11 June 2009

Hurunui Water Project
PO Box 29031
CHRISTCHURCH 8540

Our Ref: 08836-E

Attention: Ms Amanda Loeffen

Dear Amanda

HURUNUI WATER PROJECT IRRIGATION AND HYDRO POWER INTAKE LOCATION

Introduction

Riley Consultants Ltd (RILEY) has been engaged by the Hurunui Water Project Ltd to consider potential river intake locations on the Hurunui River.

The river intake is one component of the proposed Hurunui Water Project (HWP), which seeks to irrigate land in the Amuri Basin, Omihi and Scargill Valley with storage provided by a control of Lake Sumner outflows, construction of a dam on the Hurunui South Branch and river intake near the Mandamus River confluence.

A number of different locations have been considered and two selected as the preferred options. The first option is for irrigation only and the second a combined irrigation and hydro power intake. Figure 1 attached indicates the approximate location of the two river intakes. The intakes will include screens (fish exclusion and debris removal), settling ponds and gates. The levels quoted in this letter are based on 1:50,000 contour information using 20 m contour levels.

Intake Option 1 (Irrigation only)

The intake would be located on the southern side of the Hurunui River opposite the existing AIS intake downstream of the confluence of the Mandamus River at approximately RL 295 m. The intake structure is likely to be similar to others constructed on braided rivers in the South Island (e.g. Amuri Irrigation Scheme (AIS) or Wilberforce intake at Lake Coleridge).

An intake at this location is simpler than alternative upstream but has the main disadvantage of requiring pumping to approximately 23 % of the irrigation area.

Intake Option 2 (Combined Irrigation and Hydro Power)

An intake located upstream of Option 1 would need to be at or above RL 330 m to enable gravity conveyance to all of the irrigation area. This would also enable hydro power to be generated when available river flows are not required for irrigation purposes. The average annual potential generation is in the order of three to four times the electricity required for average annual pumping at Option 1.

This option incorporates an intake location at approximately RL 330 m, 1-2 km upstream from the Dampier Stream confluence. From the intake location a 4.5 km lined tunnel would be constructed through the hillside to the terrace adjacent to Creans Road. From this location flows could be directed to the irrigation system or a penstock down to a powerhouse located adjacent to the river.

Limitation

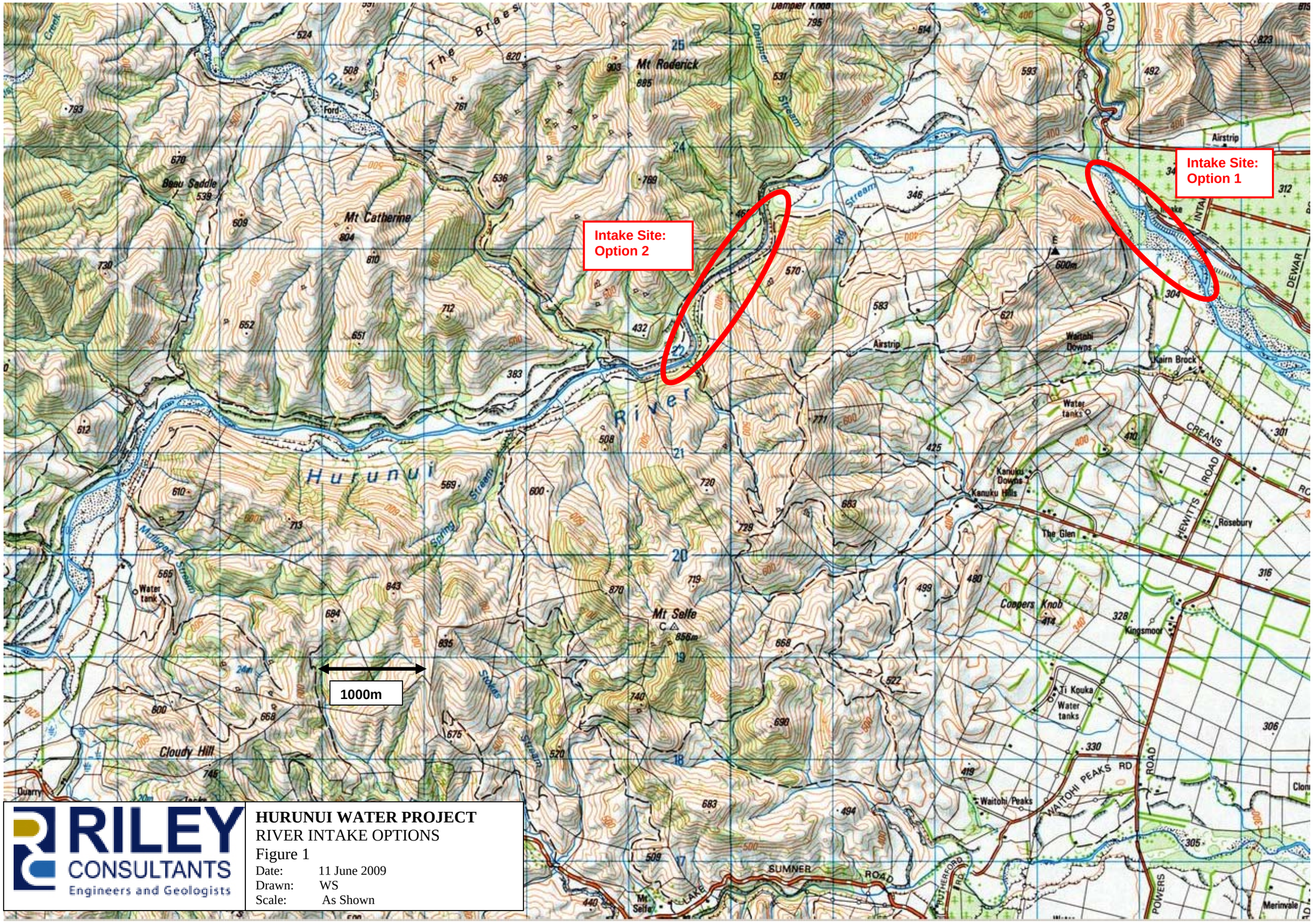
This report has been prepared solely for the benefit of Hurunui Water Project Ltd as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Recommendations and opinions in this report are based on a visual appraisal only. The nature and continuity of subsoil conditions are inferred, and it must be appreciated that actual conditions could vary considerably from the assumed model.

Yours faithfully
RILEY CONSULTANTS LTD

William Stringer
Civil Engineer

Paul Morgan
Christchurch Manager (CPEng)



HURUNUI WATER PROJECT
RIVER INTAKE OPTIONS
Figure 1
Date: 11 June 2009
Drawn: WS
Scale: As Shown

RILEY CONSULTANTS
Engineers and Geologists

Hurunui Water Project

Economic Analysis of the Effects of the Project

- 2 June 2009
- Caroline Saunders

Contents

1. Overview

This report evaluates the potential direct, indirect and induced benefits of irrigation in terms of irrigation in terms of increased revenue and employment from agriculture in the context of an application for a Resource Consent Application for the Hurunui Water Project for the Hurunui River.

The assessment is directed at the economic benefits arising from the potential development of the river's resources. The certainty provided by a reliable supply of water can also have social impacts on a community and increase the range of options to increase diversification in the rural community. These issues are commented on in this report but not quantified.

The following topics are covered in this report:

- Direct Effect
- Indirect Effect
- Induced Effect
- Capital Impacts
- Generation Impacts
- Unquantifiable Effects

2. Definitions

Direct effect

Estimating the contribution of increased revenue from irrigation here includes the calculation of their direct, indirect and induced impacts on the local economy. The direct effect is simply the change in farms own output and/or employment levels. For the purposes of this study the output is measured in dollar terms as product passes beyond the farm gate. It is accepted that secondary processing of the product (such as conversion of milk to milk powder) may occur but these additional economic benefits have not been incorporated into the study. By the same token, employment may be generated off–farm for every additional kg of milk fat produced, but the direct effects to employment in this study reflect only the added employment opportunities on-farm.

Indirect effect

The indirect effects are the output and/or employment generated by other firms servicing the farms in the local area, such as input suppliers. An example may be that as production intensifies, further specialist expertise such as: transport services, refrigeration specialisation, farm management consultancy, which for example, will need to be engaged for the successful development of additional production associated with irrigation. These services or outputs are quantified as indirect effects.

Induced effect

The induced effect is the impact on output and employment resulting from the increased household expenditure, in the local area, flowing from the direct and indirect effects. The sharemilker who visits a cafe in Amberley or the electrician who purchases goods from the local supermarket are two examples of induced effects arising from the added production associated with irrigation development.

Capital Impacts

The scheme will have impact on capital expenditure. This incorporates the actual cost of developing the core infrastructure of the irrigation schemes. However, there is also a capital impact from farmers developing the infrastructure on farm to irrigate their land and also that associated with change in land use such as the construction of dairy sheds. In this assessment only capital cost of converting to dairy under various assumptions is used and only dairy sheds and pivot irrigation costs used. Other capital costs such as fencing, dairy pads are ignored. The capital costs of installing irrigation and those associated with other changes in land use,

such as arable, are ignored. Therefore, the capital costs estimated here are an underestimate.

Generation impacts

The scheme also has potential to generate electricity and this has been calculated to add to the benefits.

Unquantifiable effects

There are also a number of un-quantified benefits of the scheme which will be included. These include the social impacts arising from the increase in wealth and employment in the district.

3. Project Scenarios & Assessment Assumptions

3.1 Project Assumptions

The two irrigation scenarios involve either a 15,000 hectares (Partial Irrigation) or 40,000 hectares (Full Irrigation) to be irrigated of which 15,000 hectares and 35,000 hectares are potentially extra irrigated land[1]. The first is a reduced water availability scenario, whereby only partial resource consent is allowed. For example, if consent was gained for only one of the two water storage sites. In this case, it is assumed in this study that the new irrigable area will be 15000 hectares.

The second is the assumption that Hurunui Water Project is able to gain resource consent for both storage sites to allow for irrigation within a wider command area. This would assume a potential irrigable area of 40,000 hectares, of which 5,000 is already partially irrigated through the Amuri Scheme, and has been ignored for the purposes of this study, as many of gains have already been realised.

It is acknowledged that irrigation may be established on parts of properties which will produce economic benefits for the whole property. As these flow-on effects are difficult to quantify, this study has taken the conservative approach, and it focuses simply on the additional outputs which are derived from each new hectare of irrigable land.

3.2 Land Values

The analysis excludes the changes in land values which occur with potentially irrigable land. These values are only quantifiable when the land is sold, but it is important as it allows the farmers greater ability to borrow for investment against land value, hence enabling growth. There are also additional exchequer benefits such as the increase in tax income, reduction in social security payments and the increase in rates from business and other activity. These all have upside potential in a system of growth, but are highly related to individual circumstances, so have been ignored for the purposes of this macro study.

3.3 Other Assumptions

The irrigated land of course has many different uses. Here three assumptions of changes in use are used.

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[1] 5000 hectares is already partially irrigated through the Amuri Irrigation Scheme, which has low reliability as it is run-of-river. Since many of the benefits of irrigation have already been realized, it is not appropriate to double count this area, so it has been taken out of the equation for the economic analysis. Clearly, there is still additional benefit to be had should they irrigated fully.

(i) 100% Dairy Conversion

Firstly all the land is converted from the current use of dry-land sheep and beef farming to dairy. This scenario reflects the fact that over time most of the irrigated land will transfer to a higher value use. Dairy is used as the benchmark as this is the most common alternative land use the other being high value arable which is difficult to estimate as stated elsewhere.

(ii) 65% Dairy Conversion

Secondly, a MAF 2004 study predicted that if there was an increase in irrigated land in the Canterbury area that 65 per cent of the area be converted to dairy with the remaining 35 per cent into high value arable production, (MAF 2004). The issue here is what the value of high value arable production is as this ranges considerably depending upon the crop.

(iii) 50% Dairy Conversion

Thirdly that 50 per cent is converted into dairy, 20 per cent arable and the remaining 30 per cent remains in stock such as sheep and beef. Data on high value arable returns is more difficult to obtain and can vary enormously depending upon the crop and often data is confidential. It then estimates that there will be an increase in employment in the local economy, due to the extra revenue generated by the farming sector

4. Assessment

The farmer surveys conducted in the command area by the Hurunui Water Project have predicted that the conversion to dairy plus dairy support may be as low as 45% (refer **Appendix A** for a summary of farmer responses). Given that the Amuri Irrigation Scheme has conversions of closer to 60%, it is possible that the farmers are under-estimating conversion rates for the purposes of the survey, so it is realistic to assume that the district will have conversions in one of the scenarios listed above.

Dairy returns are almost invariably above sheep returns by usually over $4000 per hectare. The increase in revenue per hectare from dairy does vary. The ranges vary from between $4000 to $9000 depending upon the returns from 2002/3 to 2007/8 (however the $9000 does reflect the particularly high pay out for dairy in 2007/8). The data is for North Canterbury. The data does compare with other estimates on the increase in revenue from irrigated land with results from the MAF study showing returns to dairy were $4802 per hectare compared to dry land intensive pastoral returns at $962 per hectare. Assumptions are based on a milk solids payout of $3.7 per kg ms in 2003[2]. They also compare with a study on the Hunter Downs irrigation schemes which shows per hectare revenue from dairy was $5597 compared to $979 for dryland pastoral production[3].

