

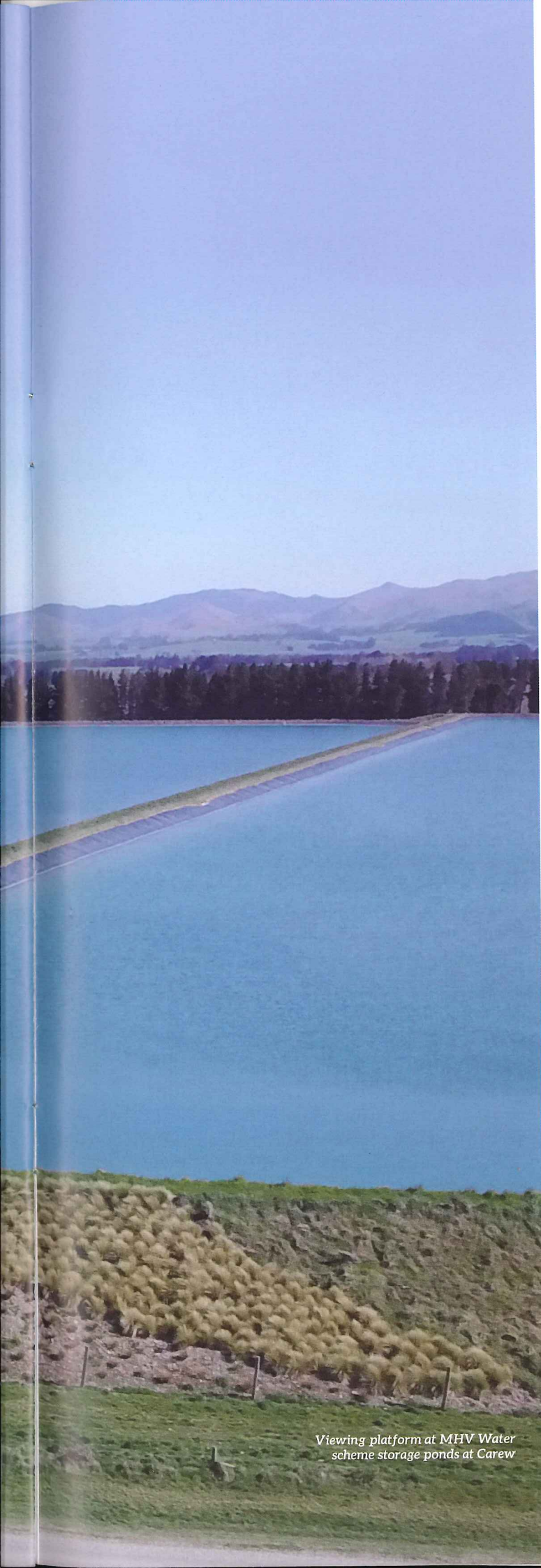
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# IRRIGATION IN NEW ZEALAND – AN UPDATE

Is there a change in perception of water given its perceived scarcity, and of irrigation being bad for the environment? Where there is water there is food and social benefit. This article looks at some of the issues and trends in the irrigation space in New Zealand.







Viewing platform at MHV Water scheme storage ponds at Carew

**Our water isn't always in the right places at the right times, and that is where storage, distribution and application infrastructure are important to complete the picture.**

#### **Irrigation not the culprit**

Irrigation is the life force that has spawned prosperity – it has enabled us to grow consistent, reliable and profitable crops on land that once grew little more than tussock.

New Zealand is the envy of the world; we have excellent soils, security of supply chain (how our supply chain for water and food is safe), and water. Our water isn't always in the right places at the right times, and that is where storage, distribution and application infrastructure are important to complete the picture. However, this also raises questions about environmental sustainability and cultural awareness.

Irrigation does not cause pollution or degradation to our waterways. Poor practice and intensification beyond what the land can handle are the issues. Profiteering off the back of unsustainable practices is no longer something that is tolerated within the agricultural sector or by the wider public. Improvements to on-farm infrastructure and further advances to practices are required, and farmers now know that we are on the path of continuous improvement for better environmental outcomes.

