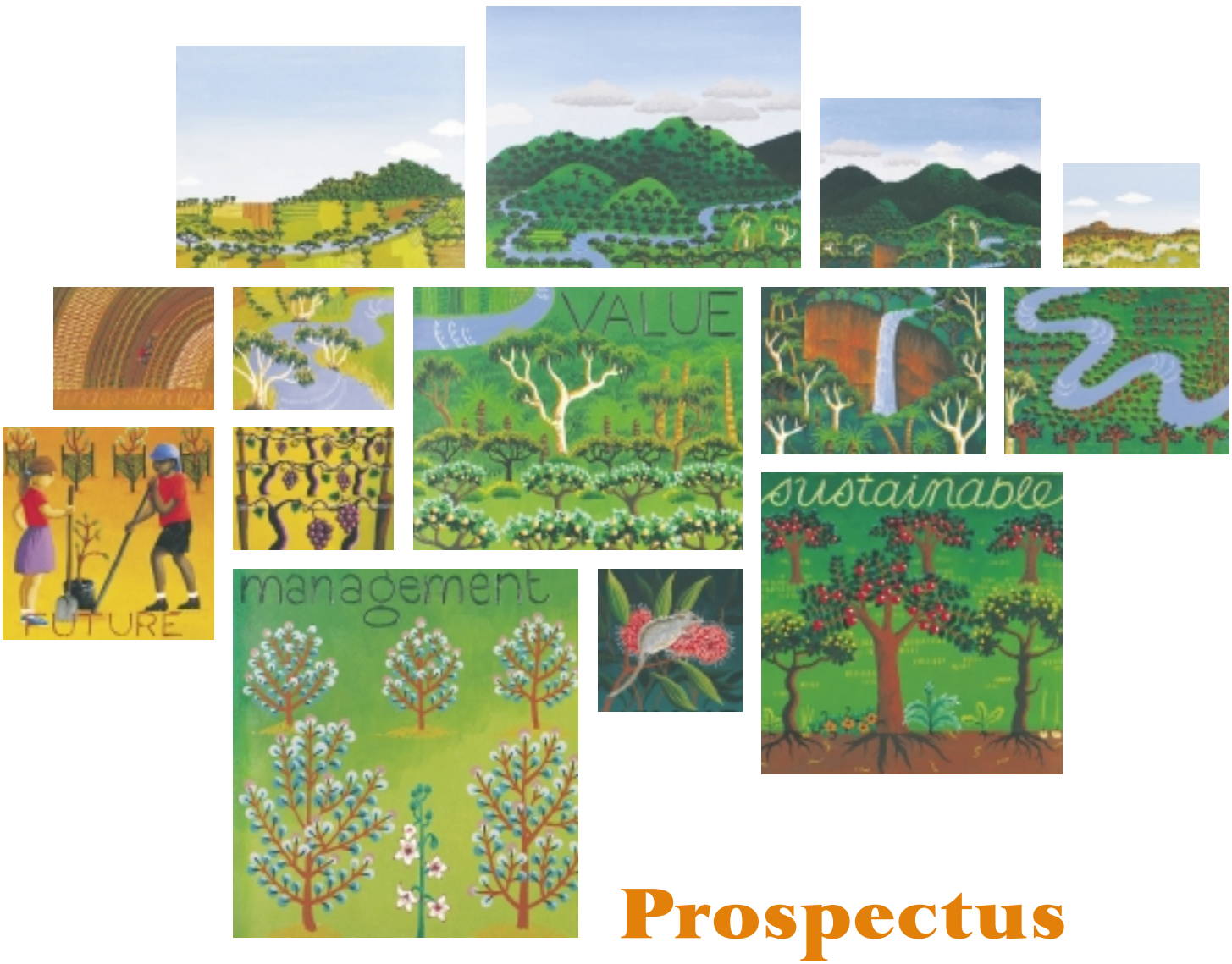
The New National Program for Sustainable Irrigation



Prospectus

Land & Water AUSTRALIA
research • development • innovation

Prospectus

This prospectus outlines a new Land & Water Australia program that focuses irrigation research on critical natural resource management issues.