In the case of arable crops it is difficult to determine the alternative crops that could be grown and the returns from these vary widely. Currently in Hurunui, the main arable crops are wheat and barley with some field peas, seeds and potatoes. The returns to these from irrigated and non irrigated land are available from the MAF study. This shows that in Canterbury, irrigated arable land increases returns of $1,838 above dry-land sheep farming. This must be considered an underestimate of the value of irrigating arable crops given other arable crops such as onions have a return of $16,000 per hectare and viticulture which has returns of around $30,000 per hectare.

4.1 100% Dairy Conversion

Agricultural benefits of the scenarios assuming 100% dairy conversion is shown in **Table 1** (following page), which illustrates the potential direct increase in revenue from the increase in irrigated land. This shows the range for scenario 1 is between $63 and $135 million and in the case of scenario 2 the benefits are between $147 million and $316 million. These have been

[2] MAF (2004): The economic value of irrigation in New Zealand MAF Technical paper 04/01 April 2004.

[3] Agribusiness Group and Butcher partners (2006): Hunter Downs Irrigation Scheme assessment of the agricultural impacts of different reliability of irrigation water prepared for Meridian energy.

calculated comparing the difference between dairy and sheep and beef farming returns per effective hectare using the MAF Pastoral Monitoring report. The difference in returns does heavily depend upon the dairy payout and the payout in 2007/8 was exceptional thus not considered here as a sustainable return. The average return from the increase in irrigation for farm returns is therefore $70 million for scenario one and $164 million from scenario two using average increase in returns and excluding the 2007/8 year.

- **Table 1: Direct Increase in revenue from irrigation scheme ($million) in North Canterbury assuming 100% take up of dairy**

area	2004-5	2005-6	2006-7	2007-8
Increase in returns per ha	4203	4402	5000	9034
15000	63.058	66.037	75.000	135.510
35000	147.136	154.085	175.000	316.190

The multiplier impact of this increase in revenue is shown in **Table 2** (below). This shows an increase in the flow-on benefits to the economy from conversion of sheep to dairy farming.

Thus table two illustrates the impact of the increase in farming revenue on the wider local economy. This shows an increase of between $124 million and $269 million for the Partially Irrigated Scenario one and $289 million and $628 million for the Fully Irrigated scenario two. The average return from the increase in irrigation for the local economy[4] is therefore $134 million for scenario one and $312 million from scenario two using average increase in returns, excluding the 2007/8 year. This is a significant increase in returns but is consistent with other studies and reflects the increase in productivity from conversion and the high value of returns from the market for dairy products compared to the lower productivity and returns from sheep meat.

- **Table 2: Direct, Indirect and Induced Increase in revenue for the North Canterbury economy ($million)**

area	2004-5	2005-6	2006-7	2007-8
15000	124.071	129.793	147.415	269.246
35000	289.499	302.851	343.970	628.2412

[4] The local economy here is Hurunui, Selwyn and Ashburton and Waimakari districts for which input output tables were available. The definition local economy here is used because the flow on effects are likely to be similar in all these districts given their similar structure.

The increases in returns are highly significant for the local economy given the GDP for Hurunui was $272 million in 2007 of which $131 million was from agriculture[5]. This estimates a 50 percent increase in GDP from scenario one and 115 percent increase from scenario two. The results do assume all the area is taken up for dairy or similar high value activity.

4.1.1 Employment Impact

With the increase in revenue to farming from the irrigation scheme, there will also be an employment impact. With scenario 1 there is an increase of 352 on-farm jobs, and with scenario 2 there will be an additional 822 jobs created. When the indirect and induced impacts on employment are accounted for to obtain the total impact on employment the figures rise to 510 in scenario one and 1190 in scenario 2 (excluding 2007-8 data). These are similar to results found when evaluating the impact of the Opuha dam scheme[6]. This is significant given the employment in agriculture was 2237 in Hurunui in 2008 and 4,875 in total. It equates to an employment increase of 25% for the Fully Irrigated Scenario.

4.2 65% Dairy Conversion

Agricultural benefits of the scenarios assuming 65% dairy conversion and 35% arable**.** The results of this assumption are likely to be a serious underestimate of the benefits of the scheme given that the low value is used of $1,838 benefits of irrigation, the difference between arable and dry-land sheep and beef farming.

4.2.1 Economic Effects

The benefits under 65% uptake of dairy and 35% uptake of arable are an increase of $43 million for scenario one and $100 million for scenario two. The average return from the increase in irrigation for the local economy (i.e. Hurunui District) is therefore $95 million for scenario one and $250 million from scenario two using average increase in returns, excluding the 2007/8 year.

The increase in returns are still significant for the local economy given, as stated above, the GDP for Hurunui was $272 million in 2007 of which $131 million was from agriculture[7].

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[5] Infometrics http://www.infometrics.co.nz
[6] Harris et al (2006): The Opuha dam: an ex post study of its impacts on the local economy and community. Harris Consulting August 2006.
[7] Infometrics http://www.infometrics.co.nz

4.2.2 Employment Impact

The employment benefits are 230 jobs on farm in scenario one and 536 for scenario two. The total employment benefits being 338 for scenario one and 813 in case of scenario two. The direct employment benefits reflect the increased employment of labour on farm to service the dairy herd rather than the lower level of labour needed for sheep and beef farming. The higher flow on employment impacts reflect a number of factors: the increased need to have firms service the dairy farms, as well as the greater income in the local economy increasing local expenditure.

4.3 50% Dairy Conversion

Agricultural benefits of the scenarios assuming 50% dairy conversion, 30 % sheep and beef and 20% arable. As in the scenario above the results of this assumption are likely to be a serious underestimate of the benefits of the scheme given that the low value is used of $1,838 per hectare for the benefits of irrigation, the difference between arable and dry-land sheep and beef farming. Also the benefits of irrigation for sheep are only $952 per hectare again likely to be an underestimate.

4.3.1 Economic Effects

The benefits under 50% uptake of dairy, 30% sheep and beef and 20% uptake of arable are an increase of $33 million for scenario one and $77 million for scenario two. The average return from the increase in irrigation for the local economy is therefore $87 million for scenario one and $231 million from scenario two using average increase in returns, excluding the 2007/8 year.

4.3.2 Employment Impact

The employment benefits are 117 jobs on farm in scenario one and 414 for scenario two. The total employment benefits being 258 for scenario one and 641 in case of scenario two.

5. Benefits of the Project

5.1 Capital benefits

The capital costs and benefits of developing the scheme include the actual cost and benefits of construction of the storage facility plus main distribution system of $160 million for the full irrigation scenario and $50 million for the partial irrigation scenario. This is an under estimate of the impact as no account has been taken of this on the local economy. There is also expenditure on infrastructure on farm this includes a range of items but for the purposes here only the pivot irrigation and cost of dairy sheds are included so these figures are an underestimate. The costs and benefits of infrastructure on farm of installing pivot irrigation are estimated to be $4,000 per hectare. The cost of construction of dairy sheds and other infrastructure this is estimated to be $7,000 per head (Lincoln University 2008)[8] thus given a stocking rate of 3.3 cows per hectare this implies cost of $23,100 per hectare. Thus a total of $27,100 per hectare. Thus with 100 per cent conversion to dairy this would be benefit of $406 million in scenario one and $1948 million in scenario two. For 65 per cent uptake of dairy the capital benefits are $264 million in scenario one and $616 million in scenario two. For 50% uptake of dairy the returns are $203 million in scenario one and $474 million in scenario two.

A summary of the capital benefits are outlined in **Table 3** (below).

- **Table 3: Capital Benefits of Irrigated Scenarios under different Dairy Conversion Assumptions $million**

	Scenario 1 – partial irrigation	Scenario 2 – full irrigation
Main infrastructure and distribution	50	160
Dairy 100% conversion	406	1948
Dairy 65% conversion	264	616
Dairy 50% conversion	203	474

These impacts have financial implications but also public exchequer and wider economic impacts which should be included.

[8] Lincoln University (2998): Financial Farm Budget Manual

5.2 Benefits of hydro-generation

The pre-feasibility studies into the hydro electricity generation potential[9] shows that for scenario one there is 12MW and 45 GWh. In the case of scenario two the potential generation is 24MW and 75 GWh. The average price for wholesale electricity over next three years is 7.7 cents per kw. This therefore, translates into benefits of $3.5 million per annum for scenario one per year and $5.8 for scenario two.

5.3 Unquantifiable benefits

Another important benefit of irrigation is the impact on the wider wellbeing of the economy. The MAF study identified a number of benefits which as they state are difficult of quantify. These include more employment opportunities; greater diversity of business activities, and thus greater economic security to local communities; more consistent financial flow through the community and hence greater optimism and innovation (MAF 2004). A study in 2002 compared two regions with similar characteristics, one irrigated and one dry-land farming, and found the irrigated area had increased population of 16 percent, a greater proportion of better paying jobs and higher incomes (Ford 2002). These other impacts are also reflected in other improvements such as after the introduction of the Amuri scheme, the deprivation index[10] for Culverden fell from 7th decile in 1996 to 5th in 2001 and 2006. A significant improvement especially when compared to surrounding regions.

Table 4 (below) provides a summary table showing the benefits discussed in this section.

- **Table 4: Summary Table Showing Average Benefits for each Scenario under different Dairy Conversion Assumptions (including GDP, capital, hydrogenation, jobs)**

Benefits ($million)	Scenario 1–partial irrigation			Scenario 2–full irrigation		
	Dairy conversion assumptions					
	100%	65%	50%	100%	65%	50%
Capital Benefits	566	424	363	2108	776	634
Annual Benefits						
On farm revenue	70	43	33	164	100	77
Increase in local GDP from on farm revenue	134	95	87	312	250	231
Hydro-generation –	3.5	3.5	3.5	5.8	5.8	5.8

[9] Evidence of Todd Mead (MainPower NZ Ltd), Proposed Hurunui River Water Conservation Order (March 2009)

[10] The deprivation index is calculated from each census and attempts to measure the socio economic well-being of communities and includes such factors as income, home ownership, employment and qualifications as well s living space, communications and transport.

direct impacts						
Agricultural employment impacts – direct and total on local economy						
On Farm	352	230	117	822	530	414
Total for local economy	510	338	258	1190	813	641

6. Conclusion

In conclusion, the irrigation scheme proposed has the potential to increase the local GDP significantly. The contribution of agriculture to this is highly significant at $134 for scenario 1 (partial irrigation) and $312 million for scenario two – full irrigation, assuming all the area transfers to dairy. This is a significant increase of GDP of 50 per cent for scenario one and 115 per cent for scenario two. The benefits to local economy are also significant at $95 million and $250 million for scenarios one and two respectively assuming 65% of the land converts to dairy and the rest to average value arable use. This is an increase in local GDP of 35 per cent in scenario one and 92 per cent in scenario two. Even at 50 per cent conversion to dairy, 30 per cent sheep and beef and 20 per cent arable the contribution is significant at $87 and $231 million for scenarios one and two, an increase in local GDP of 32 percent and 85 percent.

The capital benefits are also highly significant and likely to have important impact on the local economy staring with main infrastructure and distribution capital expenditure of $160 million for the full irrigation scenario and $50 million for the partial scenario. The installation of irrigation and association capital expenditure on farm is more significant ranging from $200 million for low conversions to dairy to nearly two billion dollars assuming 100 % dairy conversion. The benefits are likely to occur over a few years allowing for initial infrastructure and then the conversion to other land uses.

The impact on employment is also significant with extra employment of 352 people in on-farm jobs in the case of scenario one and 822 in scenario two assuming 100 dairy conversions. The impact on local economy is an increase of 510 and 1190 jobs respectively for scenarios one and two. This is highly significant implying and increase in local employment of 25 per cent with full irrigation. The employment impacts at lower levels of dairy conversion are still significant at 338 and 813 for scenarios one and two assuming 65 per cent conversion and 258 and 641 for 35 per cent conversion.

Appendix A – Summary of Farmer Responses for Land Use

		Irrigation Demand (ha)	% Irrigated (Response Rate)	Net irrigable area (ha)	Total land use (ha)	Arable	Stock	Dairy	Dairy Support	Viticulture	Horticulture	Other
1000's	Omihi Valley	1686	31%	5420	5044	11%	66%	4%	5%	0%	3%	11%
2000's	Scargill Valley	2695	57%	4700	5199	10%	48%	24%	16%	1%	1%	1%
3000's	Upper Waipara/Mason's Flat	3925	71%	5510	10239	11%	67%	3%	19%	0%	0%	0%
4000's	Peaks - South Branch/Harwarden South of Waitohi	8663	62%	13990	13501	17%	55%	14%	11%	2%	0%	1%
5000's	Balmoral Forest & adjacent area	7320	100%	7320	7320	0%	0%	60%	40%	0%	0%	0%
6000's	Balmoral Irrigation Scheme	5200	99%	5240	5733	0%	14%	60%	27%	0%	0%	0%
TOTAL	**TOTAL**	**29489**		**42180**	**47036**	**4471**	**20930**	**11473**	**8915**	**318**	**267**	**661**
	% of Land use				**100%**	**10%**	**44%**	**24%**	**19%**	**1%**	**1%**	**1%**
	Notes: Irrigation Demand represents hectarage of responses that can be matched against land owned in area. % irrigated is the irrigation demand as a ratio of potential irrigable area, and equates to the Response Rate. Net irrigable area is the area that is calculated to be irrigable from Stage 1 Report. Total Land use is the area that farmers have responded on that is within the commend area of 51,681 ha and potentially irrigated. Arable, stock, dairy, dairy support, viticulture and horticulture are the main uses for the land, adding up to the total land use.											

