



# Modernisation of an Irrigation Business

Ian Moorhouse  
Chief Operating Officer  
Goulburn-Murray Rural Water Corporation



## Once upon a time.....


- ✓ soil
- ✓ climate
- ✓ Access to markets & processing
- ✓ Reliable water supplies


 **From now on....**

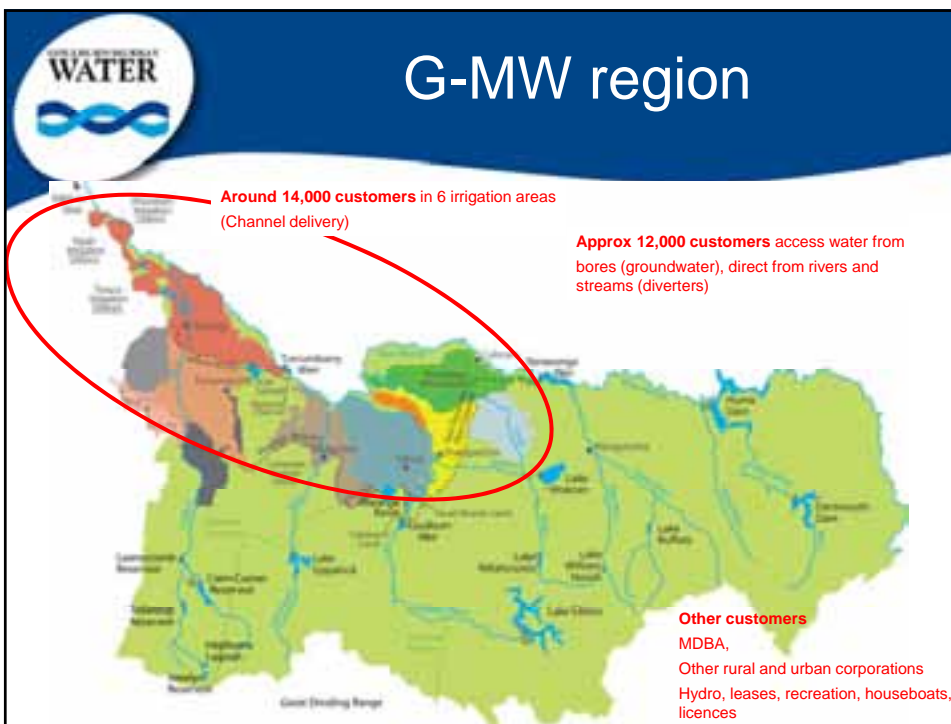
- ✓ Good soils
- ✓ Good climate
- ✓ Access to markets and processing

**And irrigation services that deliver**

- ✓ Reliable supply
- ✓ Superior service standards
- ✓ Cost competitive

 **G-MW region**





**WATER**

## Victoria's Food Bowl

*built on the back of irrigation*

- Irrigation system construction began in late 1800s
- Social policy of closer settlement and drought proofing
- Expanded during post war 1950s
- One of Australia's most intensive & productive irrigation regions

The complex block contains a title, a list of four bullet points, and three small images at the bottom. The images show rows of pink cotton bolls, a black and white cow in a field, and a yellow field of flowers.