#### **Kai tiaki guardianship**

We are all guardians of the land, and kai tiaki is alive and well within the farming community. Current generations have the opportunity to leave our land in a better place, both from an environmental and economic perspective. Within the irrigation industry we face many challenges and opportunities as kai tiaki and these are discussed below.

#### **Environmental sustainability and public perception**

One of the main challenges that we are facing in New Zealand is the gap between the perception and reality of what our farmers are doing. We are one of the most urbanised countries in the world; 86% of the population lives in urban environments. How do we bridge the divide and foster understanding and empathy between our rural and urban environments?

The agricultural sector has made substantial progress as we have recognised and owned the issues, made initial changes to address poor practice, are continuing to make changes to improve practice, and are investing in research and technology to find further improvements. Being open and transparent about our behaviour and how we farm is important too. The negativity and anger at farmers was amplified when, as a sector, we were defensive and seemingly in denial.





## Storage infrastructure improves supply resilience and enhances improved environmental outcomes, because it reduces use, improves reliability, and enables the growth of high-value crops.

It was an important step when our farmers and the sector came out and effectively said, 'Yes, we unknowingly contributed to degradation of the waterways, we didn't know, but now we do and we are going to make a change.' It may seem like a small thing, but it was significant. By acknowledging there is a problem you can then isolate the issues and start on the path of continuous improvement.

Now we have identified what are known as good management practices (GMPs) and these will continue to evolve. They are different from what we did five or 10 years ago, and they will be different again in five years' time. This is a good thing, as we need to keep improving as our knowledge improves.

The public perception of New Zealand farming practices, especially within the dairy industry, is less than ideal but how do we change it? When we take a step back, we all want the same thing. We want a thriving environment and society where our children can swim in the rivers we did when we were young, and we want biodiversity and safe recreation in this country. Agreeing that we want the same outcomes is the start of the answer.

### Collaboration important

Given we want similar things we need to collaborate more, getting people from different sectors and backgrounds sitting around the table and listening to one another, instead of talking at each other. That may sound simple, but it can make a huge difference. If we can each understand a little more about 'the other side', their concerns and what success looks like for them, then surely we can also find a common path.

When we listen and focus on solutions we communicate that we care. If we are defensive and enter these discussions with anger, resentment or bitterness it will not work and we will further alienate each other, and the distance grows. With so much at stake it is worth the effort to take the time to listen.

For instance, Te Runanga o Arowhenua (our local Runanga) are passionate about what they want to achieve. While we do not always agree (mainly about shorter-term actions), we are mostly aligned in the longer term and I am positive that together we can achieve these long-term objectives.





### Infrastructure resilience and development

Infrastructure resilience is another key pillar and we need to ensure we are maintaining a long-term view when we are building and maintaining these multi-generational assets. With our water infrastructure being mainly funded by users, as opposed to central government, there is a concern that our investment outlook is too short term.

Major infrastructure projects may have a 50 to 80 year life, but as irrigation schemes the need for our farmer-shareholders to fully fund our investments themselves makes it hard for us to have a sufficiently long-term view. Even though it is much cheaper to build upfront, it is difficult for us to build in surplus capacity (overbuild) that may not be required for another 10 years or more, because the benefit of that surplus is for future users but the burden of financing it falls on existing users. This challenge, and misdirected public perception around irrigation, has seen three key irrigation scheme proposals fall over in recent times and they represent lost opportunities to build more resilience into our economy and in some instances domestic water supply.

We know that the prosperity in Mid-Canterbury is a direct result of the investment by the then Labour Government back in the 1930s who decided to stimulate the economy and invest in large-scale water delivery infrastructure. Not only did it help the economy and

get people working after the Great Depression, it has stimulated the economy for generations to come.

How is the current government supporting large-scale infrastructure investments? The Crown irrigation fund was lending, at commercial rates, to pay for overbuild or to cover shortfalls in short-term uptake. It also supported feasibility studies to investigate opportunities to expand/build new infrastructure and to incorporate environmental flows. This support enabled progress that might have otherwise failed, and showed goodwill from the government, a willingness to support large agricultural infrastructure projects, and it recognised the wider community and national benefits.