BEFORE THE SPECIAL TRIBUNAL ACTING UNDER DELEGATED AUTHORITY ON BEHALF OF THE MINISTER FOR THE ENVIRONMENT

Under	the Resource Management Act 1991
In the matter	of an application for a Water Conservation Order pursuant to s201 of the Act
By	**THE NEW ZEALAND & NORTH CANTERBURY FISH & GAME COUNCILS AND THE NEW ZEALAND RECREATIONAL CANOE ASSOCIATION**

STATEMENT OF EVIDENCE OF GARETH RENOWDEN ON BEHALF OF THE HURUNUI WATER PROJECT

26 MARCH 2009

Introduction

1. My full name is Gareth Renowden. I reside at Limestone Hills, 680 Ram Paddock Road, R D 2, Camberley, a small farm of 25 acres, where I grow grapes, truffles and olives. I have lived in North Canterbury for the last 13 years.

2. I am the author of Hot Topic - Global Warming & The Future of New Zealand, published by Auckland University of Technology Media in 2007, and author/publisher of the Hot Topic web site (http://hot-topic.co.nz/), which monitors climate science, politics and policy in New Zealand and internationally. I also write on the issue for other media. I am not a climate scientist, but do work closely with the NZ and international climate science community in researching my coverage of the issue. I have also written books on olive and truffle growing in NZ. I am immediate past president of the NZ Truffle Association and manage the FRST-funded truffle industry R&D programme (with Plant & Food Research). I am a member of the committee of the Meteorological Society of NZ, a founder member of the Waipara River Protection Group, and a trustee of the North Canterbury Radio Trust.

3. A full list of the sources I have used in preparing this evidence is appended, but the principal work upon which I have relied is Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand, 2nd edition, published in May 2008 by the Ministry for the Environment, based on the most recent modelling work by the National Institute for Water and Atmospheric research (NIWA). I have read the code of conduct for expert witnesses, and have prepared my evidence in accordance with its suggestions.

Overview

4. Global warming and the climate change it brings are caused by the build-up of greenhouse gases (principally carbon dioxide, but also methane, nitrous oxides, and various halocarbons) in Earth's atmosphere. This increase is driven by human-caused emissions (burning of fossil fuels, agriculture, deforestation etc). New Zealand produces a very small (under one percent) share of global emissions, and so action to restrict emissions in NZ will have no discernible impact on climate change in either NZ or the globe. The extent of changes in climate experienced here in the long term will be directly determined by the success or failure actions taken by the global community to limit greenhouse gas emissions.The climate of any given region is often described as the "average

weather" - the weather we expect to get at any given time. This can be expressed as averages: the average temperature in Hawarden in July for instance, but climate also describes the probability of extreme weather events. Flood events, for example, can be described as "one in 20 year" or "one in 100 year" events, giving an idea of how often events of that severity are expected to occur in an unchanging climate. Quite small changes in averages can translate into significant differences in human terms. The difference between a summer we think of as ordinary and one that's hot can be as little as 1ºC in the average temperature, and be enough to make a hitherto marginal crop profitable. Changes in the frequency of extreme events can also have marked impacts. Fewer or less severe spring frosts can bring positive benefits, while increases in drought frequency can stress agricultural systems.**Modelling of future climates**

6. The climate science community has developed computer models of the global climate system -- global climate models (GCMs), and these can be used to suggest how the climate system will change as greenhouse gases accumulate in the atmosphere. These models are similar to the numerical models used in weather forecasting, but do not try to predict "weather" decades into the future. They are used to develop projections of climate -- what the averages of temperature and rainfall might be by the 2050s for example, or how often heavy rainfall might be expected in the 2090s. The climate system is immensely complex, however, with oceans and atmosphere interacting in many different ways, and interlocking feedbacks from ice and snow and plant growth. The picture they provide of possible futures also depends critically on how greenhouse gas levels are projected to change -- and those depend on assumptions made about population and economic growth. There are two levels of uncertainty: how the climate system will respond to warming, and how human actions will affect that warming.

7. Even the best climate models, run on hugely expensive supercomputers, provide a fairly "coarse" picture of the global climate. A typical GCM might represent the world on a grid with 300km sides, and New Zealand might only "appear" in a few of those grid cells. To try to get a more detailed picture of what's happening, NIWA modellers have developed a regional climate model (RCM) which operates with a 50km grid. The RCM is "driven" by runs of a GCM, but calculates how that might be expressed as weather at a local level. This process is called dynamical downscaling, and NIWA is still working hard on developing and improving the process. NIWA also uses a process called statistical downscaling, building mathematical relationships between the climate we know and measure now and

GCM outputs. Most of the information we have for future NZ climate was developed using this process.

8. Improving regional climate projections is a key focus of international research, because it is recognised that when planning for climate changes it's important to have detailed local information not just a broad brush global picture.

Projections for New Zealand

9. The basics of climate change are simple enough. More greenhouse gases in the atmosphere means more warming. How much warming, where and when, is much more difficult to work out. NIWA's most recent modelling, detailed in Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand, is based on GCM runs conducted for the Intergovernmental Panel on Climate Change (IPCC) Fourth Report, published in 2007, using what's known as a "middle of the road" scenario for greenhouse gas emissions. This scenario projects an increase in the global average temperature of 3ºC by the 2090s. In New Zealand, the warming is projected to be 1ºC by the 2040s and 2ºC in the 2090s, significantly lower than the global increase. This is because the oceans surrounding NZ will take a long time to warm up, and effectively act as a buffer against warming -- just as they do from season to season. If global temperature increases are greater than projected in this scenario, NZ would still be likely to experience a slower rate of warming than most other parts of the world.

Global impacts with New Zealand relevance

10. The IPCC projects that over the immediate future, modest amounts of climate change could boost agricultural production globally, but that by the 2030s some regions (notably Africa) could be experiencing severe food production problems coupled with water shortages. This suggests that while demand for New Zealand's agricultural exports may fluctuate in the short term, the long term outlook for our agricultural producers may be good.

11. However, societal dislocations caused by climate change impacts in overseas markets - for instance, sea level rise causing flooding and creating refugee problems in the Asian megadeltas - could create considerable economic challenges for NZ and the world, and make it difficult to realise any local competitive advantage.

Drivers of New Zealand's climate

12. New Zealand's climate is determined by its position in the South Pacific/Southern Ocean. The north of the country reaches up into the sub-tropics, while the south dips down into the strong westerly winds that circle the planet -- the "roaring forties". Strong moisture-carrying westerly winds hit the west coast of both islands (but especially the South Island) and deposit large amounts of rainfall. As those winds cross the Alps, they warm up and become the dry Norwester so characteristic of the South Island east coast. The north of the country is also strongly influenced by conditions in the tropics -- tropical cyclones moving south can bring damaging rainfall events.

13. The large cool ocean surrounding the country provides a strong moderating influence on our climate, keeping summers cooler and winters warmer than would be experienced on larger landmasses at similar latitudes. As warming progresses, the westerly winds to the south of the country are expected to intensify (some intensification has already been observed), and a poleward expansion of the tropics is expected to impact the north of the country later in the century.

14. New Zealand's climate is also notably variable -- successive years can differ in average temperature by up to 1ºC. One of the primary drivers of this variability is the El Niño/La Niña cycle, also known as the El Niño/Southern Oscillation (ENSO) a 3 - 5 year cycle of changes in tropical sea surface temperature that affects weather patterns around NZ. During El Niño events, much of the country can be cooler than normal and the east coast of both islands can experience drought, while La Niña brings general warming and less rainfall to the west.

15. As the century progresses, the ENSO cycle will be overlaid onto the gradual warming, so that while cool years will still occur, they will themselves be warmer. By the 2040s, for instance, a "cool" year is likely to be the same temperature as one we currently think of as warm.

NIWA summarises the expected changes thus:

- increasing temperatures over the whole country
- increasing annual average rainfall in the west of the country and decreasing annual average rainfall in Northland and many eastern areas

- reductions in frosts
- increasing risk of dry periods or droughts in some eastern areas
- increasing frequency of heavy rainfall events
- rising sea level

16. In considering the impacts of change on river flows on the east coast of the South Island, we need to look at expected changes in rainfall both at the sources of the rivers, and on the land around those rivers as they flow to the sea. The demand for water from those rivers will be determined by the impacts of climate change on agriculture.

Rainfall and drought

17. One of the key climate change projections is that as the world warms, the hydrological cycle will intensify. Warmer air can hold more water vapour (humid tropics, for instance), and water vapour is an important "fuel" for weather systems. This is currently being seen in many parts of the world in an increase in heavy rainfall events, and in NZ every 1ºC increase in temperature is expected to increase the amount of rain in heavy rainfall events by 8%. Early runs with NIWA's RCM suggests that in some areas this could be exceeded. At the same time, general warming is expected to increase the rate of evaporation of water from soils, and in areas of low rainfall the frequency and intensity of drought is expected to increase. NIWA has estimated that severe droughts -- currently thought of as one in 20 year events -- could be twice as common by the end of the century. More moderate droughts are also likely to increase in frequency.

18. Increased frequency of even moderate drought could make dryland farming in some areas economically marginal. If, say, a one in 10 year drought occurs every five years, farms running only modest surpluses may not be able to recover fully before the next drought strikes.

Climate change in Canterbury

19. NIWA's projections for Canterbury are for an increase in average temperature of 0.9ºC by the 2040s and 2.0ºC by the 2090s. Rainfall is projected to decline only slightly at Christchurch and Hanmer, but increase by up to 8% at Tekapo. This reflects the trend towards increasing rainfall on the West Coast and at the Main Divide -- a consequence of increasing westerly winds. The expectation is that

flows in Canterbury rivers that have catchments up, at, or near the Main Divide will increase, at the same time as the incidence of drought increases nearer the coast. This would in effect be an intensification of the frequently observed pattern of Northwester conditions in Canterbury: plenty of water in the rivers while surrounding farmland is dry. Rivers with catchments in the foothills (eg Waipara River) are likely to see reduced flows. Increases in rainfall intensity during heavy rainfall events (at the Divide, and on the coast) is likely to increase the frequency of damaging flooding in all areas.

20. I'm often asked what the future Canterbury climate might be like. This is something I explored in an article earlier this year:

> For our property in the Waipara Valley, 2007 was a dry year -- only 496 mm of rain. 2008 was much wetter: 809 mm in the year, 10% over the average for the last 11 years, and the second wettest in my record. That's been good news.
>
> However, when I look back at the year, nearly 40% of that rain came in just three events -- a big fall in February to break the dry spell, and then two big storms in late July and August, the latter severe enough to cause dramatic flooding in the region. Roughly 320 mm fell in those three events. I had to wash mud out of the garage three times, dig a drainage trench through the truffiere (truffles don't like drowning), gullies eroded, the road slumped, and the Waipara River lowered its bed by half a metre in places.
>
> Take away those big storms, and we had only 489 mm for the year -- a dry year by my standards. Over the ten years up to 2008, we had a total of three comparable heavy rain events (Aug 2000, Jan 2002 and Sept 2003), and then like London buses, three came along at once.
>
> (http://hot-topic.co.nz/nice-weather-for-ducks/)

21. This is only anecdotal evidence, but if you add in the warm spring and summer we've had in Waipara (due to La Niña), you get some impression of what might be an ordinary year in 30 years time. It's been a great year for orchard crops and grapes, but we were using a lot of irrigation water from November through to mid-February.

Hurunui

22. No specific work has been undertaken on the potential impacts of climate change in the Hurunui district or on flows in the Hurunui River, and so what follows is my "best guess", based on interpreting the latest projections. With increasing rainfall at the Main Divide, I would expect flows in the river to increase (perhaps in line with rainfall increases projected for the West Coast - +5% for Hokitika by the 2040s, +8% by the 2090s - but it should be noted that it is possible that increases at the Divide could be bigger because of the intensification of heavy rain events discussed earlier). It's not clear if there would be any significant change in the seasonality of flows, at least through to mid-century, though winter snowpack will decline as warming progresses. By the end of the century there are suggestions in the modelling that the east coast could be slightly wetter in summer and autumn, but drier in winter and spring, while the reverse is true on the West Coast. The implication is that rivers fed from the Divide could see reducing flows towards the end of the century, but from a downstream farming perspective this might be offset by increased easterly rain in the foothills.By the 2040s the incidence of drought in the lower Hurunui catchment is likely to be increasing, as warming increases evaporation from soils and vegetation. The implications for agricultural systems that rely on large scale irrigation is clear enough: irrigation seasons are likely to be longer, and require more water use. There is therefore likely to be increasing pressure to abstract water from the river for irrigation purposes, and a need to examine water harvest and storage options.

