

## **SUBMISSION ON INFRASTRUCTURE: FACTS & ISSUES September 2009 – Towards the First Infrastructure Plan**

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INZ (Irrigation New Zealand Inc.) wishes to be heard in support of its submission. However, if others make a similar submission we are happy to present jointly.



**(Andrew Curtis CEO Irrigation NZ)**

### **Overview**

INZ is a national body that promotes excellence in irrigation development and efficient water management throughout NZ (New Zealand), based on the principles of responsible and sustainable management of water resources. INZ is a national organisation that represents the interests of 3,500 irrigators totaling 350,000ha of irrigation (approximately 50% of NZ's irrigated area). All the key irrigation service providers (trade and consultants) are also members.

INZ has reviewed the Infrastructure Facts and Issues document and is encouraged by the inclusion of rural water infrastructure. This is a positive step, recognising both the existing and potential value that NZ's plentiful water resources provide for the NZ economy. However, the rural water infrastructure component of the document needs to better portray both the actual and potential, benefits and opportunities that existing, new and the upgrading of existing water infrastructure, would create for NZ Incorporated.

### **Irrigation and Water Storage**

NIWA climate change predictions for the East Coast of NZ depict a scenario of higher temperatures, lower rainfall and more frequent, extreme climatic events. Ultimately this will jeopardise farm and thus community viability. However, for the south island, greater (though less reliable) flows are predicted for the alpine rivers. As a result, the development of on-farm irrigation combined with water storage infrastructure, for both new irrigation and future proofing existing schemes, are the key to building resilience to NZ's primary sector and thus the country's export earnings.

The development of irrigation and water storage infrastructure creates opportunities for considerable economic, cultural, social and environmental benefits. This has been clearly demonstrated by the Opuha Dam and associated irrigation development in South Canterbury. Based on the 2006 Opuha *ex post* economic study<sup>1</sup>, irrigation is estimated to have increased farm output by \$124million per annum and to have created 480 full-time jobs.

From a purely economic viewpoint, it is estimated that the resulting increased productivity from run-of river irrigation, in comparison to dry-land farming, enables a two to three fold increase in gross farm income. Increasing run-of river reliability, through water storage, opens up additional land use opportunities, for which the increase in gross farm income can be greater still. Irrigation and water storage therefore, have a major role in maintaining and developing NZ's rural capital.

There is much potential to increase the area of land under irrigation in NZ, with associated economic, environmental, social and cultural benefits. For Canterbury this has been recognised in the draft CWMS (Canterbury Water Management Strategy). In the strategy a target of 850,000ha of irrigation has been set to be achieved by 2040. There is approximately 640,000ha of irrigation currently consented. However, due to un-reliable run-of river supplies, some of the 640,000 ha consented is not irrigated. Therefore, without the development of water storage infrastructure, the region will fail to realise its potential. As recognised in the CWMS, the development of water storage infrastructure is dependent on utilising the alpine water resources.

In addition to the potential increase in irrigated area, water storage increases the reliability of water supply for irrigation. This in turn enables increases in the effectiveness and efficiency of water used for irrigation. The reliability provided by water storage is a key factor in delivering both economic and environmental outcomes. An assured supply of water, on an 'as and when' basis, gives irrigators the confidence to adopt high value land uses. It also enables irrigators to optimise water use efficiency, running deficit irrigation strategies that minimise losses (both water and nutrient) from the system and therefore the environmental footprint. This is in direct contrast to run-of- river systems, where a 'just in case' irrigation strategy has to be used if productivity losses are to be minimised.

INZ acknowledges there are environmental concerns around the potential indirect impacts of intensive agriculture. However, practical on-farm research, such as is occurring at the Lincoln University Dairy Unit, has clearly shown that the desired environmental outcomes are more than achievable. However, to attain these, potential consent conditions should be output and not input focused. This ensures that NZ's world leading innovative farming culture is not hindered in the development of new novel farm management practices and systems.

Water storage infrastructure is vital to the future efficient and effective use of NZ's water resources. Future proofing primary production, community water supplies and electricity generation, whilst enabling environmental and community outcomes, is essential for the sustainable development of NZ's greatest asset – its water resource.

## **Submission -**

### **Introduction**

#### **Points 7 & 14**

These currently read as agricultural irrigation and irrigation respectively. To be consistent with the document these should read as Rural Water Infrastructure. This is an important point as most irrigation development also provides additional benefits for rural communities such as stock water or community water supply.

### **Point 34**

As above the title should read Rural Water Infrastructure. The following wording is suggested to replace point 34 –

Irrigation increases agricultural productivity when compared to dry-land farming. This is particularly the case in the summer dry climates of the eastern north and south islands of NZ. For example, in South Canterbury, a 2006 ex-post study of the Opuha dam development showed that farm gate revenue was 2.4 times higher on irrigated farms than dry-land. Over the long-term, the financial benefits from developing rural water infrastructure, particularly when the knock-on community effects are considered, far outweigh the financial cost of providing it. For example, the Opuha study showed that total value added to the community was \$41million per year (03/04) compared to a build cost of \$16.5million (95/96). Despite these economic benefits rural water infrastructure faces challenges. Competing uses, environmental concerns (direct and in-direct) and treaty issues all need to be considered. However, these challenges can be overcome by developing rural water infrastructure with multiple benefits, for example, the proposed Lee Dam development in Tasman. In the past farmer based development of irrigation schemes has often faced significant challenges, resulting in long lead times for development (10-15 years). However, with the implementation of collaborative strategic planning approach at both the national and regional level, for example in the CWMS, synergies between competing interest groups have been found, this will potentially lead to shorter infrastructure development time frames.

