

**Wairarapa Water Use Project:
Preliminary Social Impact Assessment**

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Table of Contents

Executive Summary	ii
1 Introduction.....	1
1.1 Project background	1
1.2 Objectives of the Social Impact Assessment (SIA).....	1
1.3 Approach and scope	2
2 Profile of the Wairarapa area	7
2.1 Populations of the three districts.....	7
2.2 Land uses and local economy.....	9
2.3 Social services.....	16
2.4 Values associated with land and water uses.....	18
2.5 SWOT analysis of the region.....	20
3 Assessment of the WWUP.....	22
3.1 First order effects of the proposed project.....	22
3.2 The assessment framework – social change under irrigation.....	23
3.3 Assessment framework – non-agricultural land and water uses.....	26
4 Social impacts (effects) in Wairarapa	28
4.1 The social structure of farming	28
4.2 Employment and population.....	28
4.3 Ethnicity.....	29
4.4 Housing and social services	30
4.5 Technology transfer.....	30
4.6 Recreation	31
4.7 Drinking water	31
4.7 Management of effects	31
5 Conclusion	33
References.....	34
Attachment 1 Map of the assessment area	37
Attachment 2 Detailed demographic information	38
Attachment 3 Social deprivation – Combined Districts.....	44

Executive Summary

The Wairarapa Water Use Project is an initiative of the Greater Wellington Regional Council to establish a multi-purpose water scheme or schemes based on harvesting, storage and distribution of water in the Ruamahanga Valley. At this early feasibility stage the project is considering five possible water storage options from an initial list of 14. Likely outcomes of the project include an increase in the area of irrigable land, greater security in the supply of irrigation water and subsequent intensification of land uses. The project has the potential to increase irrigation in the Wairarapa by 10-30,000 hectares from 12,000 hectares at present.

This social impact assessment is a preliminary assessment as part of the pre-feasibility phase of the Project. It is at a broad level and not specific to a particular scheme or schemes. The analysis considers the current social context (without scheme) and the likely effects of the proposed additional irrigation at a broad level in a desk-based study. The assessment area comprised the three combined districts of South Wairarapa, Carterton and Masterton – the Combined Districts. Separate recreation and economic assessments were conducted.

A key step in this assessment was to profile the social and local economic characteristics of the assessment area. The key aspect of population of the Combined Districts is the difference in population trends between the rural and urban areas. The rural areas have grown strongly compared to the towns over the last decade. This growth in rural areas is driven in particular by growth in areas in close proximity to the towns, as a result of lifestyle blocks and amenity migration (with people commuting to work).

Sheep farming, sheep and beef farming and forestry are the major farm types in the Combined Districts. The dairy industry is a relatively minor contributor to the district land uses at present and mostly located in South Wairarapa. Although farming remains the main land use in the region, South Wairarapa, in particular, has some recent diversification away from pastoral farming into other types of primary production such as grapes and olives. There is a strong link between the growth of Wairarapa tourism (since the late 1990s) and the emergence of local, wine growing and boutique wineries and cafes, along with increasing visitor demand for a country retreat in the regional environment. These factors have underpinned the emergence of a distinct local/rural tourism industry.

There is a wide range of social support services located in Masterton and the surrounding region and its towns. As in many rural areas, schools are key hubs for communities both rural and urban. The rolls of schools provide, along with demographic data, an indication of the vitality of a community. While the population of the Combined Districts has increased by about 8 per cent between 2001 and 2013 this growth has not been reflected in the total number of pupils attending school in the Wairarapa. School rolls have gradually fallen since 1996, and that decline has continued during the early part of this century.

Future land-use change in the Combined Districts is likely to result from a combination of irrigation and further rural subdivision - both of which will continue to drive social changes. This assessment has considered increased irrigated agricultural output for an additional 10-30,000 hectares of irrigated land across a number of potential land uses including, dairy, dairy support, arable, intensive sheep and beef, and horticulture. It draws on the economic assessment, which estimates this new or increased land use will generate net additional jobs on farm of 590 FTE and 1,130 FTE regionally for 30,000 hectares of new irrigation

Social research shows that irrigation transforms farming systems, and the people and communities who work in and support those systems. This assessment updates and refines a model of land-use change under irrigation building on a solid base of New Zealand comparative research. This research provides an understanding of potential social effects for rural people and at the community level. These social impacts (effects) are driven by new land uses under irrigation, the underlying farming systems, employment and the nature of farm work, farm ownership, population demographics and the dynamics of rural communities. A revised and updated model of these changes forms the basis for the broad assessment

The principal conclusion of this social assessment is that the proposed Project and likely associated land use changes and intensification, would boost the employment and population of the Combined Districts and Wairarapa sub region, with the scale of change dependent on the total area irrigated. The population could increase from 350-1000 additional people depending on the area irrigated (10-30,000 ha) and the resulting combination of land uses. The newcomer people will bring social change that should generally be positive for the people and communities of the area, especially if the change is supported by social change management. One particular aspect of this change will be an increased diversity of people living in the Combined Districts, including more migrant workers.

At a strategic level it is clear that the proposed development will have a net positive outcome for the people and communities of the Wairarapa. Although, this net positive outcome would be enhanced by a proactive process of social change management with programmes such as settler support. It is likely the social effects will very largely be experienced in the Wairarapa rather than the Wellington region as a whole.

This preliminary assessment provides a sound basis for analysis of land-use change at the regional level but that will need to be refined for a specific command area or areas. There should also be site-specific analysis of social impacts in relation to construction and operation of any potential headworks (dam, reservoir, canals) and any differential effects. The current assessment is limited by its desk-top nature. Further assessment will require primary research supported by a participatory process of planning and assessment. It also requires further integration with the economic, recreation, water quality and ecological assessments in the next phases.

1 Introduction

1.1 Project background

Following some significant work undertaken since 2000 by the Wairarapa community, the Wairarapa Water Use Project (WWUP) has evolved into an initiative of the Greater Wellington Regional Council (GWRC). The proposal is to establish a multi-purpose water scheme or schemes based on harvesting, storage and distribution of water in the Ruamahanga Valley of the Wairarapa (see map, Attachment 1).²

The project is currently considering five possible water storage options around the Valley from an initial list of 14. The potential schemes are in the White Rock, Mangatarere, Black Creek, Te Mara and Tividale areas. Wherever possible, the project will maximise the environmental, economic, cultural and recreational benefits of Wairarapa's water resource. Participation by a wide range of community interest groups is assisting this objective through a Stakeholder Advisory Group (SAG) and a community Leadership Group.³

The project investigations are running alongside separate work on a new regional plan, which responds to the National Freshwater Policy Statement (NFPS). A Whaitua (Zone Committee) process has been established by the Council through the Ruamahanga Whaitua, one of five in the greater Wellington region. The Ruamahanga Whaitua will decide priorities for land and water management across the Ruamahanga Catchment and these will drive the establishment of limits to freshwater takes and nutrient discharges in a separate catchment chapter to the plan.

Likely economic outcomes of the project are an increase in the area of irrigable land, greater security of irrigation water and an intensification of land uses. The project has the potential to increase irrigation in the Wairarapa by about 30,000 hectares from 12,000 hectares to 42,000 hectares, as well as providing greater water reliability for current irrigators. Other uses of the stored water could include augmenting low summer river flows, recreational activities, stock water, frost fighting, hydro-electricity generation and urban water supply.

A successful project will require wide farmer (investor) and community support, which in turn requires a full understanding of the full range of potential impacts, including social impacts.

1.2 Objectives of the Social Impact Assessment (SIA)

The approach of this SIA is to undertake a preliminary assessment as part of the pre-feasibility phase of the WWUP. It is a preliminary assessment conducted at a broad level and is not specific to any particular scheme or schemes. The assessment does not, at this stage, involve original research and is one of a number of pre-feasibility investigations, with others covering recreation, farm management and regional economics.

Social impact assessment is a process of social impact analysis, projection, monitoring and management that usually complements a broader process of environmental assessment and

² <http://www.wairarapawater.org.nz/>

³ <http://www.wairarapawater.org.nz/Portals/153/WWUP%20Project%20Overview%20May%202014.pdf>

related decision making. The principal objective of the WWUP assessment at this point is to provide high-level analysis of the proposed water resource and irrigation development in advance of selecting an option (or options) to take through to full feasibility.

This level of analysis is usually referred to in social assessment practice as a “strategic” assessment. A strategic social assessment provides an additional perspective to the options analysis and selection of a preferred option. It is assumed that this preferred option is then assessed for its project-specific effects. The more detailed and scheme specific scope of the project assessment can build on the information obtained in the strategic level of work.

This preliminary (strategic) SIA is to identify the potential social impacts at a region-wide and generic level of increased irrigated land use in the Wairarapa Valley as potentially enabled by the WWUP. Specifically, the study has a number of subsidiary objectives, to:

- Provide a picture of Wairarapa’s current social structure in terms of the elements most likely to be influenced by a rural water project leading to intensified land use
- Provide a high-level understanding of the social effects of 30,000 ha of new irrigation under the full WWUP and for a smaller area of 10,000 ha
- Detail the anticipated impacts on such parameters as:
 - Population change (absolute and by age and gender)
 - Land ownership change
 - Employment change-
 - Schools, community groups/clubs, health providers.
 - The rural/urban mix of the population
- Compare the anticipated potential impacts with the current status
- Provide a reference check of WWUP against existing irrigation schemes around the country
- Provide a bench mark for future social assessments including the development of a model of social change.

1.3 Approach and scope

The widely accepted approach to social impact assessment internationally⁴ is to scope the assessment as a first step. Scoping is then followed by a description of the social environment, often referred to as a baseline study or social profile. Where the assessment is staged, as in this case, information obtained from scoping and baseline research is applicable to the later stages of work.

Scope

The scope of this strategic assessment is not scheme specific, and the analysis considers the current social context (without scheme) and the likely effects of the proposed additional irrigation at a broad level. It is assumed that this SIA will provide an important basis (framework) for later assessments that address specific schemes and the requirements of resource consent applications. It is also assumed that the subsequent assessment will cover the full range of impacts, including short and long-term effects, positive and negative effects, and provide some understanding of who will be affected and the significance of the effects identified. To this extent this current strategic assessment scopes subsequent, project-specific work. Good practice SIA also suggests that where there are potentially significant social effects, proposals will be made for managing them, albeit only at a broad level for a strategic assessment.

⁴ Taylor et al., (2004).

Parameters required by WWUP to be addressed at a minimum include:

- Population change (absolute and by age and gender)
- Land ownership changes
- Employment changes
- Impact on schools, community groups/clubs, health providers.

Additional parameters to consider, included with agreement of WWUP based on previous assessments by Taylor Baines,⁵ are:

- Changes in farming practices (towards advanced mitigation practices)
- Changes in ethnicity
- Changes in the social deprivation index⁶
- Effects on drinking water supplies and human health
- Value conflicts associated with new/intensified land uses versus traditional dryland farming practices
- An approach to managing social change and maximise social wellbeing outcomes.

The WWUP expected the following matters (research questions) to be addressed in the preliminary SIA:

- A comparison of what exists (social aspects) with what is likely to result in the future
- An examination of the relationship between urban and rural population sizes – does it change, if so how, and to what extent and over what time period?
- Discussion of what employment changes will result? Is it a shift, do people stay, do new people come in or both? Will the existing workforce be able to service an increased irrigation environment?
- A Wairarapa SWOT analysis with regard to its social make-up, i.e., is current ability to address and manage the future
- Examination of key indicators such as:
 People – population, age demographic, dwellings, tenure (length of ownership), ethnicity
 Community – education, community facilities including social health⁷
 Employment – income, employment, people, key sectors, building consent activity.

The scope of this preliminary assessment did not include matters that will be considered separately once a specific scheme (or schemes) is investigated further and a more confined assessment area is known. These matters would include disruption to or dislocation of farms or

⁵ For example assessments of projects in Central Hawkes Bay, Central Canterbury and a number of other Canterbury catchments.

⁶ An index of social-economic status developed by Statistics NZ.

⁷ Social health generally refers to the quality of relationships between people (individuals, groups and communities). For SIA, the focus is more broadly on social wellbeing. Consistent with s5 of the RMA this focus also includes economic wellbeing and the physical and mental health of people and communities.

households on a temporary or permanent basis; impacts of intensive land uses on traffic and transport systems; construction impacts such as noise and dust; localised health and safety issues; construction workforce issues; and local conflicts in values over water use.