Responses to climate change

24. There are two possible responses to this scenario: existing water users may wish to increase their irrigation take in order to maintain their current agricultural system, or they could choose to switch to alternative crops that have good income potential but lower water usage. It's interesting to note in this context that a gradual reduction in the frequency and severity of spring frosts could lead to an expansion of the vineyard area in the region. Vineyards use only a small fraction of the water required to maintain grass growth on equivalent areas, and there has been a significant expansion in vineyard area in the region in the last ten years.

25. Of course, other factors may drive land use change, and given current expectations of the rate of change in New Zealand, it is unlikely that climate

change will force dramatic changes in the first half of this century. Responding to policy actions to reduce emissions in New Zealand, and actions taken in our key export markets are likely to be much more important drivers of changing agricultural practices in the near to medium term. Carbon pricing here and overseas could make high emissions agricultural systems such as large scale dairying less economically attractive, for instance.

26. Whatever the future brings in these respects, it is very likely that pressure to harvest water from the Hurunui are likely to grow as the years pass. Land use change could, however, reduce the amount of water required per hectare, and encourage small-scale schemes that harvest high flows for on-farm storage and later use in dry spells.

Renewable energy

27. Reducing carbon emissions is already an important policy objective for the New Zealand government, in order to meet our obligations under the Kyoto Protocol. This is likely to become even more important beyond 2012 when a successor to Kyoto, currently being negotiated, is due to be implemented. Any post-Kyoto deal is likely to involve steeper targets for emissions reductions. A key part of the policy response in NZ is the encouragement of renewable energy generation. The previous administration had implemented a moratorium on new thermal sources for electricity generation, and though this has been lifted by the new Government, the impetus to develop low and zero carbon energy sources is likely to continue.

28. Hydroelectricity already plays a dominant role in NZ's energy generation profile, and it would be reasonable to expect that in a carbon-constrained economy, opportunities for new hydro schemes would be keenly explored. I am not able to make any judgement about the suitability of the Hurunui in this respect, but would note that advances in small-scale hydro generation could reduce the need for new large Waitaki-style schemes. These could take the form of small run-of river plants, or "head race" schemes utilising water flows in irrigation schemes.

Uncertainty and risk

29. As noted earlier, there are two sources of uncertainty associated with climate projections: the fact that we are dealing with a complex and imperfectly understood system, and the way that our society responds to the issue by

reducing emissions (or failing to). These uncertainties mean that it's very difficult to define the risks associated with climate change, but there are a couple of key points that it's important to understand. The first is that the changes are effectively one-way -- irreversible on a human timescale. Once an ice sheet has melted, or a shoreline disappeared under rising seas, it will not be possible to put it back the way it was. This applies equally to ecosystem responses -- species lost to climate changes can't simply be replaced. The second, and perhaps more important point is that there is a great deal of "inertia" in the climate system. Even if we could cap greenhouse gases at today's levels (and we can't), there would still be 20 - 30 years more warming "in the pipeline" as the system achieves thermal equilibrium. In other words, whatever actions we take to reduce carbon emissions today, we are committed to further warming out to mid-century. These are changes to which we can only adapt.

30. Finally, there is a risk that climate change will not be a gradual (in human terms) process -- that it could proceed faster than we expect or in fits and starts, or that the system could "flip" into a new warm state. These are risks that can't be quantified, but they are things that are known to have occurred in the past, and so can't be ruled out in the future. It should be noted that in some respects, change is already being seen to occur faster than expected, notably in the reductions of Arctic summer sea ice and loss of ice mass in Antarctica.

Summary

31. To the best of our current knowledge, New Zealand is likely to warm up more slowly than the rest of the world. This should make it easier for the New Zealand agriculture and horticulture to adapt to changes. However, warming will bring climate changes to all parts of the country, which can be summarised as a gradual warming (as if NZ were drifting slowly towards the equator), and an intensification of the westerly wind flows that dominate our current climate. In North Canterbury, this is likely to mean increased water flows in the major rivers fed from the Main Divide and reduced flows in rivers with foothills catchments, but warming will also bring increased drought risk to the farmland around those rivers, and increase demand for irrigation water. I therefore consider that it may be prudent to "keep options open" for the future.

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Dated 26 March 2009

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G Renowden

Hurunui Water Project

Consultation and Communication Summary for AEE

June 2009

Janine Holland
5/6/2009

Contents Page

1. Executive Summary

This project is being advanced by Hurunui Water Project Limited. This company was formed by four founding shareholders, Hurunui Irrigation and Power Trust (HIPT), MainPower New Zealand, Ngai Tahu Property and David Teece, the owner of Eskhead Station.

Iterations of the project have been in existence for the past seven years, (under the former name Hurunui Community Water Development Project Water Group) with a longer history of farmer support for a water augmentation scheme for the district.

Tonkin and Taylor studies funded by the project in 2004 looked at 37 different sites for water storage, and compared the economic and engineering feasibility of each site against its environmental effects. The final Stage 1A report summarising Tonkin and Taylor's work was publicly released early in 2006.

The current focus of the project, centring on two specific sites, is the result of these studies, and the work completed in the last 18 months has concentrated in more depth on the effects of a water project on the Hurunui River in particular.

Hurunui Water Project Limited has worked tirelessly over the past seven years to ensure all affected parties are aware of the project's research, its proposal for a water storage scheme and the likely effects and impacts from such a development. While the project has not been as high profile as other water proposals during this period, a proactive strategy of releasing updates on its technical research has helped the project develop close working relationships with a range of stakeholders, even those who have concerns about a water storage scheme. Full and frank exchanges of opinions and concerns have been shared, and the project has committed to taking on board these issues as it designs the water storage scheme.

During the Water Conservation Order process, the project received significant backing from the Hurunui community and we believe there is a high level of support for the project to proceed to resource consent consideration.

2. Overview of Consultation and Communication to date

The project has allocated significant resources to communicating with the residents of Hurunui District, and consulting with the relevant and affected stakeholder groups within Hurunui and wider Canterbury.

More than $100,000 has been spent on identifying and informing interested parties, and providing stakeholders with multiple opportunities to feed back on the project's proposed storage sites, potential effects and outcomes.

Community and landowner-focused consultation began in early 2006 on five possible storage sites, targeted stakeholder consultation occurred in 2008, and a more public consultation on the final two recommended storage sites and potential effects, took place in February this year.

This consultation was halted to allow resources to be diverted into the Water Conservation Order hearings process, but resumed in May with two public forums held in Hurunui District in early June.

From 2006 until this year, there has also been regular public information updates through the media, the project's website, emails to stakeholders and affected parties, and face to face meetings with interested groups.

3. 2001 to 2005

Prior to 2002, the project's consultation and communication consisted of a small group of farmers talking primarily with other landowners, councillors and potential shareholders on an irregular basis about the need for water storage in Hurunui District. At least three project concepts initiated by different groups were being openly debated in the public arena.

In 2002, the Hurunui Irrigation and Power Trust was formed to act as the local voice for landowners interested in water management options. The same year, the Hurunui Community Water Development Project (HCWDP) working group was created with representation from Enterprise North Canterbury, the HIPT, Ngai Tahu Property, MainPower and the owner of Eskhead Station – this grouping merged the interests of parties promoting water development concepts for the Hurunui. The project would act as the vehicle to drive research into the options, and was successful in securing financial support from the Ministry of Agriculture and Forestry's Sustainable Farming Fund (SFF) that had to be matched $:$ by working group members. One of the conditions of this funding was a need for stakeholder consultation; a concept which the working group readily endorsed. During the initial technical reviews undertaken by a consortium of consultants, members of the working group kept their constituency informed of progress. In the case of the HIPT (being the community and landowner base), annual newsletters were distributed to HIPT members, along with , progress reports on the project, and the status of funding.

The working group commissioned Tonkin and Taylor to lead the consultant consortium with a brief to undertake a "greenfields" scoping study of the development options for the Hurunui and Waipara catchments. Their brief was to undertake an assessment of the potential for irrigation in the Hurunui District, to identify the sources of water supply and for storage; to assess environmental and planning issues; to consult with Te Runanga O Ngai Tahu; to assess enhancement of in-river flows, and potential storage This District Scoping Study initially identified 37 potential storage sites of which 7 were seen as viable, and some 61,600 ha of irrigable land. Through a process of technical/environmental review, and discussion with the working group, and in the case of HIPT informal discussion with landowners in the Hurunui and Waipara catchments, a scaled down development was seen as a more cost effective project capable of providing more reliable water for irrigation. Accordingly the project was reduced to 5 potential storage sites in a variety of configurations servicing 38,890 ha. The working group expressed its preferred storage configurations to involve two of these storage sites – Lake Sumner and the Hurunui River's South Branch.

The working group then retained a Communications Adviser to develop and then implement a communication strategy to engage with landowners, the local community and with environmental, conservation and other organisations likely to have an interest in the subject, with the focus of the consultation being the preferred development option.

Prior to the commencement of this consultation programme , the landowners of the 7 storage sites referred to above were all personally visited to make them aware of the impending consultation programme, and its reference to their landholding.

4. 2006 Consultation/Public Information on Stage 1A Report detailing five storage sites

The HCWDP instigated local community and landowner – focused consultation to highlight the information gathered in the report, and to seek feedback on its proposal to further investigate the five sites Tonkin and Taylor deemed to be most feasible.

The consultation was designed to:

- Ensure all affected landowners (which included storage site owners and landowners who would benefit from any storage scheme) were aware of the Stage 1A report and its findings, and were consulted about the development possibilities.

- Assess the level of support amongst affected landowners and the local farming community – particularly in financial terms – for the storage possibilities

- Ensure that other affected stakeholders, and relevant media, were aware of the report and its implications and understood the benefits to Hurunui District of a storage scheme.

- Make available the report in a user-friendly fashion to interested parties in a cost-effective manner.

CD and hard copies of the Stage 1A report were sent to landowners, including those who had funded and supported the project to date. An A3 colour flier was produced and distributed at a meeting with affected landowners and mailed to key stakeholders – this latter group included all recreational, environmental and conservation organisations likely to have an interest in water management of the Hurunui. Other stakeholders were advised by mail and email of the existence of the report and told where and how to access it. Finally, newspaper advertising and media releases promoting the existence of the report and the storage options under consideration were placed in North Canterbury and Christchurch media to widen the debate to the wider public. Submissions were invited from all parties and meetings with interested parties were offered to expand on the available information.

5. 2006: Survey of Landowners and stakeholders

As part of the consultation in early 2006, the board of the HCWDP initiated a survey of landowners and key stakeholders in Hurunui District about their support, or otherwise, for the project.

More than 200 questionnaires were sent out and 190 landowners and stakeholders responded. The overall level of support for the project at 96% (by number) and 88% (by area) was very high. 75% (by number) of respondents said they would be interested in contributing financially to a water storage scheme in Hurunui District from which they could access water. Consultation was on the basis of potentially irrigating 38,890 ha – individual farmer responses totalled expressions of interest to irrigate 32,926 ha. This was considered a very significant response, as it gave a clear indication of support, including financial, and showed the project was viable to proceed.

In August of that year, the project released the results of its survey to the public noting in a media release that:

"Landowners representing nearly 90% of land within a proposed new irrigation area in Hurunui District have written in support of accessing water.

And 3/4 of these landowners say they would financially contribute to a water storage scheme if it delivered irrigation to the district."

More information about the 2006 survey results is included in Appendix 1.1: *An Assessment of Landowner interest in the Hurunui Community Water Development Project* and 1.2*:* 12 August 2006 media release.

6. Runanga/TRONT consultation

From 2002 onwards, Ngai Tahu Property has been one of the main supporters of the project. Ngāi Tahu Property has communicated directly with the environmental representatives of Te Rūnanga o Kaikōura, Te Ngāi Tūāhuriri Rūnanga Inc and Te Rūnanga o Ngāi Tahu to keep them updated on the progress of project.

In 2004, Tonkin and Taylor undertook a consultation with Te Rūnanga o Ngāi Tahu and the affected runanga on behalf of the project, outlining the scope of the investigations at that stage.

In July 2008, a meeting was set up to introduce the new project manager to Te Rūnanga o Ngāi Tahu representative, David O'Connell and Raewyn Solomon of the Kaikoura runanga. Following this meeting, further information was provided about the project and its relationship with other water initiatives in the region.

In September 2008, the environmental representatives of Te Rūnanga o Kaikōura, Te Ngāi Tūāhuriri Rūnanga Inc and Te Rūnanga o Ngāi Tahu were invited to participate in, and feedback on, the pilot Landcare consultation. Raewyn Solomon joined the group and was provided with background materials on the project, and the upcoming consultation design. Raewyn provided advice and guidance on cultural research helpful to the project and expressed views on behalf of the runanga about the project and its proposed consultation. Unfortunately Raewyn was not available for the February 2009 consultation meetings because she was overseas. Other Ngāi Tahu representatives chose not to attend because of their stance on the Water Conservation Order.