This country undoubtedly benefits from the increase in GDP from these projects, but there are serious concerns that the inaccurate perception that irrigation is polluting our environment has derailed an investment fund that was helping to grow New Zealand Inc, and especially grow a healthier regional New Zealand. Infrastructure is not just about the delivery of water, but also about capturing the water when it is plentiful and distributing it in times of need.

### Moving away from 'just in case' irrigation

Storage infrastructure means that we can continue to evolve from 'just in case' irrigation to 'just in time' irrigation to 'just enough' irrigation. For instance, our MHV Water scheme storage ponds at Carew, which hold about



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five days of water at peak demand, have increased farmer confidence in our water reliability, allowing them to move away from 'just in case' irrigation and reduce water use.

Storage infrastructure improves supply resilience and enhances improved environmental outcomes, because it reduces use, improves reliability, and enables the growth of high-value crops. As a country we are in an excellent position because we are 'change ready'. We recognise our environmental and cultural requirements, and while it is problematic to make generalisations, on the whole there is willingness to continue to evolve. The capacity to change is the challenge. Some farmers are highly geared, and while they are willing, they are restricted to operating a system that will generate sufficient cashflow to cover their costs.

### **Science, technology and collaboration**

During a recent Irrigation NZ Study Tour to Colorado and Nebraska one of the many highlights for me was how farmers were using the irrigator as an applicator, not just for water, but also for fertiliser and chemicals. With variable rate irrigation (VRI), which was developed in New Zealand, they were able to cater for different requirements for crops at different stages underneath the pivot. They were applying fertiliser and/or their chemicals little and often to align with the plant requirements, to reduce unwanted leaching and with a high degree of accuracy. This is undoubtedly an opportunity in New Zealand as we continue to strive to lead the world in environmental sustainability.

We should also not understate the scale of investment in agri-tech, science and research both here and internationally – it is phenomenal and we need more. One example is the Water for Food Institute in Nebraska, which is world leading. Through research and policy development, education and communication the Institute is enhancing knowledge, fostering future water and food security leaders, and developing effective techniques to sustainably manage water and increase food security.

There are hundreds of other New Zealand organisations showcasing and leading agriculturally-focused research and development. Blinc Innovation, based in Lincoln, Canterbury (which has one of the highest concentrations of agri-scientists in the southern hemisphere) are focused on improving collaboration within agriculture to increase the rate and delivery of usable innovation. They are collaborating across historic silos and building opportunities for businesses in New Zealand to reach the world.

It would be helpful to see how the Regional Growth Fund could support research into future food and fibre options for our farmers and recognise the benefit of a resilient infrastructure network. Questions that need asking are:

- What can we grow?
- Is it sustainable environmentally and economically?
- Do we have a competitive advantage?
- Is there a market and is it accessible?

The opportunities will fall out of that and enable positive change. The growth in focus on food production and food security looks set to continue and we need to find ways to foster more interest in working in the agricultural sector. We need more scientists, entrepreneurs, inventors and generalists who want to be involved in this exciting and growing industry for the benefit of New Zealand Inc.

### **A brighter future**

There are a number of key challenges and opportunities for irrigation in New Zealand in the future. Ultimately, irrigation schemes need to deliver sustainable solutions for their farmer-shareholders and their communities. In the past irrigation schemes were solely about delivering water, but now we need to balance environmental and economic sustainability to achieve improved water quality outcomes.

We know that there is further work required to share the progress we are making on water quality. Progress on improvements may not always be linear, and we need to have confidence that with a focus on GMPs and striving for kai tiaki we will achieve success.

### **Rural professionals showing leadership**

As rural professionals we must show leadership with our farmers and help guide them on the journey to improved environmental performance. While it is easy to criticise the performance of farmers, the challenges being thrown at farming are substantial. We have a role to help bring balance to the discussion, by helping urban New Zealand see the progress that is being made and encouraging our farmers to get on board.

Having improved water quality outcomes is a goal for all New Zealanders to solve and aspire to. None of us should stand in our glasshouse throwing stones. Instead, let's each look at what we can change in our lives or businesses and then look for the next opportunity to change and then continue to repeat the process for a better tomorrow.

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