The GWRC provided initial assumptions about a potential mix of land uses post irrigation and other relevant factors (including a map of the extent of potential command area/s). These assumptions were the basis for economic analysis and projections of potential employment impacts on and off farm.⁸

Social assessment model

The assessment updates and refines a model of land-use change under irrigation building on previous comparative research. The model is based on a mix of qualitative and quantitative data. It helps to examine social change scenarios for the catchment's future with and without irrigation (examined at two different levels). The model draws on New Zealand research and case studies of rural social change, especially those driven by changes in land uses and farm systems, including farm ownership, workforces and community demographics.⁹ An important aspect of this analysis is an understanding of the social changes associated with different farming systems or water management regimes and those found in rural areas in general, for example, changes experienced by rural schools over recent years. The case studies of land-use change under irrigation that were used to develop the social assessment model (as listed in the references) are mainly based in the South Island, where such experience is concentrated. They include:

- The Amuri (Hurunui) area
- Waipara
- Central Canterbury (Selwyn)
- Hinds (Ashburton)
- Opuha
- The Waitaki Plains
- North Otago.

In addition, experiences of conversions from sheep and beef to dairy farming in Southland, although they do not necessarily involve irrigation, provide useful information about social change.

Data and tasks

In detail, based on the model, the analysis for this assessment includes:

- the current rural population and social trends from census and other official statistics, any available farmer surveys, and secondary data sources to profile the proposed general irrigation area/s (using best fit of census areas units)
- demographics of affected communities
- a description of social infrastructure, social needs and trends and likely changes in these communities from land-use change and changes in numbers and

⁸ Economic analysis was carried out by Butcher Partners Ltd (2014).

⁹ Taylor Baines has developed an extensive research list and understanding of this literature from previous irrigation and catchment planning assessments in both the North and South Islands, including for strategic-level catchment plans and project-level irrigation proposals.

characteristics of farmers, farm workers and their families (using a SWOT framework as requested).

- projection of likely changes in farm ownership and employment based on the model of change
- the subsequent impact on the wider Wellington region extrapolated
- an understanding of community values in the study area associated with irrigation and land-use change, small farms and lifestyle blocks, viticulture, visitors, tourism and hospitality services and any possible conflicts that might arise between these
- Commentary on the differences between the predictions for Wairarapa and Wellington and those experiences in other parts of NZ and the reasons for those differences.

The assessment is desk based and limited in scope by available funding and timeframe. It does not include original research in the form of interviews, surveys or other primary research techniques. Separate assessments were carried out on recreation and also economics.¹⁰

Data sources included:

- Secondary data and reports – as available on the study area covering population, employment, land use, land values, settlement patterns over time, business activity and economic development
- Census data – from the 2013 census at the area unit level
- School roll data and other indicators of community change, including data from other social services as available

The following tasks were undertaken:

- Scoping - access and review background reports and confirm project current status. Meet with key project team, and discussions with the economist. Confirm with the Council the study area for the assessment
- Profiling - obtain and analyse data sets for the assessment area and description of the current state of the area
- Assessment - review and update the model of land-use change under irrigation developed previously by Taylor Baines and its applicability to this case; undertake preliminary assessment and review internally
- Reporting and validation - prepare a fully referenced and substantiated draft report and revise as required; make presentations to stakeholder groups and WWUP staff and meetings with relevant organisations to access any additional data or reports; prepare the final report.

Assessment area

The assessment area comprised the three combined districts of South Wairarapa, Carterton and Masterton – called the Combined Districts herein. These districts are split into urban and rural areas. The urban areas of South Wairarapa comprise the sum of the area units of Featherston, Martinborough and Greytown. The Carterton and Masterton Urban Areas consist of the sum of area units for each of those towns, with the exception that for Masterton two peri-urban areas

¹⁰ See Butcher Partners (2014) for economics and Opus (2014),

were classified as rural rather than urban, giving greater consistency with the way the other towns are defined by Statistics NZ. The Combined Districts Rural and Urban Areas are simply the sum of the total rural and urban area units for the entire Wairarapa area. Statistics for the Combined Districts Total and New Zealand are included for comparative purposes.

While the analysis is generally at the level of the Combined Districts there is discussion of a single district where practical and relevant. Some social-economic analysis and reporting is only available for a single district. It should be noted that the Combined Districts rural areas comprise both valley (relevant to our project) and eastern hills (not directly impacted). While this inclusion affects (increases) the total population it is likely to have little effect on the proportions of the rural population for key variables discussed below and provided in the tables in Attachment 2.

2 Profile of the Wairarapa area

A key step in this strategic assessment was to profile the social and local economic characteristics of the assessment area using the variables and data sources described above. This description of the existing social environment is a key step in assessing how irrigation might change the nature of the area and the trends already evident there.

2.1 Populations of the three districts

Populations and population change

The populations of the three districts comprising the assessment area are shown in Table 1. The table shows total populations for these areas over a twelve-year period and provides comparisons between rural and urban parts of the study area. The key aspect of population for this assessment is the trend of population change, with comparison between rural and urban areas. The rural areas, as defined here, have grown strongly compared to the towns. It is important to note that growth in rural areas is driven in particular by growth in areas in close proximity to the towns.

Table 1: Changes in usually resident population of selected areas of Wairarapa Combined Districts 2001-2013

Area	2001	2006	2013	Per cent change 2001-2013
South Wairarapa Rural	3015	3156	3603	19.5
South Wairarapa Urban Areas	5727	5733	5922	3.4
Carterton Rural	2748	2976	3546	29.0
Carterton Urban Area	4101	4122	4686	14.3
Masterton Rural	4824	4953	5220	8.2
Masterton Urban Area	17787	17673	18126	1.9
Combined Districts Rural Areas	10587	11085	12369	16.8
Combined Districts Urban Areas	27615	27528	28734	4.1
Combined Districts Total	38202	38613	41103	7.6
New Zealand	3737277	4027947	4242048	13.5

Source: Statistics New Zealand

Population projections

Population projections are available at a district level to 2031 and these are provided in Table 2.¹¹

¹¹ Statistics New Zealand, Subnational population projections, 2006(base) -2031, updated 2012, Table 2.

Table 2: Population Projections of the South Wairarapa, Carterton, and Masterton Districts 2031

Area	Population Base - 2006	Population Projections - 2031		
		Low	Medium	High
South Wairarapa	8889	8090	9300	10550
Carterton	7089	6940	8110	9290
Masterton	22686	19990	22900	26100
New Zealand	4184600	4999100	5194600	5427800

Source: Statistics New Zealand, Subnational population projections, 2006 (base) -2031, updated 2012, Table 2

Actual counts of the usually resident populations for each of the three districts at the 2013 census (i.e. South Wairarapa 9,525, Carterton 8,232, and Masterton 23,346) indicate that their populations are already tracking in the medium to high projection range.

Key demographics (2013)

Detailed tables and commentary on the demographics of the assessment area are provided in Attachment 2. Key features of the population of Combined Wairarapa Districts¹² in 2013 are:

- The rural areas of the Combined Districts generally have more youthful populations than the urban areas as they have relatively more residents under 15 years (except for Masterton Rural), and relatively fewer residents 65 years and over.
- The urban areas of the Combined Districts have a much higher proportion of residents belonging to these two age groups that usually do not have a high rate of participation in the labour force.
- Males outnumber females in the populations of the rural areas of the Combined Districts, while the reverse is the case for the urban areas.
- Maori, Pacific Peoples, and Asians comprise higher proportions of residents in the urban areas of the Combined Districts indicating that the towns have a higher degree of ethnic diversity than rural areas.
- Residents of rural areas are generally better educated than their counterparts in urban areas of the Combined Districts.
- Participation in employment is high for residents in the rural areas compared to the urban areas of the Combined Districts across the categories of employed full-time or part-time, employers or self-employed. Conversely, they are less likely to be paid employees because of the smaller scale of business activities in rural areas
- Rural residents are also less likely to be unemployed as they usually move to other places to find jobs
- The higher status occupations of manager and professional categories are much more prevalent in the workforces of the rural areas than the urban areas as farmers are included in the former category.
- The main sources of employment for residents of the rural areas of the Combined Districts are the agriculture, forestry and fishing (30%) and education/health/social/arts (16%) sectors, while those for residents of the urban areas are wholesale/retail/hospitality (22%) and education/ health/social/arts sectors (21%).

¹² See Appendix 2 which includes a number of tables providing evidence of these key features along with comparisons to the New Zealand population.

- Households in the rural areas receive higher incomes than those in urban areas of the Combined Districts, with 58 per cent of them reporting earnings greater than \$50,000 (cf. 40 per cent for urban areas). The social deprivation index reflects the social economic disparity between rural and urban areas (see Attachment 2).
- Both the urban and rural areas of the Combined Districts have a higher incidence of owner-occupied dwellings than the national average, but they differ markedly in their patterns of tenure as the urban areas have relatively more rental dwellings and fewer dwellings held by a family trust than the rural areas.

2.2 Land uses and local economy

The Wairarapa region, north and east of Wellington City, centres on a fertile valley through extensive hill country bordered by mountains to the west and the Pacific Ocean to the east. There is a mix of countryside and townships, including Masterton, Carterton, Greytown, Featherston, and Martinborough. The southern part of the region is dominated by Lakes Wairarapa and Onoke between which flows the Ruamahanga River, the main river system through the valley. The northern boundary is around Mount Bruce and the administrative boundary between the GWRC and the Horizons (Manawatū–Wanganui) Regional Council. The division at this point also reflects a change in social-economic orientation from south to Wellington City to north towards Palmerston North City and the Hawkes Bay region.

Agriculture

Palliser Bay is the site of some of the earliest Maori horticulture production in New Zealand, with evidence of kumara production in stone gardens.¹³ European Settlers brought sheep by a coastal route into the Wairarapa, and established the country's first sheep station at Wharekaka, near Martinborough, in 1844. By 1851 pastoral farming was well established with 20,000 sheep and 2,000 cattle in the region, and 20 years later the vast majority of land had become freehold. Settlements were established at Greytown (1854), Featherston (1857) and Martinborough (1881-1885) during the latter decades of the 19th century. The Wellington-Wairarapa railway began operating in 1878 and assisted development of the region as the line was extended to Masterton (1880), Eketuhuna (1889) and Woodville (1897). Sawmilling was a significant industry in the region, and a meat processing plant near Masterton and a dairy factory at Featherston were operating during the closing years of the 19th century.¹⁴

Agricultural production, particularly dairy and fat lamb husbandry, increased during the early 20th century as farmers responded to rising export prices and technological innovation. The rural population declined after 1945, although pastoral production has continued to grow. The opening of the Rimutaka rail tunnel in 1955 improved the efficiency of the freight and passenger services and strengthened social and economic ties with Wellington.¹⁵

The main types of farms in the Wairarapa Combined Districts¹⁶ as recorded by the Agricultural Survey of 2012 are sheep (23%), beef cattle (16%), sheep and beef cattle (15%), forestry (13%), dairy cattle (12%), grape growing (6%) and olive growing (3%). While all these land use activities provide significant income and employment for residents, there has been a significant

¹³ Furey, Louise (2006).

¹⁴ South Wairarapa District Council (2009): 5.

¹⁵ South Wairarapa District Council (2009): 5

¹⁶ Noting these include large areas of hill country

shift of land use since 2007, as shown by data from the Agricultural Survey (Table 3), with the number of sheep and beef cattle farms reducing and the number of sheep farms rising. Moreover, with reference to Total Farms in Table 3, there has been a trend to consolidate properties into larger production units during this period.¹⁷

There are significant differences between the three districts with regard to the distribution of these farm types. Sheep farming, sheep-beef farming, and forestry are the major farm types in the Masterton District, for instance, while in the other districts the main types are beef farming and dairying in Carterton, and dairying, grape growing, and olive growing are found in in South Wairarapa.

Table 3: Change in selected types of farms in Wairarapa Combined Districts 2007 to 2012

Farm type	2007		2012	
	Number	per cent	Number	per cent
Sheep	213	13.9	336	23.1
Beef cattle	243	15.9	225	15.5
Sheep-beef cattle	364	23.8	213	14.6
Forestry	198	13.0	189	13.0
Dairy cattle	168	11.0	171	11.8
Grape growing	87	5.7	85	5.8
Olive growing	42	2.8	45	3.1
Total number	1527	100.0	1264	100.0

Source: Statistics New Zealand: farms-by-farm-type-TLA-2007.xls downloaded 4 November 2012 and farms- farm-type-ta -2012.xls, downloaded 30 April 2014.