In June 2009, after the Water Conservation Order hearings concluded, consultation meetings with Ngāi Tahu resumed. On the 3rd of June, a meeting has held with Raewyn Solomon, Te Marino Lenihan of Tuahuriri runanga, Maree Willets and Paul Horgan of Te Rūnanga o Ngāi Tahu and Edwin Jansen of Ngāi Tahu Property. The outcome of the meeting is that a Cultural Impact Assessment of the project's storage proposal will be commissioned and paid for by the project. Raewyn will provide guidance on how to proceed with this process. Further information is being provided to the affected runanaga and Te Rūnanga o Ngāi Tahu representatives on recent archaeological research and native fish studies, as well as information on similar dam structures.

7. 2007 Public Information and Communication on progress of technical studies

In 2007, the project released information to the public and its farmer investors on the progress of technical studies into the storage sites deemed most feasible.

In May, the project reported via media release to Hurunui newspapers, Christchurch radio stations and the Christchurch Press that:

"Engineering and environmental studies recently completed for the Hurunui Community Water Development Project show a water development scheme is both geologically and environmentally feasible in Hurunui District.

The recently-completed work by independent consultants involved field assessments of the two storage sites under review by the Project; Lake Sumner and the South Branch of the Hurunui River, and the likely off-take site downstream from the confluence of the Mandamus River. All three locations have been assessed for flaws from technical, environmental and cost perspectives. The study showed that significant further work is necessary to assess and address environmental issues in particular and that will be the primary focus of the next stage of the Project.

Over the next few months, the Project will commission further technical studies to determine the preferred flow regime and reservoir configurations at these sites for consultation purposes."

For more information see appendix 1.3.

In terms of consultation, the project still continued to meet with stakeholder groups and affected parties, but the flow of public information was reduced as the focus was on progressing technical studies.

8. 2008 Announcement of new name/structure

In July 2008, a new name and business structure for the project was devised by the Board. As the project moved closer to finalising its preferred water management options, a new, streamlined structure was required to represent the interests of the project. A simple limited company was the result, incorporated on 16 July 2008, with its four shareholders being the HIPT, MainPower, Ngai Tahu Property and Eskhead Station. The Hurunui Community Water Development Project became the Hurunui Water Project Limited, reflecting the transition from a development project to a corporate entity. The name and new structure was announced by email and direct mail to stakeholders and interested parties, and via the launch of a new website.

9. 2008 Launch of website

In August 2008, under the auspices of new Project Manager Amanda Loeffen, a website for the project was launched. The website www.hurunuiwater.co.nz was designed to be an educational and interactive site, with maps, photos and personal stories from HIPT members creating a personal narrative for the project. The website invited comments and enquiries, and gave updates on the forthcoming 2009 project consultation and WCO process. Several hundred website visits have been recorded and noticeable spikes in online activity were shown during the hearings process for the WCO and during the Open Consultation and Stakeholder forums in February 2009.

10. 2008 Landcare Pilot Consultation

In mid 2008, Landcare scientist Dr James Lennox approached the Hurunui Water Project with a proposal. Landcare had secured funding from FRST to research water management in Canterbury and was looking for a 'live' consultation to study and evaluate. The researchers wanted to trial a new consultation model called the Deliberative Multi Criteria Evaluation approach (DMCE) designed by their Australian counterpart, Dr Wendy Proctor of CSIRO. In October 2008, a pilot of the DMCE was run with project representatives and some invited stakeholder representatives. The pilot was successful in airing diverse views and providing methodology for evaluating common criteria that impact on a project. Given the successful outcome, a decision was made to incorporate the DMCE approach into the forthcoming 2009 consultation. Landcare has written a short summary of the process in lieu of a larger report later this year (see Appendix 1.8).

11. 2008 Consultation with key stakeholders on environmental, recreation and cultural concerns

Following the appointment of new Project Manager Amanda Loeffen, a new communications plan for the project was drafted focusing on stakeholder relationships. The intention was to create a programme that encouraged stakeholder participation and feedback from the environmental, recreational and cultural sectors. Existing stakeholder contacts were reviewed and updated and a series of meetings were set up to brief existing and new stakeholders on the current status of the project. The proposed Landcare partnership was explained and invitations to join the forthcoming consultation were made. The outcome of this targeted stakeholder consultation was improved understanding of the concerns of these sectors, and stronger relationship with key contacts. This was borne out by comprehensive representation at the stakeholder forums in February 2009.

12. 2009 Consultation with key stakeholders and the public on proposed two storage sites

In February 2009, two stakeholder forums were designed with advice from Landcare and held in Hurunui District. The aim was to introduce the DMCE approach to the wider consultation, using a range of criteria impacting on the project to draw out views, concerns and perceived opportunities from a variety of stakeholder participants. More than 20 diverse stakeholder groups were invited, including runanga, Fish and Game, Forest and Bird, the Canterbury Canoe Club and the NZ Recreational Kayaking Association, along with community representatives, local government representatives and landowner representatives from Hurunui District. The first stakeholder forum was preceded by an open public forum that attracted more than 60 people. A second public forum a week later saw more than 50 people attend. Including stakeholder participants, the project engaged with more 150 people during the middle two weeks of February. Unfortunately the WCO hearings process was announced between the two stakeholder forums, and for some participants with concerns about the project, this prevented further dialogue. Some participants chose to opt out of the second stakeholder forum, while others sent their thoughts by email, rather than engage directly with other stakeholders at the second forum. The outcome, while less than satisfactory in terms of process, was still useful in exposing the range of concerns and issues held by stakeholders about the project's design and potential impact, and by throwing up solutions and opportunities for the project to explore. New relationships with and between stakeholders have also developed during the consultation process, and contact is ongoing with these parties. For more information see Appendix 1.4, 1.5, 1.6 and 1.7; Media releases from 3 and 26 February 2009, the list of consultation participants and the issues list following the forums.

13. 2009 Post WCO Consultation

The project has called for further submissions and feedback until 30 June 2009. The intent is to ensure that all concerns, issues and opportunities have been captured and addressed in the forthcoming design of the scheme. To this end, two further public forums were held in Hurunui District on Thursday 4 June, one in Cheviot, 10am to 130pm, and one in Hawarden, 330pm to 7pm. More than 80 interactions were recorded, with representation from the farming community, anglers, conservationists and business people. Feedback forms were distributed and input via the website encouraged.

14. Conclusion

Representatives of the Hurunui Water Project have worked tirelessly over the past seven years to ensure all affected parties are aware of the project's research, its proposal for a water storage scheme and the likely effects and impacts from such a development. While the project has not been as high profile as other water proposals during this period, a proactive strategy of releasing updates on its technical research has helped the project develop close working relationships with a range of stakeholders, even those who have concerns about a water storage scheme. Full and frank exchanges of opinions and concerns have been shared, and the project has committed to taking on board these issues as it designs the water storage scheme.

During the Water Conservation Order process, the project received significant backing from the Hurunui community and we believe there is a high level of support for the project to proceed to resource consent consideration.

APPENDIX:

1.1

An Assessment of Landowner Interest
in the
Hurunui Community Water Development Project

Summary
During April and May 2006 the Working Group responsible for the Project consulted with landowners and other stakeholders with the following objectives:

1. Ensure that all affected landowners (which includes storage site owners and landowners who will benefit from any storage scheme) are aware of the Stage 1A report and its findings, and are consulted about the development possibilities.
2. Assess the level of support that exists amongst affected landowners and the local farming community – particularly in financial terms – for the storage possibilities.
3. Ensure that other affected stakeholders, and relevant media, are aware of the report and its implications and understand the benefits to Hurunui District of a storage scheme.
4. Make available the report in a user-friendly fashion to interested parties in a cost-effective manner.

The landowners' interest was assessed with a simple questionnaire designed to ensure a high response rate, to quantify the level of interest as an aid to further design and development, and to provide an opportunity for comment on the Project.

This report summarises the quantitative results, and analyses the comment received from the 190 landowners who responded.

The overall level of support for the Project at 96% (by number) and 88% (by area) was very high. 75% (by number) of respondents said they would be interested in contributing financially to a water storage scheme in Hurunui District from which they could access water. Consultation was on the basis of potentially irrigating 38,890 ha – individual farmer responses totalled expressions of interest to irrigate 32,926 ha. 3461 ha of the farmer responses were from the Omihi Valley area which is additional to the nominal consultation area.

If the response from the Amuri Irrigation Company for more reliable water supplies to shareholders in its command area, and for additional water for adjoining non-irrigating landowners are both included, and adjustments made for individual farmer returns from within the AICL area to avoid double counting, the aggregate level of interest expressed for the Project is 37,629 ha. By any measure that is a resoundingly high level of support for the Project at its pre-feasibility stage of development.

The results of the farmer feedback are a clear statement that there is strong market demand for the Project, and further resources should be committed to its design and development.

For completeness it should be noted that this analysis does not attempt to summarise feedback from environmental and conservation interests, rather it is an analysis of the landowners' responses alone.

Analysis of Landowners' Responses to Questionnaire

1. Questionnaire Distribution

Questionnaires (copy attached as appendix) were initially mailed out to HIPT members prior to the 3 April meeting when they were briefed on the status of the Project. Responses were not binding on the participants in any way, and were made in the context of the Tonkin & Taylor Stage1a report that had been circulated to HIPT members. Subsequent to the HIPT meeting, Trustees determined a significant number of landowners in the proposed command area were not included in the HIPT database. A further list of landowners was therefore directly contacted by Trust members, to advise them of the status of the Project and to seek their response to the questionnaire.

In addition, Omihi Valley farmers, who were included in the earlier stages of the Project but who were omitted from the latter stages because of lack of perceived interest, rallied support and generated renewed interest, which was followed with responses to the questionnaire.

This report summarises all the responses received and the conclusions reached.

2. **Questionnaire Quantitative Response**

In total 190 qualifying landowner responses were received. Additional responses were received from both supporters and detractors but were non-quantitative in nature, or did not relate to the relevant land area.

The Stage1A Tonkin & Taylor Report in a desktop study split the potential demand area into a number of geographical regions to assess peak flow and net storage volumes under various flow regime requirements. These geographical areas or zones have been used to assess the level of potential demand as demonstrated by the responses to the questionnaire. Some judgements were necessary to relate the individual responses to the geographical zones because:

- Some respondents had mailing addresses in different zones from the farm location
- Some respondents used farm names rather than road addresses to identify themselves
- Some respondents were for more than one farm location and may therefore relate to more than one zone
-

Local knowledge was important when assigning questionnaire responses to the geographical zones.

Summary of Responses to Questionnaire

Zone	Description	No. of Replies	Questionnaire Net Irrigable Area (ha	T&T Net Irrigable Area (ha)
1	AICL Balmoral Scheme	6	2197	5240
2	Adjacent to Balmoral Scheme	0	0	2130
3	Balmoral Forest	1	7100	7320
4	Hawarden – north of Waitohi River	30	4043	5030
5	Hawarden – south of Waitohi River	70	7399	8960
6	Scargill Valley	25	2805	4700
7	Upper Waipara – Masons Flat & Pyramid Valley	32	5701	5510
8	Omihi Valley	26	3461	*****
Total		190	32926	38890

**** The Omihi Valley zone was not included in the consultation area, but on an equivalent basis the T&T net irrigable area is 5,420 ha for this zone.

2.1. Zone 1 AICL Balmoral Scheme

Of the 6 replies from within this zone nominating 2197ha of irrigation interest, one reply accounted for 1480ha of irrigable land. The average size of area able to be, or being, irrigated on farms was 366ha. Five of the six replies supported the scheme, and would do so financially, and one gave no comment. Four of the six replies wanted the Project delivering water within five years; the others made no comment on timing. While the number of individual replies received in zone 1 was low, a letter was received from the Chairman of AICL stating:

> *"I write to express our interest in the …Project. Amuri Irrigation owns the Balmoral Scheme which irrigates 5400ha from the Hurunui River. There is an estimate of a*

further 1500-2000 ha which could be irrigated using our distribution infrastructure. This does not include any land currently in forestry.

The Hurunui River is inherently unreliable in late summer/autumn. Our interest in the … Project is firstly the possibility of securing a more reliable supply at an economic cost for existing users, and secondly obtaining a reliable supply of water for unirrigated hectares.

We would support the proposal on the basis that these two objectives can be met, and if not, then on the basis that our current level of supply and reliability remains unaffected."

Many of the individual landowners within the AICL Scheme zone are known to have been relying on the Board of AICL to express an opinion on their behalf to the Working Group, as the existing AICL infrastructure would be integral to any additional irrigation in the AICL command area.

It is therefore reasonable to adopt the position proposed by AICL as representative of landowner opinion in this zone.

2.2. Zone 2 – Adjacent to the Balmoral Scheme

No questionnaire responses were identified as relating to land north of the Hurunui River and adjacent to the existing Balmoral Scheme. Either there was no interest from the relevant landowners (anecdotally this is known to be unlikely for a significant proportion of landowners), or again they were relying on the AICL Board to express an opinion (as above), as the AICL infrastructure would be essential to any distribution in that zone.