The irrigation sector is fundamentally important to Australia and, in particular, to Australian agriculture and many regional communities. It generates more than 50% of total agricultural profits from less than 1% of agricultural land, and downstream processing of irrigated production has very significant economic multipliers. However, irrigated agriculture also has a significant 'environmental footprint'. The sector uses more than three quarters of the freshwater consumed in Australia each year. Its total water use has increased 16% over the last decade and will continue to increase. The impact of irrigation on the ecology of streams, floodplains, wetlands and estuaries is potentially profound, depending on how irrigation systems are designed and managed.

Yet for such a crucial sector, analysis for the Land & Water Australia Board suggests that there has been a systemic under-investment in research and innovation on generic irrigation issues in Australia. Agricultural R&D is organised on commodity lines, and irrigators tend to see themselves as producers of a particular commodity first and as an irrigator second.

The challenges facing the sector demand a new approach.

Land & Water Australia has played a leadership role in irrigation research and innovation at the national level for almost nine years through the successful National Program for Irrigation Research and Development (NPIRD). We are committed to continue doing so. However we cannot, nor should, marshal the necessary resources on our own.

This prospectus outlines a new national program that builds on the successes of NPIRD. It also significantly expands its scope and sharpens its focus on the major resource management challenges facing the industry and, conversely, the huge opportunities to be captured through quantum improvements in irrigation design and management.

NPIRD is scheduled to conclude 30 June 2002. The program has a very successful record in producing research of national and international reputation. Examples are partial rootzone drying and water supplier benchmarking. Partial rootzone drying technology was developed with support from NPIRD, Grape and Wine R&D Corporation and Horticulture Australia Ltd. This technology, which delivers major benefits in terms of water savings and enhancing yields, was rated among the top 100 innovations of the 20th Century in a review conducted by the Powerhouse Museum (Sydney) and the Australian Academy of Technological Sciences and Engineering. The framework used for benchmarking the performance of rural water supply authorities has been taken up internationally by the International Committee on Irrigation and Drainage and is at present being trialled in six countries. Further, NPIRD work on water use efficiency (WUE) underpinned major new state-based R&D and extension programs aimed at improving irrigation WUE in New South Wales and Queensland.

This record provides an ideal launching pad for a new direction in irrigation research. As an indication of our commitment, the Land & Water Australia Board has allocated $1.5 million over the three years beginning July 2002. We believe that if all stakeholders in irrigation – governments, commodity groups with an irrigation base, industry and research organisations – demonstrate a shared commitment to sustainable irrigation research and innovation, Australia will achieve essential environmental changes while enhancing a highly profitable sector.

The planned outcome of the new program is a quantum leap towards irrigation sustainability in Australia. The first phase of this new endeavour will identify the requirements of sustainable irrigation systems and benchmark current national performance. It will focus on total system design and the functioning of irrigation within the wider landscape. Importantly it will address policy, institutional, social and economic dimensions of achieving sustainability in a more assertive and integrated fashion. The new program will be forward looking and envisage major breakthroughs in irrigation system design and management.

On behalf of the Board of Land & Water Australia, I invite your organisation to participate as a financial partner in the new National Program for Sustainable Irrigation. This prospectus outlines the proposed scope of the program. We look forward to discussing this important opportunity with you in more detail.

Roberta Brazil
Chair

Why invest in national irrigation Research & Innovation?

How would your organisation benefit from becoming a partner in the National Program for Sustainable Irrigation?

Adequate investment in research and innovation (R&I) is critical to addressing both existing and emerging issues facing irrigators in Australia. In addition to ongoing issues such as water supply and discharge quality, salinity, and nutrient and pesticide management, in many regions irrigators will be increasingly faced with the prospect of reduced water security or allocations, or both, as a result of previous over-allocation, environmental needs and potentially declining runoff from climate change and landscape revegetation. Issues that have traditionally been considered 'someone else's problem', like biodiversity, will command increasing attention from this sector. Concepts of total irrigation design for sustainability, taking account of economic, social and environmental factors, need urgent action if irrigation is to move rapidly to a more sustainable future.

The benefits of investing in the new program include the following:

Leveraging of funds. A single organisation might want to invest a certain amount on an issue. If that organisation joined with others interested in researching a similar topic the amount available for investment is potentially much higher. The benefit for each organisation is that the rate of return is much greater.