Note that neither the individual farm types nor their percentages add to the bottom row as they are selections from the primary data.

The dairy industry is a relatively minor contributor to the economies of the South Wairarapa, Carterton and Masterton Districts at present. A study by the New Zealand Institute of Economic Research, for instance, found that in 2009 dairying directly contributed around \$70 million of GDP (while not strictly comparable, total 2013 GDP was \$320 million¹⁸) to the economy of South Wairarapa District, \$38 million to Carterton District (Total 2013 GDP \$360 million), and \$16 million to Masterton District (Total 2013 GDP \$950 million).¹⁹ Dairy activity provided 8.4 per cent of employment (250 jobs) in South Wairarapa District, 4.8 per cent (130 jobs) in Carterton District, and 0.6 per cent (58 jobs) in Masterton District. Except for three processing jobs in Masterton District the jobs in this sector were all located on farms.²⁰

The Combined Districts had a total of 68,264 dairy cows and 158 herds during the 2012/13 season. They were managed by 109 owner/operators and 49 sharemilkers.²¹ Analysis of dairy

¹⁷ While stock numbers in sheep and beef have fallen productivity (per stock unit) has risen since the early 1990s <http://www.teara.govt.nz/en/wairarapa-region/page-7>

¹⁸ 2013 GDP Figures from Stokes et al.,(2014).

¹⁹ Schilling, C., Zuccollo, J. and Nixon, C. (2010): 38. cf. \$8,091 million of GDP for New Zealand.

²⁰ Schilling, C., Zuccollo, J. and Nixon, C. (2010): 35-36. cf. 1.8 per cent of employment, or 33,849 jobs for New Zealand.

²¹ LIC Statistics and Dairy NZ (2013): 16.

statistics recorded by the Livestock Improvement Corporation and Dairy NZ²² since the 1998/99 season (see Figures 1 and 2) reveals that only the South Wairarapa and Masterton Districts have increased their number of dairy cows over the last 15 years, and that with limited irrigation water growth has been insignificant compared to what has occurred in Canterbury and Southland. In all three districts the number of herds has declined, indicating that the scale of dairy farming in the Combined Districts has gradually increased (consistent with the national pattern).

Figure 1

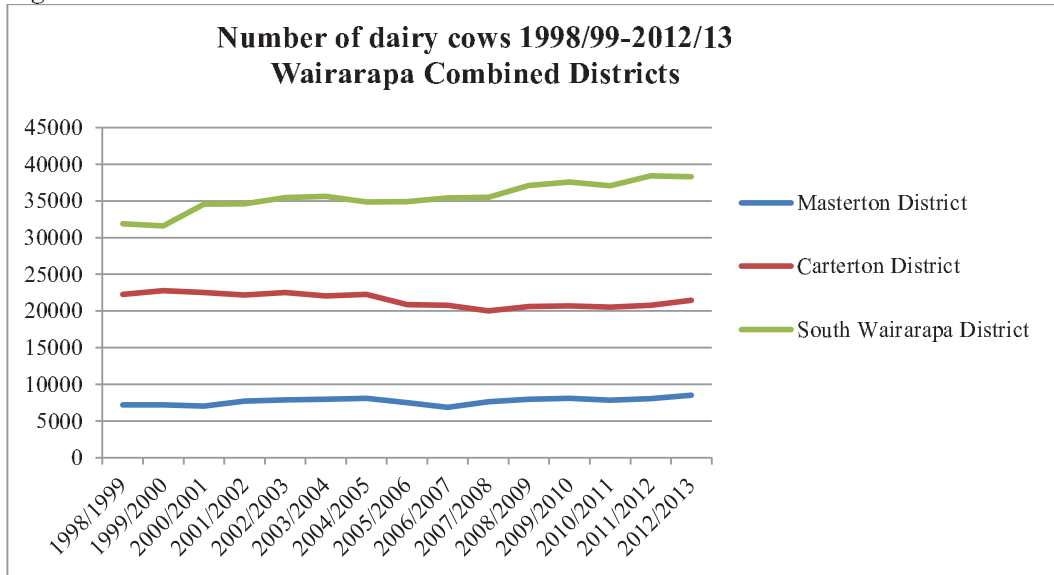
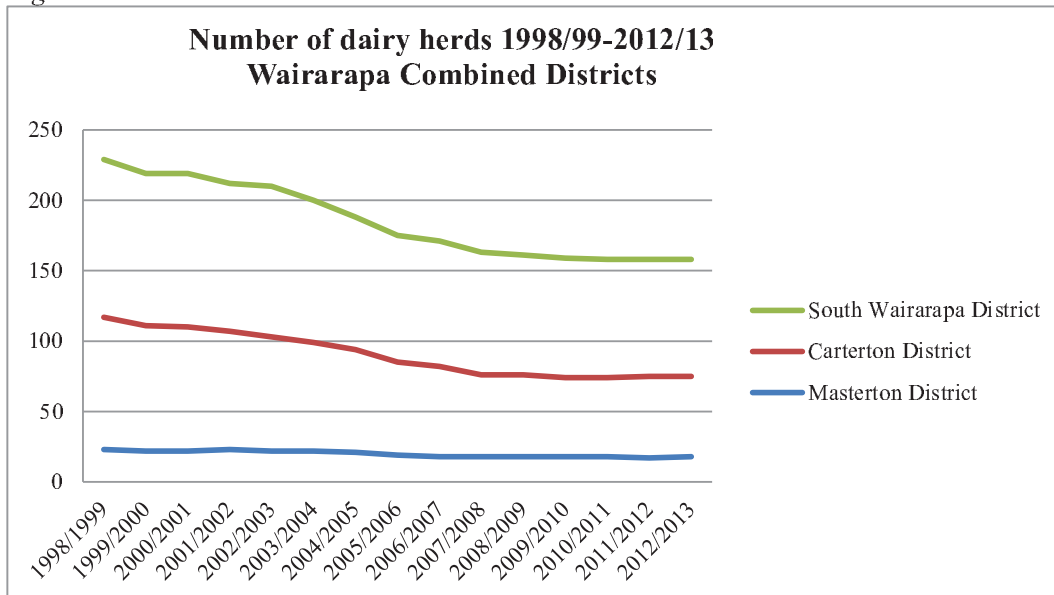


Figure 2



²² Dairy statistics for this period may be obtained from the Dairy NZ website: <http://www.dairynz.co.nz/publications/dairyindustry/?subject=5528>

Forestry

The government planted the first major forest in the Wairarapa at Ngaumu during the 1940s to stabilise hill slopes and supply timber for building materials. Many farmers established forests from the 1960s, and investments by institutional investors doubled plantings during the 1990s.²³ In 1992 a Japanese company opened a large wood-processing plant near Masterton.²⁴

Forestry is located mainly on the eastern uplands of Wairarapa, and most of the trees are radiata pine that are usually harvested after 30 years. It covers about 12 per cent of the total land area of the region.²⁵ At 1 April 2013 Masterton District had an estimated forest area of 33,044 hectares, Carterton District 10,377 hectares, and South Wairarapa District 8,609 hectares, altogether a very small share of the national total of 1,728,500 hectares.²⁶

Economic diversification

Although farming remains the main land use in the region, South Wairarapa, in particular, there has been some diversification away from pastoral farming into other types of primary production such as growing grapes and olives. The warm climate and gravel soils around Martinborough are ideal conditions for growing grapes. Olive growing began with a small grove near Martinborough in the early 1990s, and the groves now extend as far north as Masterton. The region's growers produce high quality oil mainly for the domestic market.²⁷ A census, conducted by Olives New Zealand in 2014, recorded 30 olive groves in Wairarapa (cf. 210 for NZ) and 46,599 trees (14.6% of the NZ total). Wairarapa has the largest processing capacity of all the regions in the country, with its three presses capable of handling 2,500 kilograms of olives per hour.²⁸

Martinborough became the centre of a thriving wine industry during the 1980s. The success of early winemakers attracted others to the wine industry, and by 2003 there were 44 wineries; several of which were located north of Martinborough at Gladstone and Opaki. The number of wineries in Wairarapa had risen to 67 by 2014; with the area of vineyards increasing from 779 to 997 hectares between 2005 and 2014 and the amount of grapes harvested growing from 1,649 to 5,743 tonnes over the same period.²⁹ Most of the wineries are classified as boutique. Pinot noir is the most common grape variety grown and the Wairarapa is the third largest area of this grape in New Zealand, behind Central Otago and Marlborough.³⁰ Other recent land use changes observed in a social mapping study were fewer orchards, less berry fruit grown around Greytown, larger-size farms, increased dairy conversions and land-use intensification.

²³ Ben Schrader. 'Wairarapa region - Forestry, fishing and horticulture', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-8> downloaded 7 July 2014.

²⁴ Ben Schrader. 'Wairarapa region - Diversifying the economy', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-9> downloaded 7 July 2014.

²⁵ Ben Schrader. 'Wairarapa region - Forestry, fishing and horticulture', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-8> downloaded 7 July 2014.

²⁶ Ministry for Primary Industries (2013): 24-25.

²⁷ Ben Schrader. 'Wairarapa region - Forestry, fishing and horticulture', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-8> downloaded 7 July 2014.

²⁸ Sheridan, G. (2014): 3-4, 14, & 27-28.

²⁹ New Zealand Winegrowers (2014): 23-25.

³⁰ Howland (2014) 230-231..

A particular initiative to diversify and strengthen the economy was government regional development initiatives during the 1970s. A government printing office was opened in Masterton in 1976, which employed a staff of 600, and a new tobacco factory was also built. The boost to the economy from these ventures was short-lived, however. When trade barriers were removed during the 1980s several manufacturing firms failed, and a further 700 people lost their jobs when the Waingawa freezing works closed in 1989. Since then the region's economy has continued to diversify, with the economic base expanding into processing of viticulture and forestry products.

BERL Economics ranks two of the three districts in the Wairarapa in the top ten of the nation's territorial local authorities for regional economic performance. South Wairarapa, which they ranked fourth, entered their top 10 rankings in 2013 "due to strong employment growth in the heavy and civil engineering construction sector". In five years up to 2013, employment in South Wairarapa grew on average 2.6 percent per annum, and GDP by 4.3 percent.³¹ Carterton District has also grown, moving up two places between 2012 and 2013 to rank tenth.³² The district's resident population grew while employment declined a little by 1.1 percent. In 2013, Carterton District had 2,840 FTEs employed across 1,170 businesses. Its GDP grew due to an increase in output from the agriculture sector and also wood product manufacturing.³³ Masterton District, by contrast, only experienced modest economic growth over the ten years to 2013, with employment levels remaining flat.³⁴ The district's population grew at a much lower rate than the regional average, and 9,642 FTEs were employed across 2,993 businesses in 2013.³⁵ Declines in employment and GDP in the manufacturing and social service sectors were the main drivers of the weak economic performance of the Masterton District between 2012 and 2013.³⁶

Tourism

The tourism sector is contributing significantly to the growth of Wairarapa's economy – "a region of New Zealand that has recently seen a large expansion in the tourism sector".³⁷ Regional Tourism Forecasting for the Wairarapa region for the period 2010-2016, included a baseline of 2009 tourism statistics. In 2009, there were 1.348 million visits to the Wairarapa, comprising 72,000 international visitor trips and 1.276 million domestic visitations. Total visitor expenditure in 2009 was \$112 million; 15 million by international visitors, 97 million by domestic visitors. These statistics emphasise the importance of the domestic tourism market in the Wairarapa. The Tourism Industry Association of New Zealand report tourism FTEs as a percentage share of employment by Territorial Local Authority.³⁸ Relevant to the current assessment are:

- South Wairarapa: 13.6% share
- Carterton: 13% share
- Masterton District: 9.3% share.

³¹ Nana et al., (2014): 19.

³² Nana, et al., (2014): 23.

³³ Nana, et al., (2014): 24.

³⁴ Stokes, et al., (2014): 80.

³⁵ Stokes et al. (2014): 83, 86.

³⁶ Stokes, et al. (2014): 79

³⁷ Ateljevic (2009, p.282).