It is therefore reasonable to adopt the position proposed by AICL as representative of landowner opinion in this zone, but to be conservative their lower figure of 1500ha potentially irrigable is used in this analysis.

2.3. Zone 3 – Balmoral Forest

The land under Balmoral Forest is owned by Ngai Tahu Forest Estates Ltd, a subsidiary of Ngai Tahu Property Limited. Ngai Tahu Property is represented on the Project Working Group, and fully supports the Project at this stage.

T&T has assessed the irrigable land within Balmoral Forest to be 7,100 ha. Ngai Tahu Property would look to commence the uptake of water to irrigate this land from 2020 onwards. A further 220 ha of potentially irrigable land in other ownerships is adjacent to Balmoral Forest and as there were no responses identified to this land, no uptake is assumed in this analysis.

2.4. Zone 4 – Hawarden – North of the Waitohi River

30 responses were received from within this zone, relating to a total farm area of 7503 ha, with 4043 ha being assessed as irrigable. The largest irrigable area on any one landholding was 620 ha, the smallest was 4 ha and the average was 150 ha.

Of the responses:

- 93% supported the concept of a scheme in principle
- 60% said they would contribute financially to a scheme from which they could access water; 10% would not, and the balance were silent
- 50% said they wanted the water within five years while most of the balance were silent on the matter

The T&T desktop study assessed 5,030 ha of irrigable land in this zone – the questionnaire response is thus 80% of the theoretical estimate. Possible reasons for the difference include:

- individual farmers assessing irrigable land on different criteria (positive and negative) to that used by T&T
- some farmers have their own irrigation supply and could be adopting a "wait & see" approach, or are happy with their current arrangements.

2.5. Zone 5 – Hawarden – South of the Waitohi River

70 responses were received from within this zone, relating to a total farm area of 14,687 ha, with 7,399 ha being assessed as irrigable. The largest irrigable area on any one farm was 380 ha, the smallest was 3 ha and the average was 107 ha.

Of the responses:

- 97% supported the concept of a scheme in principle
- 78% said they would contribute financially to a scheme from which they could access water; 8% would not, and the balance were silent
- 70% said they wanted the water within five years while most of the balance were silent on the matter

T&T desktop study assessed 8,960 ha of irrigable land in this zone – the questionnaire response is thus 82% of the theoretical estimate. Possible reasons for the difference include:

- individual farmers assessing irrigable land on different criteria (positive and negative) to that used by T&T
- some farmers have their own irrigation supply and could be adopting a "wait & see" approach or are happy with their current arrangements.

2.6. Zone 6 – Scargill Valley

25 responses were received from within this zone, relating to a total farm area of 9,458 ha, with 2,805 ha being assessed as irrigable. The largest irrigable area on any one farm was 300 ha, the smallest was 40 ha and the average was 122 ha.

Of the responses:

- 96% supported the concept of a scheme in principle
- 60% said they would contribute financially to a scheme from which they could access water; 28% would not and the balance were silent
- 60% said they wanted the water within five years while most of the balance were silent on the matter

The T&T desktop study assessed 4,700 ha of irrigable land in this zone – the questionnaire response is thus 60% of the theoretical estimate. Possible reasons for the difference include:

- individual farmers not wishing to express an opinion (positive or negative)
- individual farmers assessing irrigable land on different criteria (positive and negative) to that used by T&T
- individual farmers are satisfied with their existing farm arrangements for a variety of reasons, so did not complete the questionnaire

2.7. Zone 7 – Upper Waipara Area, Masons Flat and Pyramid Valley

32 responses were received from within this zone, relating to a total farm area of 28,289 ha, with 5,701 ha being assessed as irrigable. The largest irrigable area on any one farm was 400 ha, the smallest was 10 ha and the average was 184 ha.

Of the responses:

- 100% supported the concept of a scheme in principle
- 90% said they would contribute financially to a scheme from which they could access water; 10% said they would not
- 72% said they wanted the water within five years while most of the balance were silent on the matter

T&T desktop study assessed 5,510 ha of irrigable land in this zone – the questionnaire response is thus 103% of the theoretical estimate. Possible reasons for the difference include:

- individual farmers assessing irrigable land on different criteria (positive and negative) to that used by T&T
- individual farmers at the margin of the command area assuming water distribution will reach their farm when T&T had assumed it would not.

2.8. Zone 8 – Omihi Valley

26 responses were received from within this zone, relating to a total farm area of 7,636 ha, with 3,461 ha being assessed as irrigable. The largest irrigable area on any one farm was 400 ha, the smallest was 4 ha and the average was 133 ha.

Of the responses:

- 92% supported the concept of a scheme in principle
- 69% said they would contribute financially to a scheme from which they could access water; 8% would not, and the balance were silent

- 61% said they wanted the water within five years while most of the balance were silent on the matter

This zone was added in to the survey during the consultation programme. The earlier T&T desktop study assessed the Omihi Valley north of the Waipara River as containing 5,420 ha of irrigable land in this zone – the questionnaire response is thus 64% of the theoretical estimate. Possible reasons for the difference include:

- individual farmers assessing irrigable land on different criteria (positive and negative) to that used by T&T
- individual farmers not wishing to express an opinion (positive or negative)
- individual farmers are satisfied with their existing farm arrangements for a variety of reasons, so did not complete the questionnaire

2.9. Overall Assessment

Consultation on the Stage 1A Report was based on an assessed 38,890 ha of irrigable land at an average delivered cost to the farmers land of somewhere between $2,500 and $4,500 per ha. There are many assumptions implicit in that cost range, not the least of which is the flow regime for the Hurunui River and the capital cost of constructing storage and distribution systems. There is also a requirement of critical mass to be achieved when delivering water at an economic cost to outlying parts of the command area. Respondents expressed comments on these and other matters which are summarised below.

The aggregate area of interest in irrigation that relates directly to the 38,890 ha theoretical calculation, is 34,168 ha. (This is derived by excluding the Omihi areas, and adjusting the zone 1&2 individual responses to take account of the AICL submission.) This is 88% support by landowners within the potential irrigable area, and is a strong endorsement of the Project.

The expressions of interest of a further 3,461ha of irrigable land from within the Omihi Valley (which was added back into the Project because of landowner interest) warrant closer investigation of the economics of delivering water to this catchment.

While there are considerable engineering and environmental issues to be addressed for the Project as a whole, the level of support demonstrated is sufficient to justify further investment in design and development of the Project.

3. Questionnaire Themes from Comments

3.1. Support for concept of water storage scheme

The main reason given for supporting a water storage scheme for Hurunui District was "*Irrigation is essential for the future of the district*". Respondents talked about irrigation boosting production, allowing them to diversify land use, and its flow-on benefits for the wider community in the way of increased employment, healthier farm incomes, more viable support businesses and a diversified service industry in the district (33 respondents).

This theme was noted not only by respondents who would benefit from the scheme, but also by those who would not benefit, either because they were out of the proposed irrigable area, already had their own irrigation, or because their age (close to retirement) made it unlikely that they would invest in the scheme.

The next most common theme was the opportunity an irrigation scheme provides for greater profitability for individual farms via intensification and diversification of land use (29 respondents). It is interesting to note here that a small group of respondents also commented on this theme, but in a negative tone. An irrigation scheme would allow for potential further diversification - this was seen as a synonym for dairying and these respondents commented that they didn't want to see this occur (6 respondents).

The third most popular theme was the importance of a reliable supply. Some respondents already have irrigation, but mentioned that the scheme would give them a more reliable source of water, especially in a dry summer (19 respondents).

Drought-proofing farms and climate change causing more frequent droughts was the fourth most popular theme cited to support a storage scheme (15 respondents).

The fifth most popular theme was the ability this irrigation scheme, with its dam component, would have to benefit the environment by helping to maintain healthy, minimum river flows, especially during summer. One respondent was a keen fisherman and commented on the already low flows the Hurunui River experiences in summer, mentioning that this scheme should assist in elevating them. (12 respondents).

The sixth most popular theme was a perception that taking surplus water out of the river system and storing it for future use was an efficient and clever idea. In particular, storing water over the winter months for summer use, was seen by several respondents as a good idea (9 respondents).

Other respondents mentioned that dry land farming was becoming more difficult and that the district had a huge water catchment, which should be utilised. Several respondents mentioned that groundwater supplies are no longer reliable or sustainable and the district is short of other water sources.

3.2. Support for Timing of Irrigation Development

More than any other issue, the most common concern shared by respondents was the need to progress the scheme immediately.

The overwhelming majority of respondents (71) want the development to occur as soon as possible. Common reasons given included the age of the respondents ("*In ten years we will be heading for retirement*"), the possibility that costs will increase markedly if the development takes too long, a concern that future legislation will slow down or, in a worst case scenario, kill the project, and a fear that water supplies are already unreliable, and will become worse in the next few years.

However, another group of respondents (14), while supporting the concept, want the development to proceed over a slower timeframe. For a range of reasons, including the time needed to convert from other land uses, personal financial circumstances, and reservations about the level of

community support and the viability of the scheme, these respondents suggest a "ten year" or "later" timeline would be more appropriate and achievable.

Many of these respondents also share reservations about the cost-benefit analysis of the scheme. 17 respondents asked for more information about the likely costs involved and asked for the ability to withdraw their support/reserve their final judgement until this information is forthcoming. Some of these respondents have queries or suggestions about how the water will/should be delivered to the farm gate, and suggest decisions around delivery will affect their final support levels.

Ten respondents suggest the scheme will be uneconomic or too expensive for them to participate. The reasons given include the type of farming they are undertaking does not lend itself to irrigation or will not hugely benefit this style of farming. Others were critical of what they perceive as a costly design and delivery route for the scheme.

3.3. Additional comments about the Project

Most respondents urged the Working Group to progress the Project as quickly as possible. A common sentiment was "*Without water for Hurunui District, the area will not progress as it could*".

As noted above, 17 respondents noted the need to know the costs upfront before work begins.

Two respondents mentioned the need to get everyone with irrigation potential involved and the importance of making sure everyone who could benefit from the scheme was a paid-up member.

One respondent thought one group was needed to control all water management in Hurunui District, and this group should not have any farmer users on it. Another respondent suggested a landowner irrigation company be formed, with any additional funds provided, being made available as shares in the company.

One respondent encouraged the Working Group to keep submitting on the NRRP, recognising the importance of the plan on the district's future.

A final comment that summed up the financial concerns of some respondents was "*Any scheme has to be economic for landowners on an ongoing basis*."

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Appendix 1

Hurunui Community Water Development Project Questionnaire

Your View

(Views expressed here are for information purposes and are not binding in any way)

Name:

Address:

Total Area of my Farm: _____hectares.

I do/do not support in principle the concept of a water storage scheme for Hurunui District. My reasons are:

I would/would not be interested in contributing financially to a water storage scheme in Hurunui District that I could access water from.

The area of land that could be irrigated on my farm is _____hectares.

I would/would not be interested in irrigation development in five years time/ ten years time/some other time in the future. My reasons are:

I would/would not be interested in further contact from you to discuss my views.

Additional comments:

Signed _____

Date ___/____/____

Please complete & return to:

David Viles

P O Box 436

Rangiora

1.2

Media Release

12 August 2006

Landowners weigh in behind Storage Proposal

Landowners representing nearly 90% of land within a proposed new irrigation area in Hurunui District have written in support of accessing water.

And 3/4 of these landowners say they would financially contribute to a water storage scheme if it delivered irrigation to the district.

The Hurunui Community Water Development Project surveyed landowners within its proposed irrigation area during April and May.

The two-month long consultation asked landowners for written indications of support to proceed with a water storage scheme, based on the South Branch of the Hurunui River and managing the existing water level of Lake Sumner. The proposal was to irrigate just under 40,000 hectares by supplementing the existing Amuri scheme, and irrigating new areas within the Balmoral Forest, Hawarden, Waikari and Scargill areas.

In response, individual landowners nominated close to 33,000 hectares as being suitable. Of which, almost 3500 hectares was offered up by Omihi Valley farmers, who while not part of the original consultation, saw potential in the Project to deliver water to their properties.

The consultation also received support from the Amuri Irrigation Company, on behalf of individual farmers. The Amuri Irrigation Company already supplies irrigation in the area but does not have the ability to store water. With backing from this organisation, the potential irrigable area for the Project within the initial 38,890 hectares consultation area is 34,168 hectares.

This equates to 88% landowner support

Project Manager David Viles says landowner support has been stronger than expected at this early stage.

“By any measure that is a resoundingly high level of support for the Project at its pre-feasibility stage of development. The results of the farmer feedback are a clear statement that there is strong market demand for the Project, and further resources should be committed to its design and development, along with securing appropriate funding.”

Landowner interest was assessed by questionnaire with 190 responses received. All farmer members of the Hurunui Irrigation and Power Trust were consulted, and other property owners in the potential irrigable area were identified property-by-property and contacted personally.