### **Policy Context - Principle 1h**

Government needs to recognise that a market based approach is not always successful. Competing uses, environmental concerns and treaty challenges mean that the development of successful rural infrastructure requires a community, multiple benefit and inter-generational approach. It is therefore essential government further develops its current support role. There is a need for national integrated (energy & rural water supply) strategic water planning to prioritise, and thus better guide feasibility investigations. Ultimately this will reduce conflict during the RMA consenting process. New options to help raise finance for construction also need assessing, for example providing preferential finance options or underwriting mechanisms.

### **Sectoral Analysis – Rural Water Infrastructure**

#### **Point 213**

The following wording is suggested to replace point 213 –

Rural water infrastructure is economically beneficial to NZ's economy. The primary sector currently accounts for 65% of NZ's export earnings and it is estimated irrigation contributes at least 18% towards this<sup>2</sup>. Used for water capture, storage, distribution and drainage, rural water infrastructure is a significant component in maintaining and increasing the primary sectors resilience and productivity. Water is NZ's competitive advantage. It does this by –

- Increasing resilience to seasonal and inter-decadal climate extremes by providing security of supply, increasing and allowing exporters to take advantage of high-value markets that require a reliable supply of high-quality products; and
- Helping NZ build resilience to climate change, as some areas become subject to increasing frequency of drought and others become wetter.

#### **Point 214**

The following wording is suggested to replace point 214 -

To minimise the impacts upon environmental and cultural values, rural water infrastructure projects need to be community based and carefully planned and

managed in order to maximise the potential benefits and opportunities, and minimise and mitigate potential impacts.

**Point 215**

Winegrowing should also be included, recognising the significance of this \$1billion industry and its total reliance on irrigation for quality crop production

**Point 217**

There are currently no irrigation schemes in Hawke's Bay or Wairarapa. INZ is also not aware of schemes in the Waikato, Bay of Plenty or Taranaki. There are however, developing schemes in both Hawke's Bay and the Wairarapa.

It is currently estimated that there is between 750,000 and 900,000ha of irrigated land in NZ, 500,000ha of which is in Canterbury.

**Point 219**

The efficiency of an irrigation system is based upon its design, installation, operation (including scheduling) and maintenance. It is inaccurate to make assumptions based purely on system type, i.e. depending on the above each system type's efficiency can vary greatly.

More efficient technologies have developed over time, border dyke is generally not considered to be one of these, although there could be a case for it being classed as efficient based purely on an energy analysis.

The use of automated control systems and technological advances, combined with increased soils knowledge and better understanding of crop water requirements have resulted in greater water use efficiency and improved environmental outcomes.

**Point 228**

Since central government ended its direct involvement in schemes, private investment has only funded a handful of successful ventures in major rural infrastructure projects.

The recent rapid increase in irrigation is predominantly due to private farm-scale developments (groundwater or run-of river takes). However, security of supply is now a major issue and is beginning to affect the future viability of farm businesses. This is primarily as a result of improved water resource knowledge, particularly a better understanding of surface-groundwater interactions leading to groundwater supplies that were once regarded as '100% reliable' now being subject to minimum flows, and predicted climate change impacts.

**Point 229**

There are also issues around the lack of national planning. Clear integrated strategic planning at a national scale is essential if NZ is to optimise the potential of its greatest asset – its plentiful water resources. For example, the conflicts that can result between hydro-power generation and rural water supply need to be worked through at a national level.

The insufficient stakeholder support point is driven by the lack of community leadership. There is currently little support for identifying, nurturing and developing community leaders in NZ.

The consent process point relates to the approach taken. A truly community approach from the outset is now required for successful infrastructure development.

All community stakeholders, including Iwi and the environmental lobby, need to be immersed in the project team and become part of the decision making process. This will result in the disruption during the consenting process being minimised.

### **Cross-Sectoral Issues**

#### **Point 363**

It should be noted that rural water infrastructure creates wealth and employment in rural communities, for example, 480 FTE equivalents were created by the Opuha Dam infrastructure development<sup>1</sup>. Funding rural water infrastructure is a means of influencing NZ's future demographic trends. It also removes the need for costly social and road infrastructure upgrades in heavily built up areas with high land values.

### **References**

<sup>1</sup>The Opuha Dam: An ex post study of its impacts on the provincial economy and community August 2006, MED

<sup>2</sup>The Economic Value of irrigation in NZ, June 2004, MAF Technical Paper No: 2002/09

**INZ Submission Ends**