³⁸ Ministry of Economic Development (2010). Accessed 1/09/2014 from: <http://www.med.govt.nz/sectors-industries/tourism/pdf-docs-library/tourism-research-and-data/forecasts/regional-forecasts/regional-rto-forecasts-pdfs/Wairarapa%20RTO%20Forecast%20Report%202010-2016.pdf>

There is a strong link between the growth of Wairarapa tourism (since the late 1990s) and the emergence of the local and boutique wine growing industry, along with increasing visitor demand for a country retreat in the regional environment. These factors have underpinned the emergence of a distinct local/rural tourism industry, which has included the expansion of the accommodation sector, particularly in Martinborough – the anchor destination for visitors.³⁹

A coffee, food, wine and arts culture has emerged, with cafés, restaurants, delicatessens, and other eateries scattered around every town. Cafés, hotels, homestays, and craft shops have flourished, and regional festivals, fairs, and race meetings now attract thousands of people. Events include the Carterton Daffodil Festival, Masterton A&P Show, Toast Martinborough, Wairarapa Balloon Festival, Wairarapa Harvest Festival, and Wings over Wairarapa.⁴⁰ Wairarapa also has an abundance of heritage resources including Maori archaeological sites, waahi tapu, early European buildings and sites of historical significance, and museums.⁴¹ Most visitors come from Wellington, while the main season is between Labour weekend and Easter.

A significant proportion of the tourists who travel to the Wairarapa are from Wellington and the Hawkes Bay. They are generally short break domestic visitors who want to experience rural life with the comfort of the city.⁴² In 2008, the Ministry of Tourism calculated that 78 per cent of domestic visitors to the region were from Wellington. Furthermore, some 90 per cent of domestic visitors to the Wairarapa travel there by road vehicle.⁴³

With respect to the nature of tourism businesses in the Wairarapa, many are micro in size (i.e., operations and financial support revolving around family units), an orientation that reflects the region's farming background, particularly with respect to homestay, farmstay and nature based businesses. Small, home-based accommodation providers (i.e., those with a turnover of under \$30,000) accounted for 60 per cent of the region's tourism businesses.) Sixteen per cent of all tourism businesses were combined with farming or other activities.⁴⁴ The social and economic effect of tourism spreads into related sectors. Growing population and economies means there has also been steady commercial growth, with the arrival of several major retailers (Noel Leemings, The Warehouse, and Briscoes) in Masterton.⁴⁵ Employment in the retail trade and services sector of South Wairarapa District grew by 13 per cent (80 FTEs) between 2012 and 2013, and by 4.2 per cent per annum (240 FTEs) between 2003 and 2013. Most of the increase over the latter period occurred in food and beverage services and food retailing industries.⁴⁶ The retail trade and

³⁹ Alteljevic (2009) and Howland (2014). Howland (p.230) notes Martinborough has transformed from a rural service town into a renowned tourist destination: "The only holiday accommodation of any consequence in Martinborough in the mid-1970s were the Martinborough Hotel and Club hotel ... and a few private holiday homes. By contrast, in 2013 the GoWairarapa tourism website (www.wairarapanz.com accessed 12 January 2013) listed 72 accommodation providers for Martinborough, mostly self-contained and operating from former residential properties, but also including bed and breakfast, lodges and hotels" (Howland, 2014, p.230).

⁴⁰ <http://wairarapanz.com/about-wairarapa/wairarapa-events>

⁴¹ Warren and Taylor (2001).

⁴² Howland, (2014).

⁴³ Such statistics have underpinned an enduring interest in regional tourist traffic flows and associated management issues; e (Covec, 2006; cited in Underwood et al, 2009).

⁴⁴ Ateljevic (2009).

⁴⁵ Winstanley, A. and Lange, M. (2009): 9.

⁴⁶ Stokes, et al. (2014): 106-107

services sector is the second highest source of employment in South Wairarapa with 22 per cent of all FTEs in 2013.⁴⁷

Another effect of tourism development in the region (i.e., the growth in number of cafes and restaurants and food tourism, including the emergence of the local wine industry) in close proximity to Wellington is that the Wairarapa is an attractive place in which to buy (rural) property and live. Wellington residents are particularly active in the region's property market. Moreover, professional couples from other parts of New Zealand have purchased several hectares of farmland and built houses. On these lifestyle blocks these couples keep a few sheep or goats, plant vineyards or olive groves, establish a cottage industry, as well as continuing to work part-time in their professional occupations.⁴⁸ The influx of people from Wellington⁴⁹ to reside on lifestyle blocks has increased the diversity of the population, provided more employment opportunities, and expanded the range of restaurants and cafes in Wairarapa. Participants in a recent social mapping study note there has been increased planting of shelter belts as well as rural subdivision.⁵⁰

The main settlements

Masterton is 99 kilometres from Wellington on State Highway 2. The town is the main service centre of the Wairarapa, headquarters of the Masterton District Council, and has the region's only public hospital. Founded by the Small Farms Association in 1854, it became the main distribution centre for the region when it was connected by rail to Wellington in 1980. Local industries in Masterton include food production, timber processing, printing and light engineering.⁵¹ Masterton had a population of 18,126 in 2013.

Carterton is 14 kilometres south-west of Masterton. The town had 4,686 residents in 2013. It was established in 1857 as a camp for road workers, and later developed as a service centre for the local economy of dairying, cropping and timber milling. The base of the District Council, Carterton has a small manufacturing sector, and a number of tourist attractions including wineries, shops, the railway station (also the local history museum) and the Carter Scenic Reserve.⁵²

⁴⁷ Stokes, et al. (2014): 108.

⁴⁸ Ben Schrader. 'Wairarapa region - Diversifying the economy', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-9> downloaded 7 July 2014.

⁴⁹ Recent Australian research has found that that communities with high relative accessibility – to metropolitan and urban centers and the coast – and an established or emerging tourism industry have been most likely to experience net (amenity) migration gains. The research also concludes that amenity migration may also intersect with more traditional rural land uses and, in particular, irrigated agriculture. Farming, and the biophysical environment and cultural landscape it both draws on and produces, is an important attractor of amenity migration. A general point of agreement in the research literature is that the population subgroups which make up these in-flows tend to be ex-urban wealthy and upper middle-class households, seeking to pursue comfortable lifestyles in idyllic landscapes, effectively gentrifying the countryside (Argent et al, 2014).

⁵⁰ Winstanley, A. and Lange, M. (2009): 7- 8.

⁵¹ Ben Schrader. 'Wairarapa places - Masterton', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-places/page-3> downloaded 7 July 2014.

⁵² Ben Schrader. 'Wairarapa places - Carterton', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-places/page-5> downloaded 7 July 2014

Greytown is 15 kilometres north of Featherston on State Highway 2. Like Masterton, it was founded by the Small Farms Association in 1854. Once the dense bush around the settlement was cleared it became a service centre for local farms. After Greytown was bypassed by the railway in the 1870s because of flooding from the Waiohine River it lost much of its business to other rural service centres. The town was rediscovered during the 1990s by visitors attracted by its Victorian buildings, and now hosts a variety of cafes, hotels, homestays, boutiques and antique shops.⁵³ With a population of 2,202 in 2013 it continues to function as a rural service centre for the district.

Featherston, 34 kilometres south-west of Masterton, is situated at the foot of the Rimutaka Range. It is the southern gateway to Wairarapa and had 2,250 residents in 2013. The town's development was hindered by the high price of land, but after the railway arrived during the 1870s it became an important service town. Nowadays it is the home of many Wellington commuters; some of whom have gentrified the town's buildings. Like other towns in Wairarapa it has a number of tourist attractions including the Fell Engine Museum, Featherston Heritage Museum, cafes, and collectible stores.⁵⁴

Martinborough, 18 kilometres south-east of Featherston, had a population of 1,470 in 2013. Established close to the Maori settlement of Waihenga in the 1870s the town grew steadily during the early 20th century, but from the 1960s it began to decline as businesses relocated elsewhere. Since grapes were planted near Martinborough in the late 1970s the wine industry has provided economic growth by attracting visitors and increasing property values. The town is centre of the region's wine industry, and base of South Wairarapa District Council.⁵⁵

2.3 Social services

The Families Commission identified a wide range of social support services located in Masterton and the surrounding region in 2010. Those services include:⁵⁶

- 26 parent support programmes and services
- 45 community based services
- 9 Maori services
- 22 health services
- 36 schools in the town and other parts of the district
- 41 early childhood education centres
- 4 government agencies in the town - Ministry of Social Development (Work & Income, Child, Youth & Family), District Health Board⁵⁷, Police, and Justice (Courts)
- 3 local government authorities

⁵³ Ben Schrader. 'Wairarapa places - Greytown', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-places/page-6> downloaded 7 July 2014

⁵⁴ Ben Schrader. 'Wairarapa places - Featherston', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-places/page-8> downloaded 7 July 2014

⁵⁵ Ben Schrader. 'Wairarapa places - Martinborough', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-places/page-9> downloaded 7 July 2014

⁵⁶ Families Commission (2010): 3.

⁵⁷ The only public hospital in Wairarapa is at Masterton. Two district hospitals at Greytown and Pahiatua were closed during the 1990s. Ben Schrader. 'Wairarapa region - Society', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/wairarapa-region/page-10> downloaded 7 July 2014.

- 7 registered counsellors
- 17 churches

The majority of these services are based in Masterton, and most provided a service for the Wairarapa region. Six social service organisations were located outside Masterton. PARS, Family Works Centre and Southern Wairarapa Safer Community Council, for example, operate in South Wairarapa.⁵⁸ Safer Wairarapa is a partnership of “a wide range of government agencies and community organisations working collaboratively on agreed outcomes.”⁵⁹ Wairarapa has police stations at Featherston, Greytown, Martinborough, Carterton and Masterton.

The providers primarily work with mothers and their children, and there are no social services in the Wairarapa that specifically assist young fathers.⁶⁰ Other gaps in the provision of social support services in Masterton and surrounding region include a lack of effective networking, limited access to mental health services, parenting programmes for older children and teenagers, restricted access to early childhood education, and a shortage of affordable housing.⁶¹ There are no Housing NZ dwellings⁶² in Masterton, and up-front costs of getting market rentals may exceed the advances offered by Work and Income. Some families interviewed by researchers from the Families Commission had problems obtaining benefits or grants; particularly sole parents, teenage parents or caregivers raising other people’s children (including grandparents raising their grandchildren).⁶³

Sport Wellington Wairarapa⁶⁴ provides a central hub at the Wairarapa Sports House in Masterton and supports a wide range of sport activity across the three Districts in schools, clubs and associations. Each district maintains a number of sporting facilities.

School rolls

Schools are key hubs for communities both rural and urban. The rolls of schools provide, along with demographic data, an indication of the vitality of a community. While the population of the Combined Districts has increased by about 8 per cent between 2001 and 2013 (see Table 1), this growth has not been reflected in the total number of pupils attending school in the Wairarapa. As Figure 3 shows the number of pupils enrolled at schools in each of the districts has gradually fallen since 1996, and that decline has continued during the early part of this century.⁶⁵ Schools in Masterton District had a total roll of 5,084 at 1 July 2013. They comprised seven full primary schools, five contributing schools, one intermediate school, one composite school (year 1 to 15), six secondary schools and one teen parent unit. Carterton District had five full primary

⁵⁸ Families Commission (2010): 4, 13.

⁵⁹ www.wairarapasocialservices.org.nz/

⁶⁰ Families Commission (2010): 12.

⁶¹ Families Commission (2010): 16.

