VITAL ROLE FOR AUSTRALIAN IRRIGATION

Global Food Security

Double production from less water.

Australia's irrigators have a vital role to play in meeting the challenge of global food security in the context of climate change and a growing global population. With population growth and standards of living and diet increasing in some regions, the demand for food will double in coming decades. Irrigation currently provides 40% of world food supplies and is projected to meet 60% of the increase in demand.

However, many water resources around the world are already over-committed. In Australia, there is increasing awareness of the need to allocate water back to the environment, although at the same time demand from agriculture and urban centres also continues to increase.

> *"There is a global food security crisis which is affecting everyone on Earth, especially one billion of the poorest citizens," said Dr John Williams, a former Chief of CSIRO Land and Water, and member of the Wentworth Group of Concerned Scientists.*

> *"Australian irrigators are among the most efficient in the world at turning water into food and natural fibre. We have a vital leadership role in helping meet global food demand at a time when water is running out almost everywhere it is used to grow food."*

> *"The challenge for Australia is to rebuild and strengthen our irrigation industries by making them still more efficient and sustainable," he said.*

Irrigators have been skilfully adapting their farm business decisions in response to decreasing water resources and a varying climate for many years. While the challenges of an increasing global demand for food at a time of decreasing water resources adds more uncertainty for farm businesses, the 'good news' is that Australian irrigators have a track record of innovating and creating opportunity out of uncertainty.

Vital roles for Australia

Australia has two vital roles to play:

- As a producer of high-quality, nutritious food in a world where there is concern about the security of food production
- As a leader in developing farming systems and technologies which yield more food from less water and decrease the environmental footprint of food production.

To achieve that potential will require:

- A boost in innovation supported by research, development and adoption
- Policies that are wise in allocating water between irrigation, urban, industrial and environmental uses.

NATIONAL PROGRAM FOR Sustainable Irrigation

Global food crisis

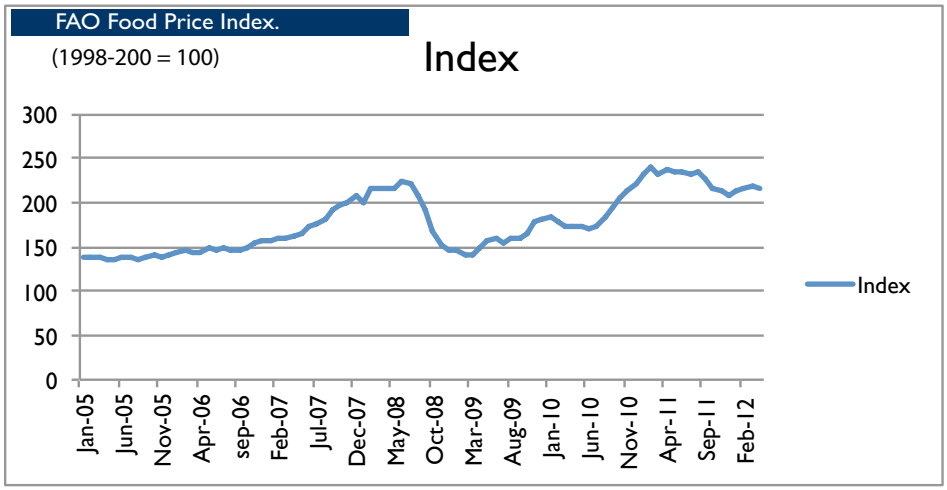
Commodity prices - high but volatile

Agricultural commodity prices rose sharply through 2007 and have been volatile since.

In 2007-08 the food price index maintained by the United Nations Food and Agriculture Organization (FAO) rose to levels that had not been seen for decades, before softening and diving with the emergence of the 'global financial crisis'.

The high food prices aggravated global food insecurity. On World Food Day, 16 October 2008, the International Food Policy Research Institute cited 33 countries as having 'alarming' or 'extremely alarming' levels of hunger.

Financial instability has increased the volatility of prices, but the underlying need for food remains.



Food Shortages

Balance between supply and demand shifts

The rise in food prices reflected a shift in the balance between supply and demand. It was influenced by several factors, especially:

- Global population – Even though population growth is slowing, the global population is expected to grow by 50-70 million a year until the mid-2030s, with most growth in the least-developed countries.
- Living standards and diet – Income growth and urbanisation in developing countries tends to be accompanied by shifts in diet away from staples such as cereals to livestock products, fruit and vegetables.

Other factors in global food shortages include: production shortfalls; low stock levels; high fuel costs; higher input costs to grow food (e.g. fertilisers); the ability to pay; and competition for resources from bio-fuels. Access to adequate water will also be important.

Doubling production

To cope with a growing world population and demand for food, it has been estimated that food production will have to double in the next 25 years.

Irrigation is projected to provide 60% of that increase in production.