# Victoria's Food Bowl

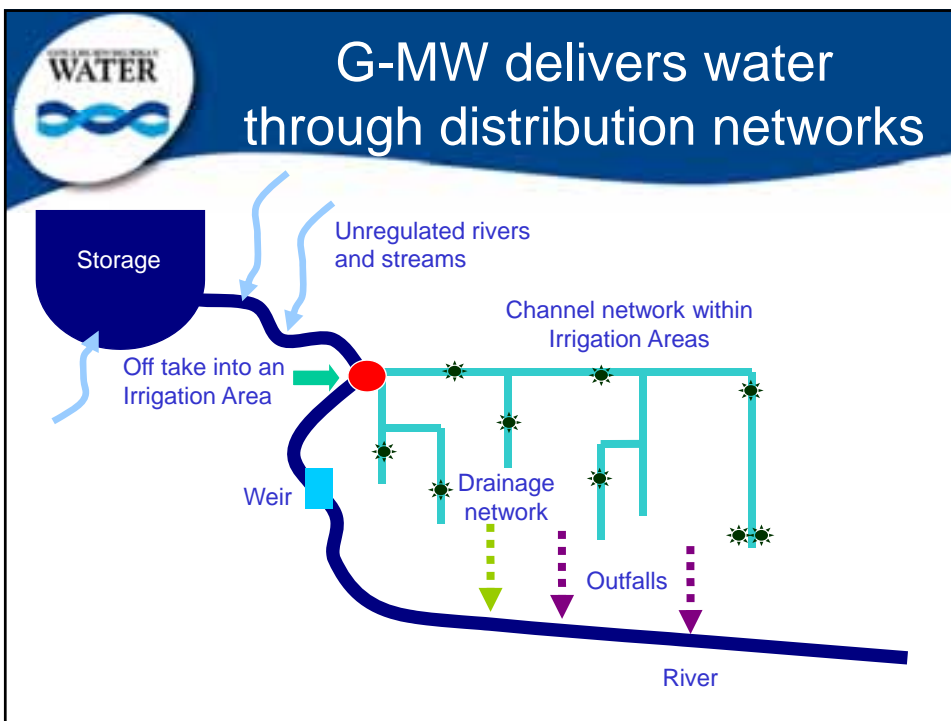
intensive and productive irrigation region

800, 000 hectares of irrigated land

95% Australian Pears  
40% Australia's Apricots  
\$9 billion in production

60% Australian Peaches  
23% Australia's milk production  
\$1.52 billion exports









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## Customers




<p><b>30,000 customers</b>          Surface water          Groundwater          Unregulated rivers and streams  <b>Plus</b> Urban Water Corporations, Hydro, Houseboats</p>	<p><b>40 services</b>  <b>more than 320 individual tariffs</b>          Bulk water          Irrigation Water delivery          Drainage</p>	<p><b>Deliver around 2,400,000 ML each year</b>          3% Urban          2% Environment          95% rural and irrigation</p>
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# Assets \$7 billion

<p><b>Manage 16 dams</b>          12,000,000 ML of storage*          70% of Victoria's water storage capacity          Can store 6 years of entitlements          Age: 11 – 138 years</p>	<p><b>76,000 structures</b>          Road crossings          Culverts          Bridges          Regulating gates          20,000+ meters</p>	<p><b>Gravity irrigation delivery</b>          6,300 km of channels          3,000 km of drains          900 km of pipes          150,000 km of unregulated rivers and streams</p>
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# What we don't do!

<p><input checked="" type="checkbox"/> <b>Own water</b>          Urban water Corporations, the environment and rural and irrigation customers own water</p>	<p><input checked="" type="checkbox"/> <b>Sell Water</b>          We process around <b>\$500 million</b> of transactions between customers:          •Within G-MW region          •With other Vic Water Corporations          •Interstate</p>	<p><input checked="" type="checkbox"/> <b>Supply water on demand</b>          Our network doesn't have the capacity to supply everyone at once – customers place orders, G-MW schedules and delivers around 350,000 orders each season.</p>
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# We DELIVER water

## We are a logistics company!

- Our dams are warehouses
- Our weirs are distribution centres
- And we use channels and rivers (not trucks)



## Northern Victorian Irrigation Renewal Project

\$2 billion investment to accelerate our region's progress towards a modernised irrigation network

Investment funded by Irrigators, State and Commonwealth Governments on behalf of Environment and Urban water corporations for water savings