⁶² Housing NZ sold its dwelling stock to Trust House, a community owned enterprise that began life as the Masterton Licensing Trust in 1947. <http://www.trusthouse.co.nz/cms/page.php?view=rentals> 27 August 2014

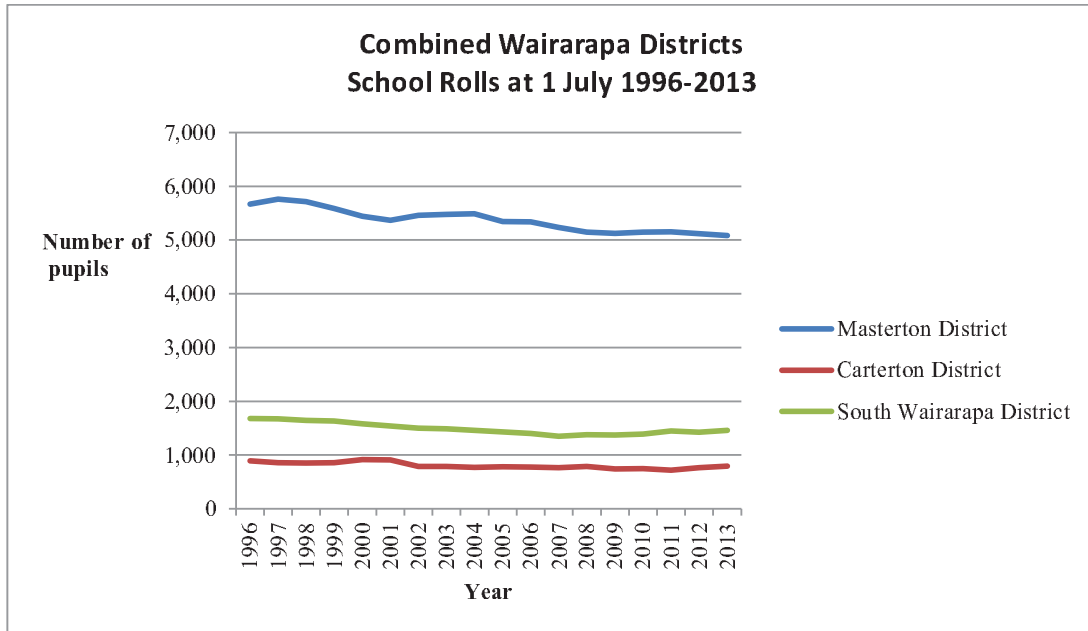
⁶³ Wenn, J. and Broome, A. (2010): 38.

⁶⁴ <http://www.sportwellington.org.nz/wairarapa/>

⁶⁵ This decline in the school rolls is the consequence of the aging of the population of the Combined Districts. An analysis of the age structure of this population between 2001 and 2013 shows that the number of residents aged under 15 years fell from 23.1 to 19.8 per cent over this period.

schools and a composite school with a total roll of 796, and South Wairarapa District had eight primary schools and one secondary school with a total roll of 1,461.⁶⁶

Figure 3



2.4 Values associated with land and water uses

The major water body in the region is Lake Wairarapa, which has a surface area of 7,800 hectares and extends 18 kilometres north to south, and 6 kilometres east to west. Natural processes such as sedimentation and wave action; natural events like the earthquake of 1855; pioneer practices of forest clearance and over grazing; and later agricultural and river control practices; have significantly modified the hydrography and shores of the lake. Changes to the ecology of the lake waters and wetlands over the last 150 years have reduced the number of traditional fishing sites and sources of plant materials, such as flax and cabbage tree, available to local iwi. Both Lake Wairarapa and the Ruamahanga River were recorded in a schedule of nationally significant waterbodies in 2005.⁶⁷

Water from Lake Wairarapa flows southwards via the Ruamahanga River into Lake Onoke which is separated from the sea at Palliser Bay by a gravel spit. The mouth of Lake Onoke formerly opened and closed in response to natural conditions. European farmers in the late 19th century

⁶⁶ Roll-by-Age & Ethnicity pivot table from Ministry of Education
http://www.educationcounts.govt.nz/statistics/schooling/july_school_roll_returns/6028
 downloaded 23 April 2014.

established the Ruamahanga River Drainage Board to control the opening and closing of Lake Onoke, and the margins of Lake Onoke were converted to pasture.⁶⁸

Construction of the Lower Wairarapa Valley Development Scheme (LWVDS), which was completed in 1983, provides flood control for 31,500 hectares of farm land. The LWVDS diverted the Ruamahanga River from the southern end of Lake Wairarapa directly into Lake Onoke.⁶⁹ Some critics consider the LWVDS has accelerated coastal erosion and had a negative effect on shellfish and coastal fisheries.⁷⁰

This social profile identifies a wide range of values attached to water and the use of water in the Combined Districts. These values include consumptive uses – such as for agriculture, urban supplies, drinking water and industry. There are also values attached to recreational use (active and passive) and a range of cultural values.

Participants in a recent social mapping study viewed rivers and lakes in the Wairarapa region as “extremely important for recreation” for both locals and tourists.⁷¹ The value of regional waterways to the residents of Wairarapa is a sense of generational continuity wherein knowledge and experience of the natural world and the impact of humans on waterways, can be passed between generations through direct contact with freshwater ecologies thus providing a ‘benchmark’ for people to assess changes and to develop possible ways to mitigate any negative effects. For Maori, moreover, recognition of their customary use of waterways establishes their mana whenua authority with regard to the management of both land and water for the benefit of future generations.⁷²

Participants in this study also spoke of their use of surface and ground water for household consumption, horticulture and crops, livestock drinking water and pasture irrigation, plantation forestry, manufacturing and processing, tourism, firefighting and wastewater treatment. Most participants believed the state of the region’s rivers had generally declined. Their primary concern was the effect of poor water quality on human health from drinking water, eating contaminated fish, and swimming. The most frequently cited cause of the poor water quality was the intensification of production associated with agricultural land-use.⁷³

There was a high level of awareness amongst the study’s participants about the effects of drought on different groups in the community, and that these effects and those of flood events were current concerns for residents of Wairarapa. Every summer urban water restrictions are imposed in some part of the district. Carterton has water metering for domestic users, and had recently increased its water storage capacity. Irrigators also experience the effects of water restrictions as they are not allowed to take the full amount for which they hold consents. Low flows in waterways also impact trout fisheries. A reliable water supply was viewed as a key requirement for water users, but some participants considered that regional development was risking the reliability of urban supplies.⁷⁴

⁷¹ Winstanley, A. & Lange, M. (2009): 13.

⁷² Winstanley, A. & Lange, M. (2009): 5.

⁷³ Winstanley, A. & Lange, M. (2009): 17-20.

⁷⁴ Winstanley, A. & Lange, M. (2009): 28-31.

2.5 SWOT analysis of the region

The social profile of the assessment area shows that there is a mix of strengths, weaknesses, opportunities and threats that comprise the social and local economic context for a water resources project. This SWOT analysis has been prepared as a desk exercise summary of the above profile and should be refined in the next stage of feasibility studies once there is an opportunity to obtain input from key stakeholders. The summary here draws directly on the profile so no further references are provided in it.

Strengths

A diversified economy, with several forms of primary production and growth from grape production and wineries, olives and tourism.

Proximity to urban labour markets of the region's towns and attraction to amenity migrants

Proximity to regional tertiary services such as hospitals

Well established community services

A growing tourism sector, with visitors attracted by heritage sites and a strong portfolio of regular events

Weaknesses

Wellington commuters with limited time to participate in community activities

Subdivision of rural land for lifestyle blocks in competition with more productive use.

Aging population, particularly in towns, restricting the supply of labour from the region

Insufficient affordable housing in towns for low income earners/beneficiaries

Gaps in the provision of social support services in Masterton and the surrounding region

Opportunities

Increased dairy production, cropping, horticulture from additional irrigated land

Better nutrient management by farmers

Augmentation of streams to enhance the natural values of the region's waterways.

Outdoor recreation developments associated with the establishment of storage ponds and irrigation canals

Added value processing of dairy and horticultural products

Increased numbers of workers on farms including migrant labour adds to ethnic diversity in rural areas, and introduces new cultural activities to the region

Shared services provision by the Combined Councils

Threats

Commodity price cycles that endanger sustainable economic development in the region

Competition from other destinations for visitors affects the viability of tourism enterprises and regional events

Climate change and the effects of any increase in frequency of extreme weather events, including droughts and floods, on agricultural production and visitor numbers

Continued decline in school rolls and effects of any potential threat of closures and amalgamation on regional migration patterns

Weak management of social change arising from any future land use changes.

3 Assessment of the WWUP

3.1 First order effects of the proposed project

While first order effects,⁷⁵ in addition to being social, can also include natural, physical and economic effects that have social consequences and can result in changes to social wellbeing. First order effects will depend on the final selection of a scheme or schemes, their location and the nature of the surrounding environment. For example, they will depend on any dams and reservoirs proposed, the size of an irrigation command area and the types of land uses that could result.

The Wairarapa Water Use Project at this early feasibility stage can be defined as, is a multiple-use water resources development with a set of overlapping and integrated aims, to:

- *collect and use water in a way that preserves the environmental integrity of natural water bodies – in the short and long-term*
- *provide increased water reliability, flexibility and efficiency*
- *maximise the economic and broader community benefits of reliable water supply*
- *educate the Wairarapa community on the benefits of managing water through a water storage infrastructure*
- *lessen the dependency of managed rural schemes on natural water storage*
- *develop a set of viable storage locations where water can be harvested during times of high flows*
- *develop a managed water reticulation system to efficiently deliver water when and where it is needed, in the volumes and pressure required*
- *maximise uses of water that the project can reasonably provide where there is an identified demand*
- *prioritise locations of water demand where clients are prepared to pay for it*
- *provide schemes that promote a high uptake*
- *minimise and mitigate land-use intensification effects of agricultural irrigation*
- *identify potentially ‘new’ agricultural products suitable to Wairarapa’s natural environs, processing support and transport networks*
- *gain a broad level of local and regional community acceptance*
- *identify commercial options for financing, ownership, management and operation of the scheme.*⁷⁶

The project is described as having “the potential to be one of the largest economic and social development projects in the greater Wellington region”. Potential drivers of economic and social change include:⁷⁷

- increased water supply reliability
- better farming output and returns
- a more diverse range of agricultural outputs
- improved environmental outcomes

⁷⁵ In this report the term “effect” is used interchangeably with the term “impact”. Effect is the preferred term under the RMA s3, where there is a full definition.

⁷⁶ <http://www.gw.govt.nz/wairarapa-water-use-project-2/> accessed 3 September 2014.

⁷⁷ www.wairapawater.org.nz

- improved farming practices
- more jobs and increased regional GDP.

This SIA has considered increased irrigated agricultural output for an additional 10,000 and 30,000 hectares of irrigated land across a number of potential land uses including, dairy, dairy support, arable, intensive sheep and beef, and horticulture. The economic assessment⁷⁸ indicates a likely mix of new irrigated land uses could include be:

Dairy	45 %
Dairy support	10 %
Mixed arable	30 %
Sheep and beef	12 %
Orchards/other	3%

The economic assessment estimates this new or increased land use will generate net additional jobs on farm of 590 FTE⁷⁹ and 1,130 FTE regionally⁸⁰ for 30,000 hectares of new irrigation. This employment effect will reduce to a third the size for 10,000 ha.

Based on a wide range of international and New Zealand research this social assessment finds that at a Combined Districts level the proposed changes to water use, including additional irrigated area and associated employment, increased efficiency of water use and better management of environmental outcomes will have broad consequences for the social and economic wellbeing of the people and communities as discussed in the following sections of this assessment.⁸¹

3.2 The assessment framework – social change under irrigation

Irrigation transforms farming systems, and the people and communities who work in and support those systems.⁸² There is a solid base of New Zealand research⁸³ that provides an understanding of potential social effects across a number of comparative cases, sufficient to discern a general pattern while allowing for the differences between places and also the processes of social change in rural New Zealand over time. The research shows there are typical changes at the community level, associated with new land uses under irrigation, including underlying farming systems and the nature of farm work, farm ownership, population demographics and the dynamics of rural

⁷⁸ Butcher partners (2014, Table 5).

⁷⁹ FTE's represent a mix of full and part-time workers so one FTE is assumed to represent 1.5 members of the working age, usually resident population.

⁸⁰ Butcher Partners (2014, Table 8). Butcher points out that a large part of the gain in FTEs results from his assumption that a small proportion of land will convert to orchards with high labour requirements.

⁸¹ See McClintock et al. (2002), Taylor et al. (2008).

⁸² McCrostie Little and Taylor (2001).

⁸³ These cases range from the Lower Waitaki River in the 1970's to the Amuri plains in the 1980s to the more recent Opuha Dam in South Canterbury, North Otago and Ashburton District. The social research base includes information from public science funding (Foundation for Research Science and Technology), research by the Ministry of Agriculture, research commissioned by Central Plains Water and assessments conducted as part of catchment planning by Environment Canterbury (see reference list at the end of this report).

communities. A revised and updated model of these changes,⁸⁴ as outlined below, forms the basis for the broad assessment in section 4 below, and is also discussed here with the intention that it be used for more specific feasibility analysis and project-level assessment should that eventuate.

