

**APPENDIX 8  
SOCIAL, CULTURAL AND  
ENVIRONMENTAL ISSUES**

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# SOCIAL, CULTURAL AND ENVIRONMENTAL ISSUES

## 1.0 Purpose

This report addresses the key output described in Milestone 4a.

**Milestone 4a: Public Benefit Issues:** Convene, hold and report on community/stakeholder workshops to identify the social, environmental and cultural benefits and issues around the alternative distribution systems.

The purpose of this document is to report the results of the consultations. Where workshop participants are quoted verbatim, their comments appear in italics.

### 1.1 Approach

The approach used for the consultation was to run two small-group workshops in the heart of the Central Plains Water case study area. The workshops were held at Hororata, one in the evening and one in the morning. A range of community members were invited to participate in whichever of the two workshops best suited them.

To help participants prepare for the workshops, invitation letters included the following:

From the workshops we wish to gain a better understanding from rural community people, farmers and stakeholders of the social, environmental and cultural issues both for and against piped and open channel distribution systems for large-scale water enhancement projects.

**QUESTIONS TO THINK ABOUT:** Two questions you might like to think about before the meeting are:

From social, environmental and cultural perspectives –

1. What do you see are the pros and cons of open channel water distribution systems?
2. What do you see are the pros and cons of piped water distribution systems?

The workshop approach involved two components.

- Firstly an open workshop process with participants discussing their understanding of and attitudes towards the alternative water distribution systems. To help participants understand the two distribution alternatives a presentation was made by Dr Terry Heiler to provide information on how the two systems would operate in the case study area and to explain the technology.
- The second component involved providing participants with a worksheet on which they were invited to record any key messages or issues they wished. At the end of the workshop the worksheets also asked participants to nominate their preferred water distribution system and to list the key influencers/factors contributing to their decision.

## 2.0 Results: The key social, cultural and environmental issues of pipes versus open channels

Participants of both workshops readily identified pros and cons of both distribution systems with consistently the same issues expressed at both workshops. The majority of issues presented were either **for pipes** or **against open channels**, and were predominantly the antithesis of each other, as shown in the Table 1 below.

**Table 1: Workshop outcomes: The key social, cultural and environmental issues of pipes versus open channels.**

<b>Pipes - For</b>	
	<ul style="list-style-type: none"> <li>• <i>Safety good</i></li> <li>• <i>Environmentally friendly</i></li> <li>• <i>Aesthetically friendly</i></li> <li>• <i>Water 365 days for:</i> <ul style="list-style-type: none"> <li>○ <i>Stock water</i></li> <li>○ <i>Fire fighting (some under pressure)</i></li> <li>○ <i>Wetlands</i></li> <li>○ <i>Ponds</i></li> </ul> </li> <li>• <i>Long term Energy saving - water delivered under pressure to some farms means no or little pumping</i></li> <li>• <i>(Pressurised) water during power cut</i></li> <li>• <i>Less land loss</i></li> <li>• <i>More flexibility re placement and location of line</i></li> <li>• <i>Access easier – no limitations</i></li> <li>• <i>Less disruption to farming – access</i></li> <li>• <i>Flexibility of location / line (road side shelter)</i></li> <li>• <i>Long term (once capital paid)</i> <ul style="list-style-type: none"> <li>○ <i>Greater balance of farm types – more chance to pay if water under pressure</i></li> <li>○ <i>Energy saving (less pumping)</i></li> </ul> </li> <li>• <i>Social benefit - potential to supplement rural domestic and stock water year round</i> <ul style="list-style-type: none"> <li>○ <i>Use as grey water</i></li> <li>○ <i>Use in townships</i></li> </ul> </li> <li>• <i>Water saving</i> <ul style="list-style-type: none"> <li>○ <i>Less pressure on river</i></li> <li>○ <i>Less storage or irrigate more land</i></li> </ul> </li> <li>• <i>Water quality advantage</i></li> <li>• <i>More socially acceptable - lower social upheaval</i></li> </ul>

	<ul style="list-style-type: none"> <li>• Access – uphill and around significant features</li> <li>• Saving on bridging costs</li> </ul>
<b>Pipes - Against</b>	
	<ul style="list-style-type: none"> <li>• High upfront capital costs</li> <li>• May be greater disruption installing across farms</li> <li>• Earthquake risk higher</li> <li>• If pipes replace channels, may lose environmental habitat and biodiversity (can be retained at a cost outside irrigation scheme)</li> </ul>

<b>Open Channels - For</b>	
	<ul style="list-style-type: none"> <li>• Potentially turbines to generate electricity, e.g. Mid Canterbury</li> <li>• Improves aquifer recharge</li> <li>• Environmental and biodiversity opportunity – only achieved if the channels flow year round which is not proposed in the CPW case study (flow during irrigation season only)</li> <li>• Possibly warmer water</li> <li>• Cheaper capital cost</li> <li>• Easier to expand in the future</li> </ul>
<b>Open Channels - Against</b>	
	<ul style="list-style-type: none"> <li>• Safety – drowning</li> <li>• Access problems (and resulting increased use of roads for farm travel)</li> <li>• Loss of land to individual, potentially cutting through properties, especially effecting lifestyle blocks</li> <li>• Land out of production – especially reducing small block size</li> <li>• Loss of shelter belts</li> <li>• Moving power lines</li> <li>• Removal of vegetation</li> <li>• Moving buildings</li> <li>• Water loss – leakage &amp; evaporation</li> <li>• Poorer water quality to farms</li> <li>• Environment - canal vulnerable to pollution/contamination (chemicals, fuel and sediment)</li> <li>• Sabotage risk</li> <li>• By-wash water quality issues (N)</li> <li>• High energy use – water pumping required on farms</li> <li>• Less harmonious community process</li> <li>• Land transactions - unwilling land-sellers – high land purchase cost</li> <li>• Maintenance higher and who is responsible?             <ul style="list-style-type: none"> <li>○ Road frontages</li> <li>○ Weed problems</li> </ul> </li> <li>• No water in winter</li> <li>• Young fellows             <ul style="list-style-type: none"> <li>○ Winter racing dry canals</li> <li>○ Summer Jet skis!</li> </ul> </li> <li>• Noise of channels</li> <li>• Potential loss of scheme shareholders if wells are recharged</li> </ul>

