



SUBMISSION: Conservation and Science Roadmap

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Name of Submitter: Irrigation New Zealand Incorporated
Postal Address: Lincoln Research Centre,
PO Box 69119,
Lincoln,
CHRISTCHURCH 7640
Telephone: 03 341 2225
Mobile: 027 4966 314
E-mail: acurtis@irrigationnz.co.nz

A handwritten signature in black ink, appearing to read "Andrew Curtis", with a long horizontal stroke extending to the right.

(Andrew Curtis, CEO IrrigationNZ)

OVERVIEW

1. Irrigation NZ (INZ) is a national body that promotes excellence in irrigation. INZ represents the interests of over 3,600 irrigators nationally (irrigation schemes and individual irrigators) totalling over 360,000 ha of irrigation (over 50% of NZ's irrigated area). It also represents the interests of the majority of irrigation service providers (over 150 manufacturers, distributors, design and install companies and consultancies).
2. An irrigators business is founded on certainty. This includes access to a reliable water supply for irrigation and the ability to farm their land with a degree of flexibility. It is this certainty that enables investment and continuous improvement in resource use efficiency. Without certainty they and the considerable flow-on benefits to the regional economy can be significantly impacted. The national economy would also be impacted upon given NZ is an agricultural export based economy. Irrigated produce currently contributes between 1 - 1.5% to national GDP.

SUBMISSION

Drivers, Trends and Issues

3. INZ agrees the document has identified the major drivers, trends and issues the government needs to address over the next 20 years.

Key Themes

4. INZ agrees the document has identified the key themes to address these. The one exception is the urban ecosystems and processes as it does not sit comfortably with other parts of this roadmap. Similar to the primary sector, it may be worth consideration of a separate roadmap, particularly given the complexities of the built environment?

Themes

Climate Change

5. For the climate change theme under emerging ideas, environmental infrastructure mitigations such as managed aquifer recharge or targeted stream augmentation are not addressed. Alongside providing for socio-economic resilience these mitigations are also commonly used for environmental resilience. Whilst these mitigation approaches are in their infancy in NZ internationally, continental Europe and the US for example, they are commonly used. They should therefore be included within the Emerging ideas section. 'Developing hydrological mitigations to manage the impacts of climate change on the environment, society and economy'.
6. There then needs to be corresponding research question, 'how will climate change spatially reset NZ's hydrological water balance and what mitigation options exist to address this', and a new or expanding capability need added, 'scientific and technical expertise in building climate change mitigation expertise considerations into integrated catchment management'.

Integrated ecosystems and processes

7. For the integrated ecosystems and processes theme, the concept of integrated catchment management needs to be better woven in, as this is ultimately to what the theme refers.
8. Under emerging ideas, the concept of temporal variability needs to be nested alongside spatial. Many of NZ's catchments have both temporal and spatial variability, for example depending on the groundwater level the fate and thus impact of nutrients lost from the rooting zone may differ across the season or from year to year. As monitoring and measuring moves to real time and we better understand the natural systems themselves, management decision making will become far more sophisticated "I can do this under these conditions but not under those". The challenge is can policy be designed to deal with this?

Freshwater ecosystems and processes

9. For the freshwater ecosystems and processes, similar to climate change, under emerging ideas the environmental infrastructure mitigations are not clearly addressed. 'Developing hydrological mitigations to manage the impacts of climate change on the environment, society and economy'.
10. However, research question 3.4 could be read to encompass the environmental infrastructure opportunity. Similarly, bullet point two under new or expanding capability needs could also encompass environmental infrastructure.

Land ecosystems and processes

11. Under emerging ideas, it is the Farm Environment Plan process that enables land users to understand the impacts of property-level management. Audited self-management is the compliance or accountability mechanism to give the public reassurance that what has been agreed to is being undertaken.
12. Under research question 4.1 there is a more clearly defined scale consideration to this question. 'Can enhanced remote-sensing and mapping be linked to property management, and at what scale is this required to allow improved real-time management of land-use activities and to allow users to take a more holistic approach to land-use management'

Social and economic dimensions

13. This is one of the key themes. Without a significant focus on knowledge and skills, behaviour change will always be slow. Of note is the vision / goal of 'People have the knowledge and skills to meaningfully engage in sustainable practices'. From INZ's perspective there is often much wasted investment in science that tries to define the problem beyond the realms of scientific capabilities. The natural environment is extremely complex and dynamic and full of surprises. For many cases increased investment in behaviour change initiatives will likely more quickly resolve the issues than continual refinement of the problem definition. Finding the balance between the two is the challenge.

Informatics, modelling and monitoring

14. NZ has more information at its finger tips than it realises. Understanding the range of data and its quality is step one. From this there is likely much rationalisation and better coordination that could occur, particularly between government agencies, local government, consent holders and commercial monitoring. Post this the ability to pull it together and undertake 'big data' analysis is key. As a country we still have a long way to go in this space, and for some it will require a mindset change. Is it the data itself or the analysis of it where the future commercial opportunities lie?

New and emerging technologies

15. As indicated by the investment figure when compared to other themes, NZ considerably under invests in this area. For many of our key issues, freshwater quality in our intensively farmed catchments for example, we are currently re-arranging the deckchairs on the titanic. New technologies need to be more quickly coming off the production line. The drivers for change both domestically and internationally are in place. NZ should have the confidence to invest more readily and build on its current successes in green-tech. To do this the investment will likely have to be traded off with the problem definition science. This is a balancing act - how much do we need to know so as we make the right decisions verses how much can we rely on new technology to save the day.

SUBMISSION ENDS