Furthermore, while positive social benefits are often attributed to irrigation, it is evident that social effects can be negative for some groups. Therefore, rural areas and communities need to be proactive to ensure social benefits eventuate and outweigh any negative effects. To this end comparative cases provide a rationale for developing a process for management of change from the early stages of any water project.

The model was developed in the late 1990s and its first iteration showed that irrigation at a community level drives ownership and land use changes in several waves. The fundamental social dynamic of these waves of irrigation development is the interlinked changes of farm ownership, land use, employment, rural population and community-level changes. The research concluded that changes in land ownership impact on the characteristics of farm families, demographics of rural areas with a reduced age of farmers, stabilised and in some instances increased school rolls, and changed the social structure of the host community, its settlements and small service towns with incoming farm families and new leadership, attitudes to community participation and values around land and water. The review and updating of this model of change, as reported here, found that while circumstances have changed as described below the fundamental dynamics of social change associated with land-use change endure. However, it is also obvious from this current iteration of the model, as foreshadowed in other recent work,⁸⁵ that the time scale of change and the notion of three waves of change over a farming generation need revision.

The initial New Zealand model described a pattern of generational change in farm ownership whereby existing farmers looked to improve “traditional” sheep, and sheep and beef farming systems by growing additional feed or supplementary crops, but had concerns about debt levels, capital costs and new demands of working in irrigated farming systems. Their investment was driven by the need to increase productivity and to reduce the risk of recurring droughts. They were risk takers, but not necessarily change makers in terms of new forms of land use.

Nevertheless, social change came relatively quickly for these generational farming areas. On the Waitaki Plains, for instance, in the 1970s and 1980s, many established, dry-land, sheep farming families either sold their farms and were replaced by younger families, or hastened a process of farm succession. These new farmers modified traditional farming systems with the support of an accessible and regular water supply. They invested heavily in farm improvements, upgrading pasture for cropping and sheep and later for dairying, and building bigger and better homes and farm buildings. The Amuri area later replicated the Waitaki experience, with farms there changing ownership along with a substantial shift to dairying.

Some older farmers retired and sold to newcomers who invested further and often changed (converted) the farming system substantially (e.g. the well-known phenomenon of dairy farmers arriving from established but expensive dairy farm areas in the North Island). Other farmers changed their farming system as part of the process of farm succession, as the next generation took over the management and operation of the property. At this point most farmers were looking towards land use change (usually conversion to dairying) to maximise returns from their land and

⁸⁴ Previously used to assess changes on the Central Plains Water Project (Central Canterbury), Hunter Downs Irrigation (South Canterbury) and the Ruataniwha Water Project (Central Hawkes Bay).

⁸⁵ Taylor Baines and Associates (2012).

water. As farmers pointed out: irrigation is expensive “insurance”.⁸⁶ The reality of the scale of operation on converted and unconverted farms also became apparent as those on smaller blocks sold up to larger operators, reinforcing a long-term trend towards farm amalgamations and larger farm units.⁸⁷

Dairy farmers, sharemilkers and workers (and some horticulturalists) moved in, increasing the number of farmers and farm workers and bringing new skills and technical experience, new capital formation including absentee owners and equity partnerships, corporate ownership and share farming, raising, and new attitudes to risk and debt management including carrying high levels of debt from farm conversion. They brought new management and employment structures including share milkers, farm managers and increased numbers of farm workers. Some new workers were migrants from overseas cultures as diverse as the Philippines, Africa and South America.

Changes to the model of social impacts of land-use change under irrigation

Experiences with irrigation developments in the 1990s and more recently shows there are numerous influences that require modification of the original model of land-use change under irrigation. Based on comparative case data the original model was of social change associated with a generational change in farming, whereby, either through sale of a property to an incoming farmer, or by successional change in a family, there was a major shift in land use such as dairy conversion. Recent experiences, e.g. from the Opuha case in South Canterbury,⁸⁸ indicate that change such as conversion of areas to dairying, can take place during the first five years after irrigation is introduced to an area. On the other hand, in Hinds (Mid Canterbury) the change to dairy seems to have been gradual at the start – the RDR has been there a long time – then other factors came into play to cause accelerated change.⁸⁹

A large set of factors influence the current context for applying the model:

- Commodity price cycles and globalisation – including the emerging strength of Fonterra as a global player, and extended periods of high milk prices (payouts) that provide farm owners with greater certainty of higher returns to invested capital.
- New processing plants operated by Fonterra and other companies such as Synlait, including full or part ownership of the value chain by overseas companies with direct market linkages. The new processing adds value by providing sophisticated products such as baby formula to emerging markets in Asia and established markets in other continents.
- Increased scale of dairy farming (herd size), intensification of primary production, and a trend to more diverse forms of ownership (e.g. equity partnerships).
- Dairy conversions are widely accepted in rural areas as a means to generate wealth and facilitate farm retirement and succession through enhancing the value of rural land.
- Reduced negative views of rural residents about the social status of dairy farming.
- Immigrant workers are widely employed and accepted as a way to reduce reliance on the labour of the farm family, and increase the supply of affordable labour for expanding production.

⁸⁶ McCrostie Little and Taylor (2001).

⁸⁷ As evident by the late 1980s (Taylor et al., 1987).

⁸⁸ Harris, et al. (2006).

⁸⁹ Rawlinson (2011), Taylor et al., (2014)..

- Introduction of a wide range of new technologies to increase production and enhance farm sustainability (including significant new irrigation systems with centre pivots, and farm system changes such as the indoor housing of cows and all-year round milking).
- The regulatory framework has become stricter in response to increased public awareness of environmental issues and scientific evidence of the effects of farming in sensitive landscapes (particularly nutrient loss into waterways).
- The requirements of nutrient management under the NPS on Freshwater are changing farmer attitudes and practices with an evident general shift to good management practices in the use of irrigation water and application of effluent and other nutrients; and some further movement towards advanced farm mitigation.
- Increased research and technology transfer by Dairy NZ, Crown Research Institutes and universities.
- Evident scarcity of water resources along with frequent drought events intensifying competition for uses of ground and surface water.
- Politicisation of local, regional and national debates about water and related environmental issues, with increasing public concern about increased dairy farming and intensification of land uses.
- Central Government support for water storage and irrigation scheme development (i.e. Crown Irrigation Fund).
- The emergence of a significant number of localised irrigator collectives in the form of companies charged with governing water use among shareholders (under one resource consent).
- Increased diversification of the rural economy in general, for instance through rural tourism, and a high level of rural entrepreneurship and openness to new ideas, including multiple enterprises on farms.

It is evident that irrigation is a major driver for land use change to dairying, cropping, horticulture etc. only in areas such as the Wairarapa where a shortage of water prevents these new or expanded land uses from being economically sustainable. In areas where water is more readily available, such as Southland, other factors such as global commodity prices and the price of land become the major drivers of change. Even where irrigation is the major driver, as will be the case with the WWUP, the pace of land use change will depend on commodity prices, technological changes and the availability of suitable labour at the time of farm conversion.

3.3 Assessment framework – non-agricultural land and water uses

Outdoor recreation

Outdoor recreation is part of a healthy lifestyle for many New Zealanders, providing opportunities for physical exercise and associated health benefits, rest, enjoyment of nature and escape from daily routine.⁹⁰ It also creates opportunities for socialisation and contributes to community cohesion through social interaction.⁹¹ In particular, outdoor recreation activity in freshwater environs, including rivers, lakes, streams and lagoons, is very high and of considerable cultural significance.⁹² Of particular note is that highly modified environments such as reservoirs are used intensively for water-based recreation, as well as recreation on the margins. Seventy

⁹⁰ <http://ecan.govt.nz/publications/Plans/cw-regional-context-part7.pdf> (see page 99).

⁹¹ <http://ecan.govt.nz/publications/Plans/cw-regional-context-part7.pdf> (see page 99).

⁹² <http://ecan.govt.nz/publications/Plans/cw-regional-context-part7.pdf> (see page 99).

nine per cent of New Zealanders consider themselves recreational users of freshwater bodies⁹³ and “up to 50,000 people swim in New Zealand lakes and rivers on a typical fine weekend summer day”.⁹⁴

Drinking water

The availability of an adequate supply of clean drinking water is a fundamental requirement for human health and social well being and widely regarded as a basic human right,⁹⁵ and quality drinking water is a clear national policy focus in New Zealand. Many rural people access untreated, high quality drinking water from shallow groundwater or rainwater tanks, others draw from treated community supplies.⁹⁶ Concerns about drinking water include faecal contamination and also the level of nitrates, because there is a concern that high levels of nitrates in drinking water can lead to a condition known as methaemoglobinaemia (mainly affecting babies less than 6 months old or in the womb), although very few cases have been reported in New Zealand.

For assessment purposes, it is assumed here that maintaining high-quality drinking water, including low levels of both faecal matter and nitrates, or other contaminants, will remain a strong regional policy objective underscored by strong monitoring and management: “Safe and reliable drinking water is vital to the health and prosperity of our region and its people.”⁹⁷ It is also assumed that drinking water will be supplied at a reasonable cost to consumers.

⁹³ Fink-Jenson et al. (2004).

⁹⁴ Ward and Pyle (1997).

⁹⁵ The United Nations 2010 General Assembly declared access to safe and clean drinking water as a human right.

⁹⁶ National policy has moved to give greater protection to drinking water supplies and an amendment to the Health Act (the Health (Drinking Water) Amendment Act 2007), requires drinking water suppliers to take reasonable steps to contribute to protection of sources of drinking water.

⁹⁷ <http://www.gw.govt.nz/water-quality/>

4 Social impacts (effects) in Wairarapa

As pointed out in the introduction to this report, the scope of this assessment of impacts is only at a broad, strategic level at this point in the planning process. The assessment is restricted to information drawn from the desk study of the current state (social profile) of the Wairarapa, the model of land use change under irrigation, other information as referenced here, and the limited information currently available about the proposed irrigation command area, associated land-use changes and their economic impacts

4.1 The social structure of farming

With up to 30,000 hectares of new irrigation, farm size will continue to increase, especially in irrigated areas. The established trend towards corporate farming will see more employees per hectare, and fewer employers and self-employed operators in the agriculture sector. There will be an increase in equity partnerships, overseas and absentee ownership and share farming. This trend will be most evident for new areas of dairy farming.⁹⁸ Some farms near to the irrigated areas are likely to sell off blocks to newcomers, for dairy grazing or feed production. At the same time, there will be continued pressure on farms to subdivide into lifestyle blocks and rural residential subdivision, especially those in South Wairarapa and those closer to the main towns which have no access to irrigation water. The overall effect of irrigation on farm structure will be an ongoing trend⁹⁹ of the “disappearing middle” in farm size, meaning that the number of mid-sized family-operated farms will continue to decrease, while the number of both small and larger farms will increase.¹⁰⁰

4.2 Employment and population

The increased area under irrigation and conversion of over half the irrigated farm area from sheep and beef to dairy and dairy support, will generate a boost in on-farm employment of 200-590 on-farm jobs, depending on the size of the command area (10,000 ha vs 30,000 ha). Taking into account that jobs have additional population attached to them in the form of partners and family members the population could increase by 350-1000 people, predominantly in rural areas.¹⁰¹ This population increase will build on that already evident in the Combined Districts over the past twelve years. Furthermore, with a strong agricultural service centre already present at Masterton in the Combined Districts, many of the off-farm jobs and their associated population are likely to reside in the assessment area. With the exception of down-stream processing, direct employment, and population effects are expected largely to flow into, and benefit, the social and economic status of the Wairarapa Combined Districts,

⁹⁸ Farm ownership in the dairy sector is changing to involve increasingly large-scale operations, with more than 50% of staff now employed on wages compared with 29% in 1997. Strategy for NZ dairy farming 2009-2020. <http://www.dairynz.co.nz/file/fileid/28814> accessed 30 July 2012

⁹⁹ This trend has been evident in New Zealand at least since the 1980s as documented in Taylor, et al. (1987).

¹⁰⁰ This trend is evident in Waimakariri District, for example, where there is extensive subdivision for lifestyle blocks in areas not receiving water from the Ashley-Waimakariri Irrigation Scheme and where there is a long-established trend of amenity migration.

¹⁰¹ FTE's represent a mix of full and part-time workers so 1 FTE = 1.5 jobs. Some of these new workers will have dependents, calculated at a ratio of 1:1.75 per FTE - based on UR population per working-age resident in 2013 for the rural areas of the Combined Districts.

