50,000	28
Construction			$3,600,000	30%	50	21,600	12
Total Distribution			**$9,000,000**			**72,733**	**40**
Total Direct impact			**$33,300,000**			**195,233**	**108**

Table 1: Direct Economic Impacts

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Derived Economic Impacts

The proposed Otawere reservoir will hold 4,000,000 cubic metres of water, sufficient to irrigate approximately 1,350 hectares of horticulture. This will enable large scale conversion of pastoral land to horticulture. With demand focused mainly on kiwifruit and avocado this would result in derived economic impacts[6] of:

- Over $636million investment in the development of horticulture, based on 800ha being converted to kiwifruit at the industry average of $750,000 per hectare and 300ha being planted in avocado at $120,000 per hectare. This does not include the cost of development for the remaining 250ha which would increase this estimate should further land be developed. The increased land value has been excluded from this calculation.
- An estimated 490 full time equivalent (FTE) horticultural jobs and 62 post-harvest jobs, based on assumed industry figures of 0.3 FTE per ha for avocado and 0.5 FTE per ha for kiwifruit[7] plus post-harvest workers.[8]
- New infrastructure investment of around $38m in post-harvest facilities (including packing facilities and cool storage) to process additional product, conservatively based on $3 per tray to process an anticipated additional 12.5m trays of fruit. Kerikeri's existing packing and cool storage facilities will come under pressure due to the recent increased plantings around Kerikeri.
- A multiplier effect on employment is estimated to create an additional 520 FTEs on top of direct horticultural employment of 490 FTEs (due to backward and forward linkages) based on analysis conducted on the Northland kiwifruit industry.[9]

[6] Derived economic impacts, often called derived demand, are those economic activities that are caused by, or are because of, another activity.
[7] New Zealand Kiwifruit Labour Shortage, New Zealand Kiwifruit Growers Incorporated. NZKGI. July 2018
[8] Gavin Wood, Orangewood Head of Kiwifruit, Northern Advocate 4/8/2021
[9] Scrimgeour et al (2017), 'The Economic Contribution of Kiwifruit Industry Expansion to the Bay of Plenty, Northland and New Zealand Economies'.

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Kiwifruit Based on 800ha of G3 planted and production of 14,276 trays per ha

Component	Per hectare	Per tray	Total
Investment on orchard development	$750,000	$53	$600,000,000
Gross income per annum	$233,977	$13	$187,181,600
Growing costs per annum	$45,000	$3	$36,000,000
EBITDA	$188,977	$9	$151,181,600
On orchard FTE created	0.5		400
Post-harvest FTE required			57

Avocado Based on 300ha of Hass planted and production of 3,400 trays per ha

Component	Per hectare	Per tray	Total
Investment on orchard development	$120,000	$35	$36,000,000
Gross income per annum	$64,260	$19	$19,278,000
Growing costs per annum	$30,600	$9	$9,180,000
EBITDA	$33,660	$10	$10,098,000
On orchard FTE created	0.3		90
Post-harvest FTE required	0.015		5

Combined Totals

Investment on orchard development	$636,000,000
Gross income per annum	$206,459,600
Growing costs per annum	$45,180,000
EBITDA	$161,279,600
On orchard FTE created	490
Post-harvest FTE required	62

Table 2: Derived Economic Impacts[10]

Most of the proposed horticultural land is currently in dairy, and horticulture workers would be replacing dairy farm staff. Based on 2.8 cows/ha this equates to 20 farm staff in need of redeployment should they all convert.

Indirect Economic Impacts

The multiplier effect for the construction of the Otawere Reservoir using an input / output model of both upstream and downstream multipliers predicts a multiplier of 3:1.[11] Meaning for every dollar spent in construction a further three dollars are spent in related economic activity. This indicates that the value of Otawere from direct economic impacts (above) has a wider economic impact of NZ$99.9million.

Derived economic impacts are like direct economic impacts in that they are reasonably expected to occur and are the driving purpose for construction. Indirect economic benefit from horticulture is

[10] Figures are based on the recent Zespri 5-year plan and ANZ avocado report. The kiwifruit development investment includes license purchase at around $550,000/ha

[11] See for example https://www.constructionstrategygroup.org.nz/downloads/PwC%20Report%20-%20Construction%20Sector%20Analysis%20Final%204%20Oct.pdf

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thought to be in the order of three to five times revenue[12] particularly for exports. Taking the lower estimate, derived economic impacts for the Otawere Reservoir would be NZ$1.908billion in development costs with an ongoing revenue multiplier of NZ$619,400,000 per annum in today's dollars. Increased production, expansion, inflation, and value added in the industry would see that figure grow.