The key benefits of the piped distribution system can be summarised as a wide range of community benefits and opportunities, land savings, energy savings and water savings.

## **2.1 Social, Cultural, Environmental and Economic Benefits – Sustainability**

Attempts to separate issues into either environmental or social/cultural were in most cases difficult due to the high level of overlap between the two categories. Key issues identified as fitting these categories were:

### **2.2 Environmental**

- *Mud fish – habitat comes with water = either system*
- *Winter problems with dry open channels*
  - *Empty canals smell?*
  - *Dust?*
- *Didymo in channels?*
- *Unknown effect of surface area of water from channels*
- *Fish screens out of headrace an issue for pipes and channels*
- *Water savings from pipes available for community parks and reserves*

### **2.3 Social/Cultural**

- *Pipes are less invasive (lower visual impact) to non-irrigators community members. i.e. out of sight, out of mind*
- *Benefits of scheme to wider community (easier access with pipes)*
  - *Domestic garden water supply*
  - *Lifestyle block water supply*
- *Intergenerational opportunities*
- *Potential for potable water – high quality standard*
- *Water quality better with pipes*
- *Pipes*
  - *Energy efficient*
  - *Carbon credits*
  - *Efficient use of water*
- *Water savings from pipes available for community parks and reserves*
- *Headrace recreational opportunities*
  - *Maximise – bridges high enough for boats to pass under*
- *Present stock water – include into irrigation scheme and get savings and priority water*
  - *Maintenance savings*
  - *Water savings*
  - *Land savings*
  - *Increased water quality with troughs*

A significant outcome of the workshops was that the majority of the piped distribution benefits could not be classified as just social or cultural or environmental benefits, but did in fact cross two or all of these classifications and in many cases offered economic benefits as well. Good examples were energy savings, achieved by having water delivered to farms under pressure in pipes and thus reducing or eliminating the need for pumping, and water savings, achieved by piping and giving the benefits of lower extraction, less storage volume and/or more water for irrigator and community use. The conclusion being that piped distribution offered the all-encompassing benefits of **SUSTAINABILITY**.

## 2.4 The Key Influencers

Toward the end of each workshop all participants were asked to nominate their preferred water distribution system and to list the key influencers/factors contributing to their decision. Responses were written on the anonymous worksheets.

**Table 2: Have you made a decision of a preferred water distribution system?**

Total participants	Open channels	Pipes	Undecided
32	0	31	1

The participants who preferred pipes recorded the following key influencers contributing to their decision (grouped into common themes):

- Land saving, no wastage, minimal loss of productive land
- Smaller footprint, minimal intrusion, more versatile
- Greater variety of land use
- Access easier
- Safety (road and children)
- Environmental benefits
- Social benefits
- Aesthetic benefits
- Energy efficiency, water under pressure on-farm, will counter future power price increases, potential power generation
- Water efficiency, conservation and lower losses
- Water quality, no pollution
- Increase in ground water flows
- Water 365 days
- Opportunity to provide farm and community needs other than irrigation (fire fighting, stock water, household water, intensive horticulture)
- Better long term outcomes for local and New Zealand communities
- Less disruption for community and farming systems
- Higher acceptance by wider community
- Ease of consenting
- Longevity, lower maintenance and running costs

The one undecided participant noted that open channels have potential ecological and amenity benefits, but qualified this for irrigation channels by saying:

1. *Most potential values of channels for biodiversity/ecological and/or amenity values do not exist if water is only in channels over irrigation season.*
2. *In general, piped systems more efficient, therefore could mean less pressure and impact on the rivers by way of less abstraction*

## 2.5 **Wrap-Up Final Messages**

The final worksheet question asked for; 'Any final messages for us about piped vs open channel water distribution?' Responses were:

- *Bring it on – quicker the better*
- *Cost important, must be profitable, way funding is structured is important*
- *Pipe the scheme – we are building a scheme that will last for generations – build the cost into the generations through loans – maybe outside investors*
- *Farm access will be appalling with open channels*
- *Stock Water races*
- *Go for pipes*
- *The social and environmental benefits of piped schemes need to have some funding benefits outside of farmers*
- *The flow on benefits of piped scheme benefit whole community*
- *Room for government assistance to achieve long term result*
- *Need to “comparatively value” non-financial benefits (social, environmental and national benefits) then prepare rational for community to pay something for these benefits*
- *Get this message to government – MAF, ministers, local and central government. Talk to them about intergenerational costs and how this can be funded e.g. interest only, underwriting etc*

Of note are the responses from several people volunteering suggestions of how to overcome the high capital cost of pipes to deliver an affordable and profitable irrigation scheme. The opportunity for a piped irrigation scheme to offer benefits to the wider community over many generations was an important issue discussed at both workshops. To achieve these benefits, intergenerational funding of the higher capital costs of a piped distribution system was seen as fundamental to achieving the benefits and outcomes sought.