Employment in the dairy and viticulture sectors is likely to remain robust in the event of short term price fluctuations for agricultural commodities, or a period of drought or water shortages, but there may be some retrenchment of employment should dairy prices fall over a longer period or drought becomes prolonged, especially for highly geared holdings that reduce their workforces as a result of financial stress and on family farms where there is capacity to absorb extra work amongst family members. However, it is important to recognise that the Wairarapa area is already prone to drought and has reached limits in terms of the available water, so irrigated land uses, including dairying, will increase economic diversity and resilience in the Combined Districts as a whole.¹⁰² Another important point is that the area and its workers have access to large urban labour markets, adding considerably to the resilience of the economy.

At this point in the assessment process it is not possible to identify the specific communities that will be affected by additional workers and associated population. Further analysis is required at the scheme level to investigate potential effects on the social status of the population (an effect that in turn flows into the health status of the population).

Nor is it possible to assess the possibility of added value processing being located in the assessment area. This aspect requires further economic analysis.

4.3 Ethnicity

There will be strong demand from new dairy farms for NZ and overseas¹⁰³ migrant workers on a seasonal and multi-year basis, with a relatively high annual churn of farm workers. The extra dairy workforce and also seasonal work in additional areas of horticulture will most likely attract a wide range of ethnicities. These newcomers with diverse cultural backgrounds will add an additional dimension to rural communities that have already changed as a result of lifestyle blocks and commuter residents. They will bring new orientations to community life and new sets of values and ways of participating, such as through involvement in schools, churches and sport. New settlers and a greater turnover of workers can also bring challenges to social cohesion in rural areas, requiring support in the management of change. These challenges include the management of workers on farm¹⁰⁴, and equipping small schools¹⁰⁵ and other social services to positively support new settlers.

¹⁰² Pomeroy and Newell (2011) found economic diversity is a key factor in resilience of rural communities across a range of New Zealand case studies (North and South Islands).

¹⁰³ This trend is evident in all South island dairy farming areas/Rawlinson (2011) describes migrant workers in dairying in the Ashburton area from the Philippines and South America. Additional information is available in Wylie (2009). Research by the authors in Canterbury and Southland confirms this trend. The trend is also evident for irrigated horticultural production in the North Island (Taylor, Baines and Associates, 2012).

¹⁰⁴ Tipples and Lucock (2004) provide suggestions for farm managers from a New Zealand study of dairy farms with migrant workers.

¹⁰⁵ Gilbert (2005) found in research that included the Amuri area that schools play an important part in community identity, cohesion and formation of social capital but an increase in the level of mobility amongst school families can undermine this role.

4.4 Housing and social services

The proposed level of new development should decrease the level of unemployment, increase household incomes, especially for those households working in the dairy sector, and increase the social-economic status of the population.¹⁰⁶ The increase in social-economic status should flow into reduced demand for social services,¹⁰⁷ but that is likely to be offset by the higher population numbers.

Schools in rural areas and the towns will benefit from an increase in population by growth in their rolls and also from the increased social-economic status of residents. They may however, need to provide additional staff for a growing number of students with English as a second language and cope with an increased annual, and to some extent seasonal, churn of students.¹⁰⁸ An increase in parents with management and business skills should assist school boards of trustees.

Overall, an increase in population would assist in the retention of health services, schools, sports, organisations and community facilities across the Combined Districts and most particularly in areas located within, or nearby, the command area of the irrigation scheme. There evidence at this point that that the scheme will cause issues with availability or affordability of housing, an issue that should be considered further at the project level once a scheme is identified.

Communities in the area of the proposed scheme may have to cope with some increased tensions from conflicting values associated with land uses, economic development, community life and the natural environment. Once again this issue must be considered at the level of a particular scheme.

4.5 Technology transfer

The average age of farmers is likely to fall in the irrigated areas and the qualifications of farmers and farm workers are likely to increase noticeably with dairying employing an increased number of younger farm managers and skilled farm workers.¹⁰⁹ This trend will facilitate involvement in agricultural extension activities; with participation in learning activities such as on-farm trials, field days, web-site access.

The current adoption rate for “best practice” dairy farming is also likely to change rapidly as new dairy producers look to reduce the risks of their large investments, and key stakeholders, such as Dairy NZ, provide leadership around the need for advanced mitigation strategies. An increase in farm size, herd numbers and corporate farming with skilled farm managers will also facilitate the uptake of new farm systems and technologies in response to community concerns about water quality as a result of land-use intensification.

¹⁰⁶ As found in areas such as the Amuri and Waitaki Plains (McClintock, et al., 2002).

¹⁰⁷ As employment and income are key determinates of health these should have a positive effect on social wellbeing. An improvement in household income with irrigation and land use change to dairying is documented for a number of irrigation areas (McClintock et al, 2002; Ford et al., 2002; Harris et al., 2006)..

¹⁰⁸ Gilbert (2005) discusses this issue for the Amuri, for example, but it is a common issue raised in all areas with large dairy conversions.

¹⁰⁹ This change is indicated by data from the comparison cases (McClintock, et al., 2002).

4.6 Recreation

Recreation is an important social effect. Experience with other irrigation projects in New Zealand suggests there are two potential sources of social effects in respect to recreational values. The first could result from the intensification of land use and any projected changes (degradation) to the ecological status of streams, river, the lake and lagoon. Of particular concern will be any decline in water quantity and quality in the streams, rivers, lake or lagoon of the catchment such as a decline in the ecological health of these waters. A negative social impact would result if there is an increase in notifications that contact recreation standards are exceeded at popular recreation spots, with temporary restriction related to public health warnings. Such warnings can be triggered by high levels of faecal bacteria or high levels of cyanobacteria meaning that humans and animals should avoid using the water for swimming, wading, paddling, taking fish or mahinga kai, or any other contact recreation pursuits.¹¹⁰

The second set of social impacts could result from new recreational opportunities as a result of new reservoirs and any stream augmentation during periods of otherwise low stream flow as discussed in the recreation assessment by Opus.

4.7 Drinking water

A decline in drinking water quality for rural residents could result from faecal contamination of shallow groundwater due to intensification of livestock numbers, leading to increased rates of waterborne disease (enteric or gastro-intestinal disease).¹¹¹ There is most likely to be an emphasis on greater well-head protection, especially during high rainfall.

There will be an increased level of expressed concern, stress and debate in families and communities about actual and perceived¹¹² health issues for drinking water and the level of risk from intensive land uses. Other consequential effects could include close monitoring of council supplies, rural households sinking deeper wells, and people purchasing water to mix baby formula. People concerned about water quality are likely to seek testing of household wells and rural supplies and will require good information about when and how to do this and other information from councils and health providers. There could be some increased costs for households in the longer term, either directly or through rates.

4.7 Management of effects

Experience with irrigation projects in New Zealand, and comparative case studies of irrigated areas, demonstrate the importance of managing social change as part of the development process.¹¹³ Management of social effects is also regarded as a key part of a complete SIA process. Social assessment at a later stage of the WWUP should include a social impact

¹¹⁰ Exposure to cyanobacteria can cause skin rashes, nausea, stomach cramps, tingling and numbness around the mouth and fingertips, while exposure to high levels of faecal bacteria can cause minor health effects, or sometimes hepatitis A, giardia, cryptosporosis, campylobacter and salmonella.

¹¹¹ A 2009 study estimated that between 18000 and 34000 cases of waterborne gastro occur every year in New Zealand, although it is mostly not possible to identify the source (Lake et al., 2009)..

¹¹² A sociological axiom is that perceived effects can be "real" in their consequences.

¹¹³ McCrostie Little and Taylor (2001), Wylie (2009), Taylor Baines and Associates (2012).

management plan (SIMP) in order to achieve desired social outcomes and enhance the wellbeing of people and communities.¹¹⁴

At this point of early feasibility analysis it is useful to emphasise that social change management should be incorporated into the scheme-specific phase of assessment and subsequent project management should the scheme proceed. A SIMP would provide the necessary direction to ensure negative social effects are minimised and mitigated and positive effects (benefits) are enhanced.

Mitigation and management strategies will most likely include a combination of short, medium, or long term measures depending on the social effects identified in the assessment process and also those that emerge from project monitoring. The measures should be developed in collaboration with stakeholders including communities and iwi groups. Questions of timing and cost (who pays/implements a measure) will undoubtedly arise and need to be resolved. As with any social development plan, a collaborative approach between agencies is preferred.

Based on this preliminary social impact assessment, the following aspects are likely to require ongoing management as a result of land-use change under irrigation:

- A programme of support for farm technology transfer, farm mitigation and financial management.
- Support for vocational training and maximisation of local employment opportunities from new and expanded land uses.
- Support for farmers in the management of employees from diverse cultural backgrounds
- A community development process that helps newcomers integrate into communities, with support for key organisations such as health services and schools.
- Support for local businesses to capture opportunities from irrigation development during both construction and operation.
- A strategy that maximises recreation and tourism opportunities from water management and accompanying land uses, and retains or enhances current heritage and landscape features that attract visitors to the area.
- A strategy .developed with the cooperation of primary health care providers and public health authorities that monitors changes in recreational and drinking water quality, captures community and iwi concerns and knowledge, and provides an integrated set of data..
- A communication programme and community participation in project planning and implementation that aims to reduce unnecessary or ill-informed social conflicts.

¹¹⁴ Consistent with s5 of the RMA.

5 Conclusion

The WWUP is an initiative of the GWRC to establish a multi-purpose water scheme or schemes in the Ruamahanga Valley of the Wairarapa. The WWUP may result in new irrigation of between 10,000 and 30,000 ha of land. Over half this irrigated area could be dairy farming or dairy support.

This preliminary social assessment has considered the broad social effects of the scheme as part of the initial investigations and feasibility analysis. If the WWUP proceeds to the scheme-specific stage then it is understood that a more detailed assessment will be undertaken.

The strategic-level social assessment includes a general description of the Wairarapa and an overview of the social-economic status of the Combined Districts. The area has a relatively robust and diverse economy, although the amount of dairy farming is relatively small as a land use type. Future land-use change is likely to result from a combination of irrigation and rural subdivision- both of which will drive social changes.

Social changes from irrigation are considered here based on a comparative model of social change under irrigation utilising experience from other parts of New Zealand. It was found that the model of change, founded initially on a concept of generational change, required updating as the social change process is likely to be much faster given prevailing factors.

The principal conclusion of this social assessment is that the proposed WWUP, and likely associated land use changes and intensification, would boost the employment and population of the Combined Districts and Wairarapa sub region, with the scale of change dependent on the total area irrigated. The newcomer people will bring social change that should generally be positive for the people and communities of the area, especially if the change is supported by social change management.

At a strategic level it is clear that the proposed development will have a net positive outcome for the people and communities of the Wairarapa. It is likely the social effects will very largely be experienced in the Wairarapa rather than the Wellington region as a whole.

Further assessment is required at the scheme-specific level. The current assessment is limited by its desk-top nature and in addition to primary research also requires further integration with the economic, recreation, water quality and ecological assessments at the next stage of the WWUP, as well as the support of a participatory process of planning and assessment. This preliminary assessment provides a sound basis for analysis of land-use change at the regional level but that will need to be refined for a specific command area or areas and the identification of any differential effects. There should also be site-specific analysis of social impacts in relation to construction and operation of any potential headworks (dam, reservoir, canals) at the next stage..