This provides a total economic impact, in today's dollars after the first year of full production including construction and development costs, of approximately $1.9 billion with an ongoing revenue multiplier of $619.4 million per annum.

Opportunity for Iwi

MPI, in partnership with Ngapuhi, completed a study in 2015 to identify fragmented Māori freehold land blocks in the Mid North and to look at potential land use options available to bring unproductive or underutilised land into higher production. Access to reliable water was identified as the critical enabler for approximately 5,000ha of land suitable for horticulture. A crude calculation of return per hectare (revenue), if all land was fully utilised with half in avocados and half in kiwifruit, would see revenue of $745million accruing to Māori landowners. This is aside from significant job opportunities in the construction of Otawere, development costs for horticulture operations and ongoing employment.

The Otawere Reservoir, in conjunction with the Mangatoa facility envisaged to closely follow Otawere, will catalyse significant increases in production and productivity for the region. It will also underpin increased training, employment, and innovation opportunities, alongside flow-on effects in related sectors such as packaging, logistics, and downstream manufacturing. It will diversify and strengthen the local economy contributing a more resilient economic structure. These factors will also contribute to greater prosperity for Māori through the ownership of significant productive assets, which in turn will address disparities and increase whanau, hapu and iwi well-being.

Building back better will require increased Māori and youth engagement in the workforce, accelerated by Māori partnership and ownership in productive resources and stewardship of the land and the water.

[12] See for example https://www.hortnz.co.nz/assets/About-Us/Corporate-documents/2020-07-15-Horticulture-Post-COVID-Recovery-Strategy-July-2020.pdf

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Covid-19 and Building Back Better

Covid-19 has created distortions across the economy and fostered inequitable outcomes. Some sectors have been severely hit, such as tourism, hospitality, and accommodation and some, such as housing and construction, severely hit by global supply chain constraints and price rises. Primary sector exporters, despite constrained logistics and labour supply, have led the way in New Zealand's economic resilience and recovery.

In a report to the construction sector in 2020, Sense Partners argued the case for infrastructure investment and that any fiscal package should 'meet three criteria:

1. Implemented quickly delivering stimulus immediately
2. Flexible, with the ability to scale up when needed
3. Aligned with the long-term needs for local communities.'[13]

Otawere delivers on all three criteria but has the added benefit of derived economic benefits to a sector that exports 2/3 of its production and has one of the highest ROIs/hectare of any primary industry. It is also job-rich, which will continue when borders and supply chains re-open and production ramps up. The benefits to the local community and Northland will be significant.

Covid-19 Recovery Strategy for the Agriculture, Food and Fibres Sector

This proposal for construction of improved water storage through the Otawere Reservoir will allow large scale conversion of pastoral land to horticultural food production with associated economic, environmental, employment and social benefits. This is in direct alignment with the recent Ministry for Primary Industries (MPI) strategy 'Fit for a better world: Aotearoa New Zealand' which focuses on NZ's response to, and recovery from, COVID-19.[14]

This strategy emphasises the need for focused development of small-scale water storage for farmers to convert to higher-value land use options, improved supply chains, and higher employment. Water storage, such as the proposed Otawere Reservoir, is recognised as critical to enable land use change that increases productivity and builds climate resilience.

Otawere is projected to create significant horticulture job opportunities and skills training for local employees. There is a recognised gap to be filled between the number of future jobs in horticulture in Northland and the capacity of the Regional Seasonal Employment (RSE) scheme to fill them. In the Mid North in particular, there is excess youth and Māori unemployment even when national unemployment has declined under tight Covid 19 border restrictions. Otawere provides opportunities to reduce unemployment and to transfer skills to young Māori to establish future Māori-led agri-businesses in horticulture and food.

Enabling a Move Towards Sustainable Land Use

COVID-19 has shaken societies and economies around the world. As we restore our society and economy, we have an opportunity to rebuild a better food and fibre sector, in partnership with Māori and industry. This includes rapidly moving to a low carbon emissions society, restoring the health of our water, reversing the decline in biodiversity while at the same time feeding our people.

[13] https://www.masterbuilder.org.nz/assets/publicdocs/ConstructionSectorReport-SensePartners.pdf
[14] https://fitforabetterworld.org.nz/assets/Uploads/PSC-Report_11June2020-WEB.pdf

The food and fibres sector is being positioned to be at the forefront of our export-led Covid-19 recovery and can lead the way to a more sustainable economy. The Government wants to see acceleration of the productivity, sustainability and inclusiveness of the primary sector.