An undernourished world

- *Higher prices exacerbate food shortages – particularly among the poor and those who cannot grow their own food.*
- *Thirty-five countries suffered from a food crisis in 2008.*
- *One in every six people in developing countries is undernourished.*
- *There are 923 million under-nourished people in the world.*

Improving productivity

Irrigation is essential to world food production.

Globally, irrigation accounts for 70% of all water use, and it occupies 18% of the arable land mass. From this base, it produces 40% of our crop production.

However, an increasingly urbanised population will demand more water. In addition, many water resources around the world are already being used beyond their sustainable limits. Water will have to be returned to these systems if they are to survive as healthy, productive water sources.

As a result, the amount of water available for irrigation is likely to fall by a third.

Source: ICID (2008) *'Water for Food'* http://www.icid.org/index_e.html

Irrigation as a % of resource use and production.

	World	Australia
% water used	70%	50-65%
% arable land used	18%	5%
% production	40%	30%

Research & Development

R&D delivers a good track record

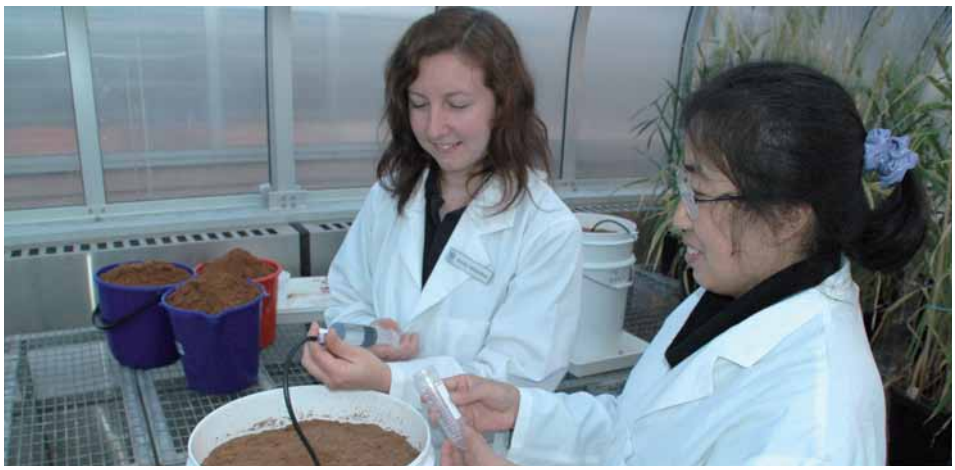
Australia's irrigation industry has a good track record for collaboration on research and for delivering good returns on investment.

The National Program for Sustainable Irrigation (NPSI) has lead irrigation R&D since 1993. It was first established as the National Program for Irrigation Research and Development (NPIRD). The NPIRD investment was $54.7 million over nine years and an evaluation of the Program showed that it delivered a return of better than 3:1, and an internal rate of return of 18%. The majority of improvements arose from improvements in water use efficiency (WUE).

In 2002, NPIRD was superseded by NPSI, which has now completed its second phase. NPSI is recognised as having met its objectives, playing an important role in maintaining the 'critical mass' from previous investments and managing the 'knowledge legacy' while also adding to it.

A recent economic assessment of NPSI projects revealed benefit to cost ratio ranging from 8:1 to 14:1 and an internal rate of return of 24%. Among the benefits noted were:

- Water savings and lowered costs
- Higher net incomes
- Less risk of impacts to crops from salinity
- Lowered salinity returns to the River Murray
- More flexible regional economies
- Insights to improve the planning of future irrigation developments



Critical R&D needs

Urgent research is needed to find new ways to grow more food using less water.

Nearly two-thirds of the future growth in food production may have to come from irrigated crops and pastures.

Yet irrigation is already under extreme pressure in most countries, with water supply and security falling.

Australia is a microcosm of the world in dealing with this challenge. It has knowledge and expertise that could be exported to lift production efficiencies in other countries and now has the potential to take its own level of efficiencies to an even higher plane.

Agtrans Research (2008) Economic assessment of selected investments of the National Program for Sustainable Irrigation Phase 1. Agtrans Research, Brisbane, Qld.

New Ideas for Irrigation – www.npsi.gov.au

Knowledge Harvest project www.npsi.gov.au/projects/3295

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NPSI Knowledge Harvest/PR Day et al 2012

The National Program for Sustainable Irrigation is a partnership of Cotton Research & Development Corporation, Gascoyne Water Co-operative, Goulburn-Murray Rural Water Corporation, Grains Research & Development Corporation, Harvey Water, Horticulture Australia Limited, Lower Murray Water, Ord Irrigation Co-operative, South Australian Research and Development Institute, Sugar Research & Development Corporation, SunWater, Western Australia Department of Water, and Australian Government Department of Sustainability, Environment, Water Population and Communities.