Economies of scale. While some issues in irrigation R&I are commodity-specific, most of the water management, system design, and social, policy and institutional issues are generic across a range of industries. There has tended to be under-investment in these issues, as no particular commodity has seen them as its responsibility. By investing in a single R&I fund your organisation can benefit from the economies of scale inherent in the program, accessing a broader range of projects than it could fund on its own.

Reduce the risk of your organisation's investment. As an investing partner you will reduce the risk of your investment by sharing it with others.

Minimise duplication. Without a national approach to irrigation research and innovation, it is inevitable that there will at times be duplication of effort as a result of different groups researching the same topic. By investing in a fund that focuses only on irrigation and does not take a commodity-based approach, your organisation will minimise the risk of duplication. In other words you will maximise the benefit of your research dollar.

Capitalise on new innovations. With a coordinated national approach, innovations realised in a particular sector will be known by all partners, enhancing their potential for development and utilisation.

Accessing a range of expertise. Your organisation will benefit from the broad range of expertise and knowledge that a national irrigation research fund has access to.

The National Program for Sustainable Irrigation at a glance

AIM

The aim of the National Program for Sustainable Irrigation is

- ***to provide Australia with research and innovations to achieve sustainable irrigation.***

It will focus on projects at national and catchment scales.

The planned outcome of the National Program for Sustainable Irrigation will be:

- ***Substantial improvement in the environmental performance of irrigated agriculture and horticulture in Australia through the irrigation industry working, in a nationally coordinated way, towards sustainable use of the economic, environmental and social resources on which Australian irrigation depends.***

When will it start?

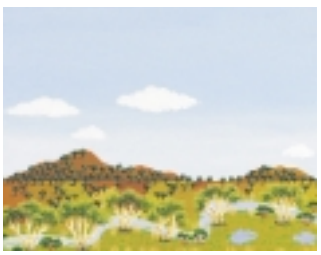
The program will start 1 July 2002 with a 12-month roll-in of three-year funding partners. Funding partners are sought to commence from 1 July 2002.

Who should be involved?

The National Program for Sustainable Irrigation will bring together private and public funds as a way of maximising the investment potential for all partners. Land & Water Australia has committed $1.5 million over three years. If your organisation is involved in the irrigation industry or natural resource management issues affected by irrigation then it should be involved in the program.

How will the program be managed?

The program will be managed by a skills based, geographically representative Steering Committee. This committee will be selected by investors contributing more than $250,000 a year (with provision for smaller investors to have a block vote). It will set the program strategy and budget within program plan parameters approved by the Board of Land & Water Australia.



Research & Innovation priorities

Research priorities are currently being refined by a panel of experts from a range of relevant disciplines, using a four-part framework:

1. Where we are at?
2. Where do we want to be?
3. How do we get there?
4. How do we know that we are getting there?

The research program will respond to the following themes:

THEME 1

Enhancing the sustainability of irrigation

Research findings will be readily adaptable by governments, industries and communities. Investment will be needed to:

- improve understanding of sustainable irrigation
- provide measures of sustainability from which unsustainable practices can be identified
- provide indicators of progress towards sustainability at the landscape level (and which can be developed to provide a set of progress indicators at farm level)
- benchmark the sustainability performance of irrigation industries
- explore geographic contexts for irrigation sustainability
- develop technologies capable of delivering quantum improvements in irrigation design and practice
- identify through a skills audit the abilities and knowledge of all sectors in working towards achieving sustainable irrigation
- explore irrigation extraction levels as part of a total water use framework
- understand the nature and structure of communities and industries reliant on irrigated agriculture, including adaptability to change
- understand the potential and transaction costs of substantially increasing the use of recycled water
- understand the size of change needed to achieve sustainable irrigation

THEME 2

Exploring future visions and values

Research of a different nature is required to explore and conceptualise new irrigation systems for meeting human needs in the future. Investment will be needed to:

- understand current value systems and those required for future sustainability
- predict future "business environments" for irrigation, including global drivers
- seek radical breakthroughs in irrigation concepts, designs, and plant production systems
- integrate irrigation systems within biophysical and social landscapes
- understand current value systems and those required for future sustainability
- understand future learning systems
- explore methods to minimise the environmental footprint of irrigation
- understand irrigation infrastructure needs of the future