## Why?

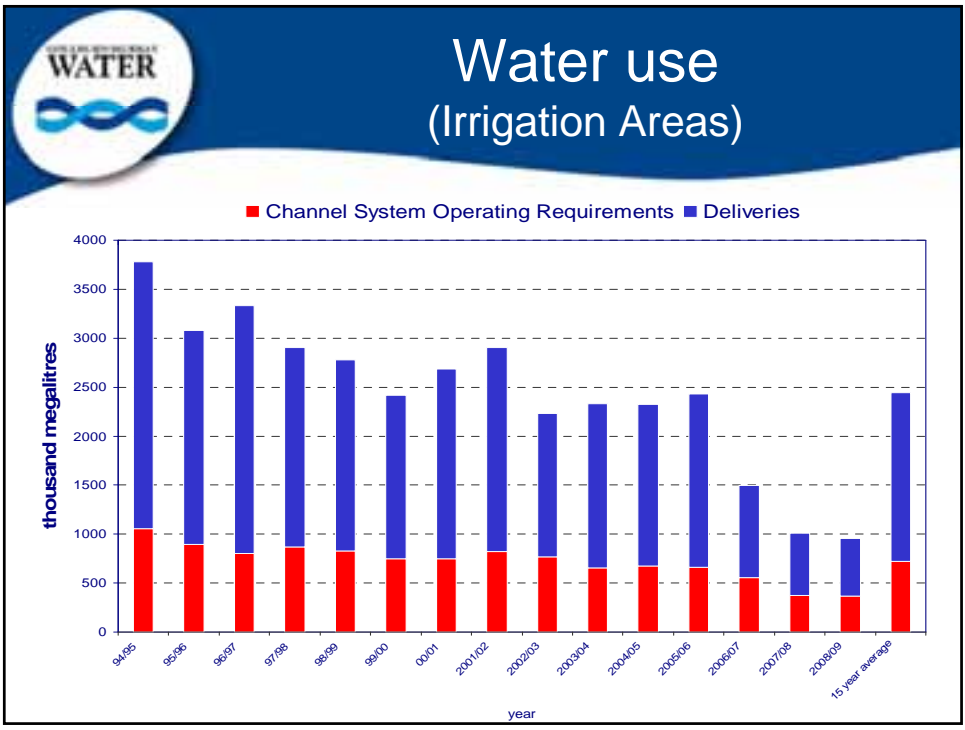
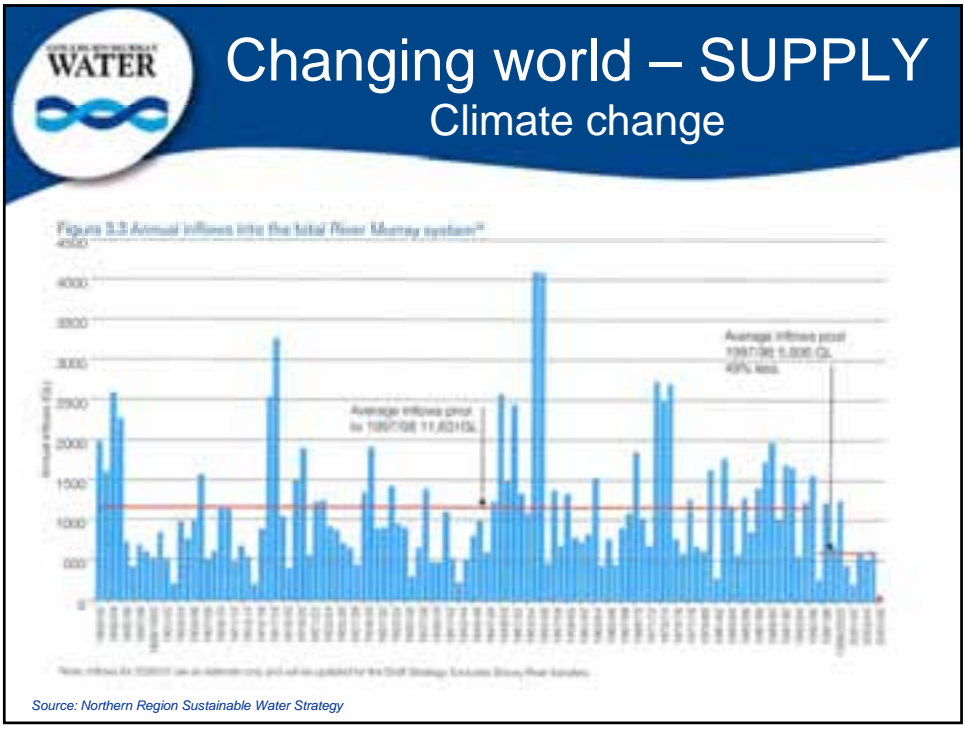
We have come to the sobering realisation that viable land and reliable water resources are limited



## Climate change







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## Inefficient ageing infrastructure




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## Cost competitive

Around 90% of G-MW costs are fixed year to year  
Customer's revenues aren't!