96% of respondents suggested a water storage scheme was a good idea with 75% saying they would be interested in contributing financially to a scheme. The main reason given by respondents in support was that irrigation was essential for the future of the district. Respondents talked about

irrigation boosting production, allowing them to diversify land use, and its flow-on benefits for the wider community in the way of increased employment, healthier farm incomes, more viable support businesses and a diversified service industry in the district.

But landowner comment was not the only feedback received during the consultation.

The Project's Working Group encouraged other Hurunui community groups and interested parties to submit their views on the proposed water storage scheme.

Opinions from groups as diverse as Fish and Game, the New Zealand Recreational Canoeing Association, the Department of Conservation and several concerned Hurunui residents were received.

Mr Viles says environmental considerations are obviously paramount where the Hurunui River and Lake Sumner are concerned. The Project proposes storage on the South Branch of the Hurunui River and controlling the outflow from Lake Sumner. There is no intention to raise Lake Sumner beyond its natural range of levels.

"It is clear that the community has great affection for these resources and we will be working hard to ensure environmental concerns are brought into the mix."

"From the outset, the Working Group behind the Project has included environmental and cultural considerations in its criteria. It is too early to forecast what the likely impacts will be overall, but when we have further technical and environmental studies behind us, we will be able to clarify these issues for all Hurunui District residents and those with environmental interests."

The Working Group now believes it has a mandate from landowners and the communities in the area to begin further technical studies, says Mr Viles.

"While we have completed some desktop studies that suggest it is feasible to store water in this catchment, we need to undertake more detailed work to finalise a proposed water storage scenario that achieves an appropriate environmental outcome. So the next stage for us is fieldwork, which will include geotechnical surveys and further environmental assessments."

Mr Viles expects by the close of this year, the Working Group will have more detailed environmental and technical information to report back to the community.

For further information contact David Viles, Project Manager, Hurunui Community Water Development Project on phone 027 445 0272.

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1.3

Media Release

14 May 2007

Technical studies give green light to Hurunui water scheme

Engineering and environmental studies recently completed for the Hurunui Community Water Development Project show a water development scheme is both geologically and environmentally feasible in Hurunui District.

Its promoters are now moving to undertake further analysis and consultation to define the parameters for the scheme acceptable to all parties.

“The conclusion is that a viable community-based water scheme is possible and it would achieve widespread economic, environmental and social benefits, “says Project Manager David Viles.

The recently-completed work by independent consultants involved field assessments of the two storage sites under review by the Project; Lake Sumner and the South Branch of the Hurunui River, and the likely off-take site downstream from the confluence of the Mandamus River. All three locations have been assessed for flaws from technical, environmental and cost perspectives. The study showed that significant further work is necessary to assess and address environmental issues in particular and that will be the primary focus of the next stage of the Project.

Over the next few months, the Project will commission further technical studies to determine the preferred flow regime and reservoir configurations at these sites for consultation purposes.

Specific groups such as conservation, recreation and environmental interests and Ngai Tahu will then be approached to discuss specific concepts and to assist in identifying the environmental investigations that should be undertaken. The studies could easily take six to nine months to complete.

A technical design will then be finalised that meets environmental agreements and is financially viable, says Mr Viles.

“We are willing and prepared to take on board any concerns. We expect to spend some time discussing environmental and sustainability issues with the community and with the users of these water resources.”

“Environmental effects will require particular attention. We will be focussing on effects arising from the abstraction and storage of water, and will be assessing how these can be addressed. The Project will use the best land-use and irrigation practices from the outset and will be discussing with farmer groups and environmental interests how this can be achieved to mitigate any adverse effects and enhance positive outcomes.”

The Project has been heartened by research produced by the Canterbury Strategic Water Study (CSWS) which indicates that as long as sufficient storage is developed - there will be enough water in the Hurunui catchment to meet all foreseeable water needs. Mr Viles says the study backs up the

work of the Project and the CSWS's work is helping the community understand the pressing need for water storage in the region.

Environment Canterbury has also recently released its assessment of the impact of climate change on Canterbury and their prognosis for North Canterbury is poor. "With less rainfall and more likelihood of drought, it's clear that the demand for winter water storage in Hurunui will only escalate," says Mr Viles. "This Project will mitigate the climate change effects projected for the Hurunui, if only to sustain current farm practices."

Last year landowners representing nearly 90% of the land within the proposed new irrigation area wrote in support of accessing water. 75% of these landowners said they would financially contribute to a water storage scheme if it delivered irrigation to the Hurunui District.

Based on the Opuha Dam study, when operational this Project will result in an average farm in Hurunui District increasing its surplus by $100,000 per year. More than 1200 extra jobs are expected to be created in the district as a flow-on effect from the irrigation scheme. The Project would be likely to have a whole-of-district economic impact of about $100 million per annum when operational.

The Sustainable Farming Fund has part funded the completed technical studies to date. Other contributors have been the farming community of the Hurunui, Ngai Tahu Property, MainPower and the owner of Eskhead Station.

For further information contact David Viles, Project Manager, Hurunui Community Water Development Project on phone 027 445 0272.

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1.4

Media Release

3 February 2009

Community representatives working with Hurunui Water Project

The Hurunui Water Project (HWP) has invited community representatives to help finalise the shape of its water storage project for Hurunui District.

Members of environmental, recreation and cultural groups along with tourism operators, farmers and small business people, will join project representatives this month to look at how the project might impact them. The aim is to come up with changes to the project design in advance to alleviate concerns.

Members of the public will also get their chance to have a say on the water storage proposals, based on the Hurunui River and Lake Sumner, with two open forums in Amberley on Thursday 12 and Thursday 19 February.

Project manager Amanda Loeffen says while the community was consulted in 2006, a lot has happened since. "Now that we have two preferred sites, it's appropriate that we sit down with people and address their specific concerns. We want to hear how we can design the project to lessen its impact.

*Landcare Research is assisting HWP run the consultation group, using an innovative model for community consultation developed by Dr Wendy Proctor of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia. Landcare Research and CSIRO's involvement is part of the project 'Old Problems, New Solutions', funded by the Foundation of Research, Science and Technology.

"This type of consultation is groundbreaking as it has never been used in New Zealand before. We're hoping to bring together disparate viewpoints on how the Hurunui River should be managed and come out with some really positive solutions to people's concerns," says Ms Loeffen.

"The intent is not compromise, but a greater understanding of the views held about a natural resource like the Hurunui River. We hope to discover solutions that can make a project like ours more acceptable to the community."

The group of around 20 will meet twice this month to debate issues with project representatives and technical experts, who will outline research relating to the river and Lake Sumner. The group may also resume talks once further technical studies are complete.

The HWP plans to put a resource consent application for a water storage scheme into Environment Canterbury this year, but will be guided by feedback from the consultation group.

Ms Loeffen says the project plans to inject regular flows into the Hurunui River during summer, creating a higher minimum flow for the river and improving levels in nearby streams.

"Among the benefits we hope to see are higher flows for swimming and kayaking, healthier fish and aquatic life and a reduced risk of river algae. The project is also considering the possibility of a new recreation lake close to populated areas in Hurunui."

The HWP is a collective of different interests ranging from members of the Hurunui Irrigation and Power Trust (HIPT) which represents more than 200 farmers in Hurunui, Mainpower, Ngai Tahu Property and the owner of Eskhead Station. More information on the project can be found on www.hurunuiwater.co.nz

Open Forums

Thursday 12 Feb, 10.30am until 12.30pm

Thursday 19 Feb, 2.30pm until 4.30pm

Anglican Church Hall

Church Road, Amberley

Drop in for coffee, view the displays, talk to a project representative and tell us what you think of our current proposal. Public feedback will be sought by 31 March 2009.

For more information contact Amanda Loeffen, Project Manager, Hurunui Water Project, ph 021 359 049 or email info@hurunuiwater.co.nz

*For further information on the 'Old Problems, New Solutions' project please contact Dr James Lennox of Landcare Research on ph 03 321 9718 or via opns.landcareresearch.co.nz

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DMCE consultation participants

February 2009

- Invited but declined invitation

Name	Contact	Representing	Geography
Environment			
Fish and Game	Tony Hawker	Fish and Game	Christchurch
Canterbury Fly Fishing Club	John Sanders	Canterbury Fly Fishing Club	Christchurch
Forest and Bird	Chris Todd	Forest and Bird	Christchurch
Recreation			
White Water Kayakers Assn	Ian Gill-Fox	White Water Canoe Club	Christchurch
New Zealand Recreational Canoe Assoc	Robin Rutter-Baumann	NZRCA	Christchurch
Cultural			
Ngai Tahu	Raewyn Solomon	Te Runanga Kaikoura	Hurunui river north into Kaikoura District
Ngai Tahu	Te Marino Lenihan	Te Runanga Tuahuriri	Hurunui river south to Waimakariri
Government			
ECan	Herb Familton	Environment Canterbury Planning	Christchurch
HDC	Mayor Garry Jackson	Hurunui District Council	Hurunui
HDC	Cr Winton Dalley	HDC Hurunui ward	Hurunui
DOC	Dave Newey	Department of Conservation	CHCH
Irrigation			

	Dave Hislop	Dairy/irrigation	Hawarden
	James Costello	Sheep/irrigation	Hawarden
	Euan Frost	Former Dairy/irrigation	Hawarden
	Mark Zino	Sheep/Irrigation	Hawarden
Community (includes tourism/ business)			
	Marg Wright	Farmer's wife. Search and Rescue	Hawarden
	Sam Mahon	Environmentalist, sculptor	Waikari
	Lesley Shand	Environmentalist, local land owner	
	Jim Russell	Landowner of Rakaia Incorporated	West Coast
	Tim Elms	Retired/angler/fire brigade/Licensing Trust	Hawarden
	Lyndsey Miller	Owner Waikari Garage/Rural Women/Garden Club	Waikari
	Lawrie and Jenny O'Carroll	Alpine Horse Safaris, farm close to Hurunui River	
	Mary McIntosh	Roving Adventures 4WD company	Mt Lyford
	Roger Strong	Tourism rep, owner of Hurunui Hotel and accommodation development	Hurunui
	Neville Sommerville	Ex top dressing pilot/angler/boatie/salmon fisherman	Cheviot

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Hurunui Water Project Stakeholder Consultation Feedback Summary

February 2009

Issue (Criteria)	From	Comments/Feedback
River ecology upstream of Mandamus	Workshop2	Ecological matters can be mitigated due to the low head and low key nature of the scheme. The only problem is a bit of mess as its being set up; however the constructions are minor at best. The mess of construction can quickly recover in more extreme constructions; so within 18 months this scheme will barely be seen. Is there any comment from the electric power side of things?
River ecology downstream of Mandamus	Workshop2	One of the positives may be returning water to the Waitohi? I find the out-of-river water storage idea more offensive than in-river storage. On the McKenzie none of the potential problems that cause uproar before it was built have happened. Implications for wildlife, fauna and flora needs explaining and assurances are required.
Fish Passage	Workshop1 Workshop2	How will fish passage on the dam work? With a bit of mechanical interference at the lower South Branch could you make an artificial spawning area? What other streams downstream of Hurunui South Branch provide spawning grounds for salmon? A dam on the South Branch could potentially collapse salmon fishery on Hurunui, severely affecting trophy fishing 80% of salmon spawning occurs in the north branch above Lake Sumner and South Branch combined, main spawning is above where dam site is proposed to be? Can't be certain that they will get up other tributaries? 80 salmon in Balmoral Settling Ponds which were put back into the Hurunui, plenty of fish in other areas?
Surface Water Quality	Workshop1	Water quality is a big issue because it's our drinking water. Extremely important to district as water supply is drawn from surface water and shallow aquifers. Currently there's an algal bloom. I can only see it as a positive if a