The availability of water from Otawere creates opportunities to shift the land use balance in Northland away from a predominance of livestock production towards plant-based food production. De-risking investment in horticulture and ensuring a sustainable water supply will enable viable horticultural businesses to be established.

'Horticulture is the most trusted sector in the primary industry and the ROI per hectare on horticulture producing land is the highest in the primary sector with the least impact on water quality, the environment and carbon emissions.'[15]

Productivity will be substantially improved both through the development of Otawere, and related water schemes and the derived horticulture developments. The combination of water schemes will also provide increased community resilience in areas that are both flood and drought prone.

As Horticulture NZ states: 'The sector offers a diverse range of products, services, locations and end markets, and channels revenue and job opportunities into the regions where some of our largest social and economic challenges exist. Most importantly it has a justifiable reputation for safe, sustainable, healthy, and ethically produced food.'[16]

Horticulture also offers one of the highest rates of exports (approx. 2/3 of production) of any sector in New Zealand, which provides plentiful opportunity for innovation and growth.

Current and Future Innovation

The growth in horticultural production stimulated by the Otawere Reservoir is expected to attract increasing innovation, research and development to the region.

The nearby Innovation and Enterprise Park at Ngawha provides an opportunity for world class research and development tailored to opportunities in Northland and the Mid North. It will support horticulture growth and innovation as 'It brings innovative businesses together with education and training providers, research and development organisations, economic development and business incubation support... It provides opportunities for local Māori landowners and businesses to invest in value-added activity. And it attracts symbiotic activity to create a circular economy at the park sharing best practice across the region.'[17]

An example is a 'joint venture led by Ngāpuhi Asset Holding Company, partnering with award-winning Northland grower Maungatapere Berries and the Far North District Council-owned company Far North Holdings. It will see the development of a sustainability-focused, high-tech hydroponics berry fruit operation, which will develop a 28-hectare site.'[18]

The increased supply of raw food materials from horticulture is expected to stimulate new food ingredient and functional food businesses using plant-based protein and phytonutrients, which have

[15] Horticulture Post Covid Recovery Strategy: An industry-led, government enabled partnership for the future Horticulture New Zealand July 2020
[16] HortNZ, ibid
[17] https://ngawhapark.nz/
[18] ibid

growing demand in the functional food market for discerning consumers willing to pay a price premium.

Innovative work is in progress to develop increasingly biologically-friendly crop protection regimes that have a lighter touch on the environment. It will provide growers with methods and tools to manage their crop protection in new ways. Covid-19 recovery will be aided by placing more of New Zealand's horticulture products in premium positions both in New Zealand and in offshore markets.

Inclusive Growth

The Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) describes inclusive growth as: 'broad-based growth that enables the widest range of people and places to both contribute to and benefit from economic success. Its purpose is to achieve more prosperity alongside greater equity in opportunities and outcomes.'[19]

There are several features that follow an inclusive growth approach in the Otawere reservoir including:

- local job creation with career pathways,
- local procurement – where all efforts are being made to source local suppliers in construction and development,
- community wealth creation – where new institutions and organisations are formed locally and where new assets are being created that hold wealth on behalf of the community such as multiply-owned Māori land holdings, post-settlement governance entities and trusts,
- Economic gardening – where the economy is developed from the ground up building on local know how, assets and resources rather than hunting for and subsidising new industries to locate in the region.

These combined efforts lead towards a regenerative economy where wealth is created in, and circulated around, the local community.

[19] https://www.thersa.org/globalassets/pdfs/reports/rsa-inclusive-growth-in-action.pdf

Conclusion

Some factors in recovery are outside of New Zealand's control, such as pandemics, global logistics, and the macro-economic decisions of our trading partners. However, there are things that New Zealand can be getting on with that will place it in a more competitive position once supply chains improve and global trade returns to pre covid levels.

International demand has remained high for New Zealand's primary products throughout the Covid-19 pandemic and is poised for rapid growth as the world re-emerges. This is an opportunity for the Mid North and New Zealand to increase horticultural production, export revenue, land use productivity, sustainability, and innovation.

Significant potential, therefore, exists to build the local economy from the ground up by strengthening and diversifying key sectors and investing in enabling infrastructure. This will serve to underpin the development of new high value sectors and underpin exports, future investment, and prosperity.

Exporting higher value products and services, using water and the land in a sustainable, productive way, increasing employment and household incomes, and providing for more inclusive growth are all national goals that Otawere can contribute to. Now is the time to be investing in New Zealand's future and our productive capability to support those goals.

The Otawere Water Scheme is a circuit-breaker. A catalytic project that will foster inclusive economic growth and innovation. Most importantly, it is set to benefit the people that live and work in the Mid North.

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