THEME 3

Informing public policy development

The public policy agenda for irrigation has been radical over the past decade and its continuing development requires the best available science. Investment is needed to:

- improve understanding of water property rights and trading regulations
- integrate landscape and water resource planning
- understand socio-economic structures of irrigation communities, including the factors determining change and decision making
- explore appropriate forms of governance and models for achieving responsibility and duty of care for irrigation communities
- identify win-win solutions for water allocation to maximise environmental and production outcomes
- understand the needs of different regions, particularly in developing areas such as northern Australia
- enhance adoption of ecological risk assessment approaches
- facilitate and develop accepted structural adjustment measures
- understand the intended and unintended consequences of water reform (as they relate to the achievement of sustainable irrigation)
- identify the distribution of costs and benefits of sustainable irrigation (including energy)
- inform future water pricing
- identify the social, economic and environmental consequences of failure
- inform about responsibility for measuring, monitoring and evaluating progress

Why a national irrigation Research & Innovation program that focuses on sustainability?

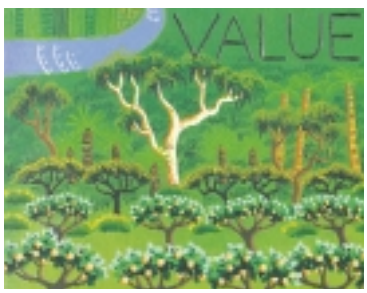
The irrigation industry is facing a number of issues that will shape its future development. Investing in research and innovation now will help prepare the industry, governments and communities to better meet the challenges of the future in ways that are environmentally, socially and economically sustainable. Some of the issues facing irrigation are as follows:

- Meeting the need for healthy river systems with optimum irrigation timing for higher value crops. Critical will be the roles of water saving technologies and economic instruments.
- Developing tools to give the community confidence that any development of water resources in northern Australia would occur in a sustainable way. In particular, there is a need to synthesise knowledge and design new irrigation systems appropriate to northern landscapes.
- A fundamental landscape (re)design principle is to ensure ownership of the new landscape by those who participate and invest in it. There is a lack of knowledge around the social and economic costs and benefits of change.

There is potential for current natural resource management issues to intensify until a combination of social, cultural, economic and environmental stresses force change that will affect the viability of irrigation, or determine whether it continues to exist at all in some areas.

The new National Program for Sustainable Irrigation will address these issues, building on the excellent foundations provided by NPIRD. However, the new program will also be substantially different from NPIRD in the following ways:

- It will focus more sharply on sustainability and natural resource management while, at the same time, contracting specific research on practical applications, in particular those with the potential to deliver quantum improvements in irrigation systems and practice.
- It will devote more resources to knowledge management for sustainable irrigation.
- There will be more emphasis on identifying economic, social and environmental costs and benefits of irrigation.
- It will address new and emerging issues and create a vision for a sustainable future.



How will we deliver the program?

Building a dynamic system with stakeholders that integrates research and innovation is the key. Investment is needed to develop a system that integrates cutting-edge research and innovation across stakeholder sectors so that progress in addressing issues is shared and the potential for innovation is increased. The new program will simultaneously launch a new national irrigation knowledge management system. This internet-based system will provide knowledge and data and the means of sharing them that are sorely lacking on the national scene. The risk of duplication of effort will be minimised. The program will also substantially enhance its coordination activities.

Relationship with a potential Irrigation CRC

Land & Water Australia is a major cash contributor to the bid for a Cooperative Research Centre (CRC) for Irrigation Futures. The bid is well progressed and will be submitted to the CRC secretariat by 29 May. The bid may or may not be successful this round (research commencing December 2003) or next round (research commencing December 2005). Whatever the outcome, its mission is complementary. Both the CRC proposal and the new **National Program for Sustainable Irrigation** have the aim of supporting and expanding Australian irrigation research and innovation. If the CRC bid is successful, then ways of merging will be explored. Please view your partnership with the new National Program for Sustainable Irrigation as part of a continuum enabling uninterrupted investment in sustainable irrigation research and innovation. Neither program expects that industry will resource both initiatives; and both programs are working collaboratively to ensure complementary timing — with research, development and innovation remaining the focus of our efforts.

Become a partner!

Please contact us to discuss your needs.

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