	Workshop2	bigger flow prevents this in the future. Will the quality of water improve? 60% of the people in Cheviot drink water straight from the tap. Have to think about land intensification if dam goes ahead, would it change water quality and have effects downstream?
Groundwater quality	Workshop1	Impact on shallow aquifers from dam?
Terrestrial ecology upstream of off take	Workshop2	Retain biodiversity; protect endangered birds and species that live in river bed.
Terrestrial ecology downstream of off take	Workshop2	Retain biodiversity; protect endangered birds and species that live in river bed.
Flow on benefits to wider community	Workshop2	Have you done any modeling on Morris Duncan's latest report? It might be worth having a look at. Economic benefits from scheme in excess of $10milion. Lots of small businesses/schools/community/sporting groups currently suffering. The buzzword at council is 'wellness'. Economic, social and physical wellness. Stress in the community has downstream effects across the board into the kids in the schools. The river has the ability to solve a lot of these issues.
Economic benefit to farmers	Workshop2	Small farms will become unviable, need irrigation to make sustainable. It'll lead to more diversity in the area. Not all farmers will move to dairy farming. Look to increase flows because we're on water restrictions regularly. The desperation of farmers in dry regions is ongoing. The challenge is to keep cost low so the cost per hectare is low. This will affect whether people change their style of farming (sheep vs. dairy) Risk factor of the cost of the project. Farmers don't have the money to do it. Risk even for just the cost of going through the courts. It'll cost a lot of money to fight the WCO in the Environment Court. People from the city go out to use the river and recharge their batteries through re-creation. For farmers even when they are on holiday there is constant stress. A bit of water could relieve this stress. The district's wealth depends on the land. All residents depend on the

		land therefore we need to make it prosperous.
Recreation	Workshop2	Character of Hurunui changes with flows. Low flows good for beginners. We can make it work in with the canoeists for set days of increased flow for them. I don't think less people will kayak because of this scheme; they'll just come out at different times. 99% of kayakers won't be affected. You probably don't understand what we need (kayakers). At the moment for South Branch the land isn't private land; so you're not allowed to build on it anyway. It seems bizarre you could gain consent for a project you can't actually build because of the land ownership side. If you did everything below Mandamus I wouldn't be able to comment on where I don't go It could lead to better access for boating.
Tourism	Workshop2	We cross the Hurunui a lot with Alpine treks. More water would enhance the trek rides.
Community Infrastructure	Workshop2	The school roll is dropping at local school – this would be steady if the population was more stable.
Landscape values	Workshop2	My main query is with the water crossing our property. If the water is used for irrigation 120 days a year, the rest of the time it would be used for power production with a power station on our land. We don't want open canals across our flats. We'd be happiest if it was piped across the flats.
Fishability	Workshop2	The Hurunui is not a good salmon river. I see this as an opportunity to create a good salmon fishery because of a higher flow regime in the summer. I sell fishing licences and the price goes up each year. People often ask for a guarantee of catching a fish. It could increase flows at times of low flow to get the fish further up the river and create a new fishery at the south branch with an artificial spawning area. I go fishing every week. I've heard about the fish dying before they reach the spawning ground. Increased flow would increase fishing greatly. Tony (of Fish & Game) said last week building a dam on the South Branch would collapse Salmon spawning in that area. Is he wrong? In terms of their WCO, from their point of view are they just targeting

		brown trout? So they're not actually interested in salmon anyway? Possibility of stocking new lake with trout to increase lake population.
Cultural	Workshop2	A big positive of the scheme is that Ngai Tahu owns the Balmoral forest; so it's important they get benefit from their land. They therefore need water. Maori cultural values should be brought to this forum. Lake Sumner may require its own criteria reflecting its values to Maori

<u>Queries following Amanda's summary, workshops 1 and 2</u>

- You need to look at the Lake Sumner option and see if the height of it can be amended so you can do away with the South Branch option
- Address issue of public access to lake on South Branch dam. Assurances of public access to all affected areas involved in project.
- Explain how compliance of HIPT Best Practices document will be addressed?
- The South branch photo simulation – how much irrigation is that simulation for?
- At the end of the irrigation season, how much water would be left?
- What is the life of the dam? Would it silt up?
- Would there be an allocation of who pays what?
- If you're at the river mouth that could be an advantage?
- 32,000 hectare irrigation area – is that both lake Sumner and South Branch?
- Lake Sumner scheme based on 2m variation rise and fall. From the photo simulations even at 2m there's plenty of beach to forest level. What's the additional irrigation if this is increased to 3m?
- Doesn't a fresh happen in nature anyway?
- With the extra half metre at Sumner would you still have to do a high dam on the South Branch gauge?
- I'd heard the South Branch had been a lake at some point in the past, is this correct?
- In the lower reaches would the scheme be an advantage to remove some of the effects of flooding through flood control? This would be an additional benefit. (Cyclone-type floods create more problems around the State Highway 1 area)
- When the Clyde was built there were tunnels. Are there any issues likely with this scheme with lake stability?
- Would it be worth the scheme proceeding on the basis of Lake Sumner only? So it could increase the reliability of existing schemes but not much else?
- Why not take peak flows out and store water off-river?
- Is it feasible to take it out through a few smaller schemes working together?
- Opposition to the project – if concerns are about water flows then where the water is stored is irrelevant. If move to off-river storage then there's no feasibility to improve the fisheries.
- Have you done the minimum flows for the scheme? I'd like to see them.
- What effects is the potential minimum flows going to have on normal run-of-river?

Flows of the Hurunui River need to be publicized. Measurements on Hurunui over a number of years above where Waiau River enters it above SH1

1.7

Media Release

26 February 2009

Solutions and issues considered by HWP

The Hurunui Water Project (HWP) will examine a range of issues and review the merits of solutions offered by the more than 150 people who have met with project representatives in the past fortnight.

The project began its second phase of consultation two weeks ago, holding two open forums and two stakeholder meetings in Amberley, which attracted a diverse range of participants.

Among the issues discussed were; the need for regular flows for kayakers in the Hurunui River, protection measures for the salmon and trout populations, possible landscape changes, water quality concerns and the social and economic reasons for water storage. (A fuller list of the issues discussed is appended).

Project Manager Amanda Loeffen says some of the solutions offered by the community to make the Hurunui Water Project more acceptable are innovative. "We've been told of modifications we could make to improve water quality in certain areas and reduce flooding."

"We are thrilled with the response. People have brought us research to improve our understanding, have given us local tips about the area's geography and ecology, and have been forthcoming about the issues we need to address if this project is to go ahead."

Further open forums are planned, but will be put on hold until May with the announcement of hearings for the Water Conservation Order application for the Hurunui River.

"With hearings starting late March, we need to concentrate on presenting the best case possible for use of the Hurunui River. What our recent consultation has told us is that Hurunui residents are interested in development options for the Hurunui River, but they want them to be considered on their own merits, not overruled by a Water Conservation Order process."

The HWP is a collective of different interests ranging from members of the Hurunui Irrigation and Power Trust (HIPT) which represents more than 200 farmers in Hurunui, Mainpower, Ngai Tahu Property and the owner of Eskhead Station. More information on the project can be found on www.hurunuiwater.co.nz

ENDS

For more information contact Amanda Loeffen, Project Manager, Hurunui Water Project, ph 021 359 049 or email info@hurunuiwater.co.nz

Issues raised during HWP's February consultation

(Note: The following concerns, claims and suggestions were voiced by participants at the two stakeholder workshops held on 12 and 19 February 2009 in Amberley. This is only a sample of some

of the workshop engagement, and is not intended as full and complete minutes of these workshops, as an undertaking was made to keep the proceedings confidential).

- Debate over the health of the current salmon population and whether the project could in fact improve the salmon fishery in the Hurunui River because of a higher flow regime in summer.
- Potential to increase flows at times of low flow to get the fish further up the river and create a new fishery at the south branch with an artificial spawning area. Claim that many fish die before reaching current spawning ground.
- How the flows of the Hurunui affect kayakers and other recreational users. A claim that low flows suit beginner paddlers, but that other kayakers will need high flows.
- The impact of water storage on biodiversity and threatened birds.
- Discussion over the economic and social situation in the district. A claim 40% of small businesses in Hurunui have gone under in the past 12 years. The disappearance of social, sporting and community groups as the population shrinks and fewer people find work locally.
- A claim recreationalists from the city use the river, but don't offer anything to the local community.
- Concerns over the viability of small farms in the district without irrigation. How farming can be made more sustainable. A move towards direct drilling.
- A claim the project will contribute significantly to the community, along the lines of the investment the Opuha scheme has made in South Canterbury.
- The issue of water quality for drinking. Concern over algal blooms and a claim higher flows may prevent these.
- Higher flows enhancing aesthetics for horse trekking operation.
- Queries over power station location and use of open canals.
- Benefit for Ngai Tahu owning Balmoral Forest land.
- Need to make more money from exports.
- Improved access for boating.
- Claim farmers are feeding out nine months of the year so need to produce in the other three months.
- Challenge to keep project cost low so the cost per hectare is low. This will affect whether people change their style of farming (sheep vs dairy)
- Risk of losing community and small farms either way. (This view was challenged by others in the room)
- Risk factor of the cost of the project. Farmers don't have the money to do it. Risk even for just the cost of going through the courts.
- Economic, social and physical wellness. Stress in the community has downstream effects across the board into the kids in the schools. Claim River has the ability to solve a lot of these issues.
- Comment on local school rolls dropping. Claim this would steady if project went ahead.
- Claim project will allow the community to regenerate
- Claim district is getting drier and will continue to do so.
- Claim district's wealth depends on the land. All residents depend on the land therefore we need to make it prosperous.
- There are no massive input canals or big construction works for this scheme because it's a simple scheme. It's not trying to make water, just spread it further. When the scheme goes ahead you'll barely notice it's there. Ecological matters can be mitigated
- Maori cultural values should be brought to this forum.

Landcare Research
Manaaki Whenua

MEMORANDUM

To:	**Ms Amanda Loeffen (Hurunui Water Project)** **Ms Janine Holland (Hurunui Water Project)**
Cc:	**Dr Wendy Proctor (CSIRO)** **Mr Chris Mene (Mene Solutions)**
From:	**Dr James Lennox (Landcare Research)**
Date:	**8 June 2009**
Subject:	**SUMMARY OF LANDCARE RESEARCH'S INVOLVEMENT IN HURUNUI WATER PROJECT'S PUBLIC CONSULTATION PROCESS IN NORTH CANTERBURY**

As part of the research project, 'Old Problems, New Solutions', Landcare Research is investigating tools that can support complex decisions concerning the allocation and use of water resources. Such decisions typically involve making choices having a wide range of impacts (economic, environmental, and social) that affect many different stakeholders (farmers, recreational users, hapū and iwi, environmentalists, etc.).

Furthermore, many impacts cannot easily be quantified, still less reduced to a dollar value. Storage options for North Canterbury proposed by the Hurunui Water Project (HWP) present such challenges. Landcare Research therefore agreed with HWP to trial a new technique for structured, participatory decision-making as part of HWP's public consultation process.

The Deliberative Multicriteria Evaluation (DMCE) process has been developed by Dr Wendy Proctor (CSIRO, Australia) and applied to similarly complex decision processes. The DMCE process helps to structure decision problems involving a choice between alternative options.

Options are assessed against multiple criteria, drawing on scientific and other expert information. Stakeholders participate in the development of criteria, and are also able to express (quantitatively and qualitatively) their priorities and preferences in relation to them

This allows for an overall comparison of the options. However, the DMCE process is not a 'black box' that rates options from 'best' to 'worst'. Rather, it is an iterative process in which the participants can identify areas of consensus and disagreement, engage in a structured and informed debate where there is disagreement, and identify areas where more scientific or other information should be sought to inform the decision process.

Dr James Lennox and Mr Montes de Oca Munguía (Landcare Research) and Dr Wendy Proctor (CSIRO) trialled the DMCE process with a number of HWP board members and other invited participants in October 2008. This session was facilitated by Mr Chris Mene (Mene Solutions, Christchurch). Subsequently, these researchers worked with the facilitator and HWP staff to design a public DMCE process to be managed by HWP.

Key components of the process were:

(i) an open public meeting in late 2008 to introduce the project and the DMCE process;
(ii) selection of invited DMCE participants and dissemination of materials prior to the first DMCE workshop; and
(iii) two or three DMCE workshops, each 2-4 weeks apart.

The DMCE process was applied by HWP in an abbreviated form in two half-day workshops on February 12th and 19th 2009 in Amberley. Open public sessions were held in conjunction with the workshops. Time pressures and the abbreviation of the process led to some weaknesses in the workshop process – DMCE participants were not provided with introductory materials describing HWP's storage options or the draft assessment criteria that had been prepared by HWP staff, specialist consultants and the researchers. Unfortunately Dr Proctor was also unable to attend the first workshop.

One specific problem was that HWP's scoring of options against the evaluation criteria resulted in one of the four options performing worse than the other three, no matter what weights were given to the different criteria. As a number of participants were categorically opposed to these three other options, this caused them considerable concern once the saw the implications of this scoring in the workshop. In our view, these concerns indicated:

(i) disagreement over HWP's scoring of options against the criteria and/or;
(ii) omission of a critical criterion. Either of those problems might have been explored and quite possibly resolved within the DMCE process, given sufficient time.

In our view the first DMCE workshop was successful insofar as it enabled very frank but constructive and respectful dialogue amongst a wide range of participants representing different interests. Many participants expressed appreciation for this opportunity.

On the other hand, the workshop was deficient in the lack of preparation of the participants and insufficient time within the workshop to redress this. This resulted in confusion and/or dissatisfaction of many of the participants with some aspects of the DMCE process, as outlined above. These failings were, however, acknowledged by Ms Loeffen at the end of the workshop, and most participants agreed to continue their participation in the process.

Following the first workshop, HWP determined to discontinue with the DMCE in the second workshop. HWP left open whether the DMCE process or some aspects of it would be resumed at a later stage.

The second workshop focussed on:

(i) an airing of views and opinions of all participants; and
(ii) provision of additional information by way of expert presentations and question and answer by HWP's consultants.

The workshop was well received by the more limited number of stakeholders who attended. Parties supporting the WCO application declined to participate although one member of this group attended on their behalf and participated constructively.

Following the second workshop a planned consultation process involving the workshop group was put on hold in response to the announcement of hearing dates for a Water Conservation Order on the Hurunui.

Dr James Lennox
Programme Leader
Old Problems, New Solutions