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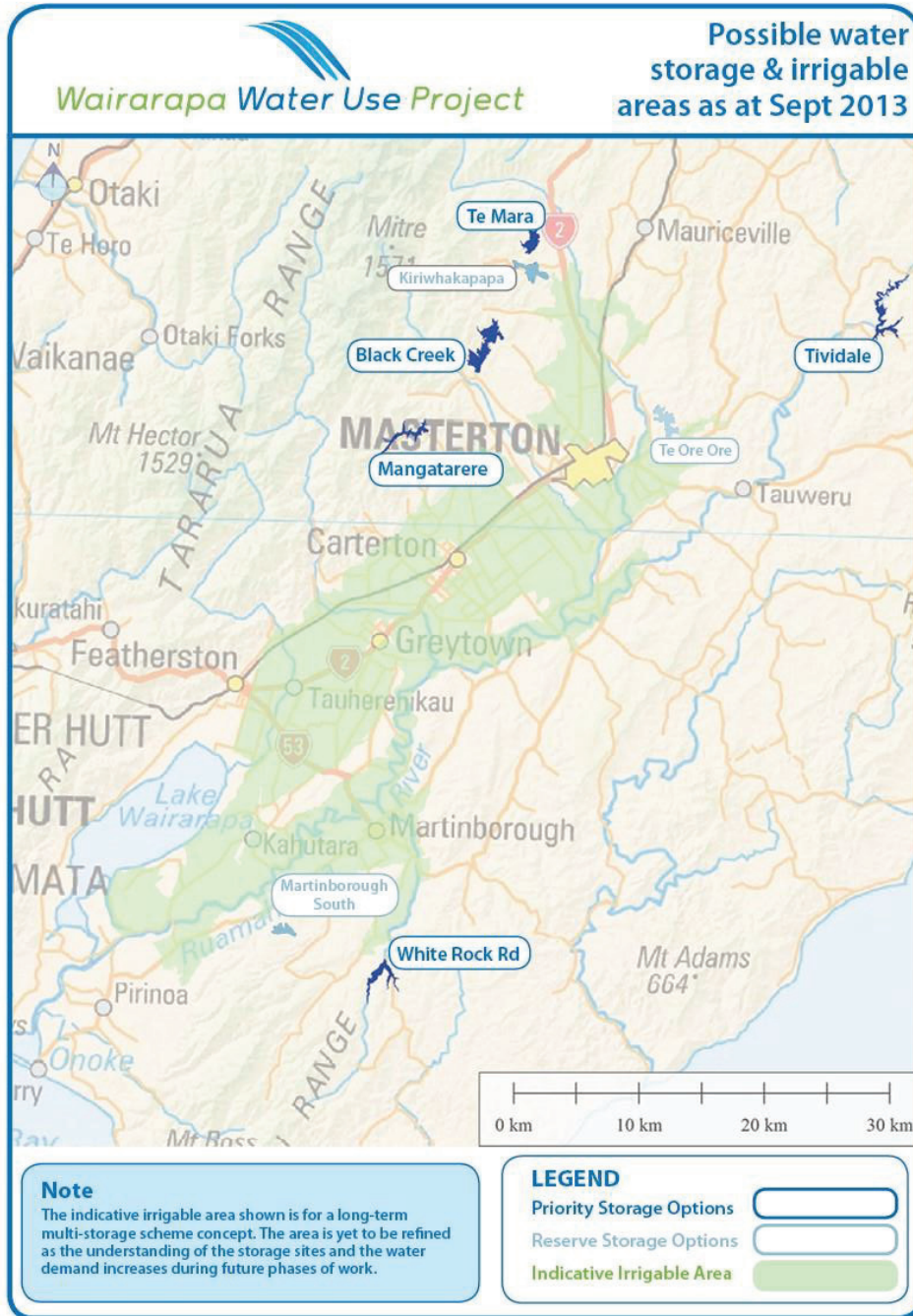
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Attachment 1 Map of the assessment area



Attachment 2 Detailed demographic information

The profile of the Wairarapa Combined Districts was compiled from 2013 census statistics. The South Wairarapa Urban Areas comprise the sum of the area units of Featherston, Martinborough and Greytown. The Carterton and Masterton Urban Areas consist of the sum of area units for each of those towns. The Combined Districts Rural and Urban Areas are simply the sum of the total rural and urban area units for the entire Wairarapa region. Statistics for the Combined Districts Total and New Zealand are included for comparative purposes.

Census data were collected for the following key variables for all of these areas:

- usually resident population (2001, 2006 and 2013)
- age and sex structure
- ethnic composition
- educational qualifications
- labour force status
- employment status
- occupational status
- employment by industry for residents of the area
- household income
- dwelling tenure

Tables of this information are provided here. A summary and other related text are in the main body of the report above.

Population by age and sex*Table A1: Percentages of usually resident population by age groups for Wairarapa Combined Districts 2013*

Area	Under 15 years Per cent	15-64 years Per cent	65 years & over Per cent
South Wairarapa Rural	21.5	63.9	14.7
South Wairarapa Urban Areas	18.2	59.3	22.4
Carterton Rural	20.7	66.5	12.7
Carterton Urban Area	19.2	57.4	23.4
Masterton Rural	18.7	66.3	14.8
Masterton Urban Area	20.3	59.3	20.3
Combined Districts Rural Areas	20.1	65.7	14.2
Combined Districts Urban Areas	19.7	59.0	21.2
Combined Districts Total	19.8	61.0	19.1
New Zealand	20.4	65.3	14.3

Source: Statistics New Zealand

Table A2: Dependency and sex ratios for Wairarapa Combined Districts

Area	Dependency ratio <15+>65/15-64	Sex ratio Males/Females
South Wairarapa Rural	0.57	1.03
South Wairarapa Urban Areas	0.69	0.92
Carterton Rural	0.50	1.04
Carterton Urban Area	0.74	0.97
Masterton Rural	0.51	1.02
Masterton Urban Area	0.69	0.90
Combined Districts Rural Areas	0.52	1.03
Combined Districts Urban Areas	0.69	0.91
Combined Districts Total	0.64	0.94
New Zealand	0.53	0.95

Source: Statistics New Zealand

Ethnic composition

Table A3: Percentages of usual residents of Wairarapa Combined Districts affiliated to major ethnic groups - 2013

Area	Per cent of total responses			
	European	Maori	Asian	Pacific Peoples
South Wairarapa Rural	87.9	11.2	1.2	0.9
South Wairarapa Urban Areas	85.8	14.4	2.5	2.5
Carterton Rural	90.5	7.8	0.6	1.0
Carterton Urban Area	85.5	14.0	1.8	2.4
Masterton Rural	89.3	9.8	0.9	1.0
Masterton Urban Area	81.5	20.2	2.7	3.7
Combined Districts Rural Areas	89.2	9.6	0.9	1.0
Combined Districts Urban Areas	83.8	18.2	2.6	3.3
Combined Districts Total	84.9	15.5	2.0	2.6
New Zealand	70.0	14.1	11.1	7.0

Source: Statistics New Zealand

Note: Where people reported more than one ethnic group, they were counted in each applicable group.

Educational qualifications

Table A4: Percentages of usually resident population aged 15 years & over with tertiary and no educational qualifications for Wairarapa Combined Districts - 2013

Area	Tertiary qualifications Per cent	No qualifications Per cent
South Wairarapa Rural	37.9	17.6
South Wairarapa Urban Areas	34.3	22.5
Carterton Rural	37.1	17.2
Carterton Urban Area	28.5	28.3
Masterton Rural	37.3	18.3
Masterton Urban Area	27.5	26.7
Combined Districts Rural Areas	37.4	17.8
Combined Districts Urban Areas	29.1	26.1
Combined Districts Total	31.6	23.6
New Zealand	34.7	18.6

Source: Statistics New Zealand

Note: Tertiary qualifications include Level 4 Certificate, Level 5 or Level 6 Diploma, Bachelor Degree and Level 7 qualifications, Postgraduate and Honours Degree, Masters Degree and Doctorate Degree.

Labour force status*Table A5: Labour force status of residents of Wairarapa Combined Districts – 2013*

Area	Employed FT Per cent	Employed PT Per cent	Unemployed Per cent	Not in Labour Force Per cent
South Wairarapa Rural	52.2	18.5	2.2	22.6
South Wairarapa Urban Areas	42.3	15.3	4.2	35.3
Carterton Rural	51.7	18.9	2.8	23.1
Carterton Urban Area	41.2	13.6	4.4	37.6
Masterton Rural	52.8	18.5	2.6	22.4
Masterton Urban Area	39.6	14.5	5.1	37.6
Combined Districts Rural Areas	52.3	18.6	2.6	22.7
Combined Districts Urban Areas	40.4	14.5	4.8	37.1
Combined Districts Total	44.0	15.7	4.1	32.8
New Zealand	45.6	13.6	4.5	31.3

Source: Statistics New Zealand

Employment status*Table A6: Employment status of residents of Wairarapa Combined Districts – 2013*

Area	Paid employees Per cent	Employers Per cent	Self-employed persons Per cent
South Wairarapa Rural	58.3	13.4	19.4
South Wairarapa Urban Areas	72.3	6.8	16.3
Carterton Rural	62.8	10.0	19.8
Carterton Urban Area	79.8	5.3	11.1
Masterton Rural	60.6	13.3	18.1
Masterton Urban Area	81.8	5.2	9.2
Combined Districts Rural Areas	60.6	12.3	18.9
Combined Districts Urban Areas	79.4	5.6	11.1
Combined Districts Total	72.7	8.0	13.9
New Zealand	77.6	6.5	11.8

Source: Statistics New Zealand

Occupational status

Table A7: Percentages of residents with higher status and blue collar occupations in Combined Wairarapa Districts - 2013

Area	Higher status occupations Per cent	Blue collar occupations Per cent
South Wairarapa Rural	50.3	18.5
South Wairarapa Urban Areas	38.4	16.8
Carterton Rural	47.4	17.2
Carterton Urban Area	31.1	22.7
Masterton Rural	44.6	18.5
Masterton Urban Area	30.1	20.7
Combined Districts Rural Areas	47.1	18.1
Combined Districts Urban Areas	32.1	20.2
Combined Districts Total	37.4	19.4
New Zealand	39.1	15.7

Source: Statistics New Zealand

Note: Higher status occupations are the manager and professional categories, and blue collar occupations are the machinery operator and drivers, and labourer categories.

Employment by industry for residents of the area

Table A8: Percentages of residents employed by industry in Wairarapa Combined Districts - 2013

Area	Agriculture, forestry, fishing Per cent	Manufacturing Per cent	Wholesale, retail, hospitality Per cent	Professional, technical, administrative Per cent	Education, health, social, arts Per cent
South Wairarapa Rural	37.1	5.0	12.2	12.6	12.7
South Wairarapa Urban Areas	7.7	8.0	21.5	17.5	17.6
Carterton Rural	26.8	6.8	13.3	14.4	17.4
Carterton Urban Area	7.9	11.6	20.2	15.8	18.9
Masterton Rural	27.4	5.0	15.1	11.9	17.9
Masterton Urban Area	7.3	10.1	22.2	12.0	23.1
Combined Districts Rural Areas	30.0	5.5	13.8	12.8	16.1
Combined Districts Urban Areas	7.5	9.8	21.7	13.8	21.2
Combined Districts Total	15.5	8.3	18.9	13.5	19.4
New Zealand	6.4	9.4	19.9	16.5	19.4

Source: Statistics New Zealand

Note: The wholesale, retail and hospitality category is the sum of the wholesale trade, retail trade and accommodation and food services industry divisions; the professional, technical and administrative category is the sum of the professional, scientific and technical services, administrative and support services and public administration and safety industry divisions; and the education, health, social, arts category is the sum of the education and training, health care and social assistance and arts and recreation services industry divisions.

Household income*Table A9: Distribution of household incomes in Combined Wairarapa Districts – 2013*

Area	\$50,000 & under Per cent	\$50,001-\$100,000 Per cent	\$100,001 & over Per cent
South Wairarapa Rural	29.3	31.8	26.1
South Wairarapa Urban Areas	43.3	31.4	16.8
Carterton Rural	29.2	35.3	24.7
Carterton Urban Area	47.9	27.7	11.7
Masterton Rural	29.2	32.9	24.6
Masterton Urban Area	48.2	27.1	13.0
Combined Districts Rural Areas	29.2	33.3	25.1
Combined Districts Urban Areas	47.1	27.4	12.2
Combined Districts Total	42.0	29.1	15.9
New Zealand	33.8	27.7	23.4

Source: Statistics New Zealand

See also Attachment 2.

Dwelling tenure*Table A10: Tenure of dwellings held by residents of Combined Wairarapa Districts – 2013*

Area	Owned/partly owned Per cent	Held in a family trust Per cent	Not owned Per cent
South Wairarapa Rural	46.2	20.7	27.6
South Wairarapa Urban Areas	58.5	11.0	25.6
Carterton Rural	59.0	16.1	21.0
Carterton Urban Area	60.2	7.0	27.6
Masterton Rural	53.1	21.7	20.3
Masterton Urban Area	52.0	8.5	33.7
Combined Districts Rural Areas	52.7	19.8	22.6
Combined Districts Urban Areas	54.8	8.8	31.0
Combined Districts Total	54.2	11.9	28.6
New Zealand	46.8	13.9	33.0

Source: Statistics New Zealand

Attachment 3 Social deprivation – Combined Districts