Enterprise Sensitivity (Water as % of input costs)

Horticulture	Dairy	Mixed farming
2-3%	10-12%	30-40%

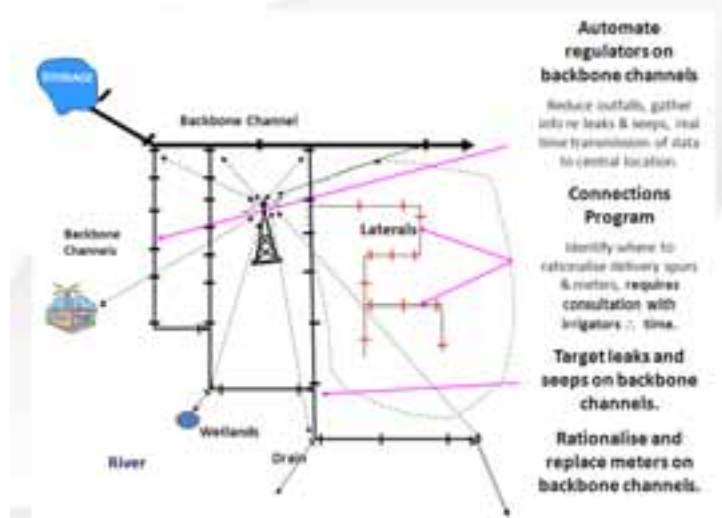


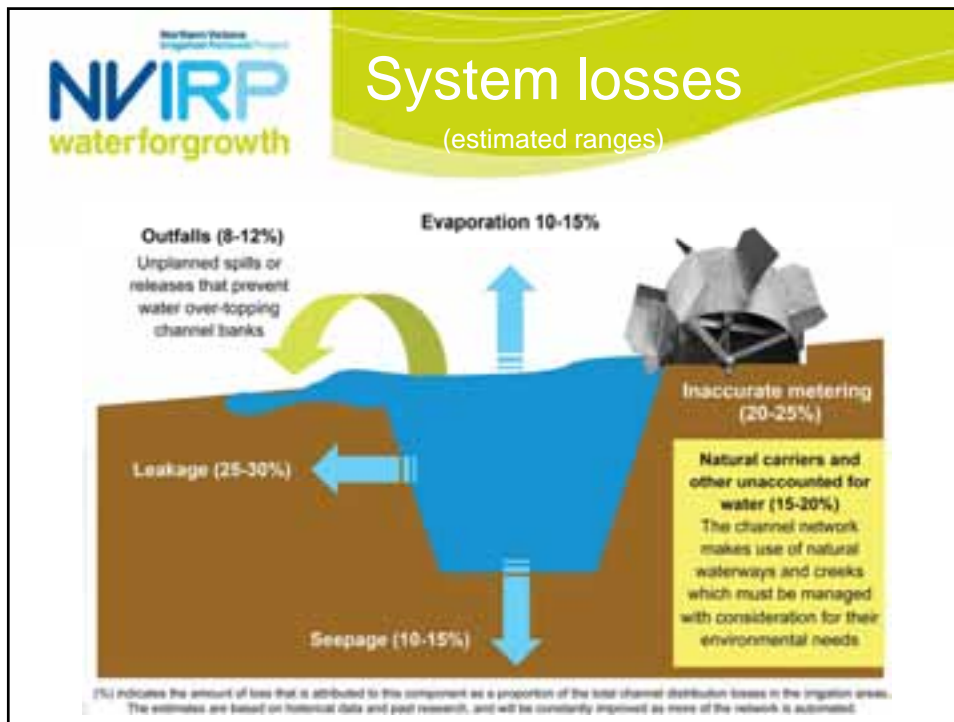
# Vision



- A strong and vibrant GMID community based on irrigated agriculture;
- A modern, efficient, real time, low energy, automated irrigation system;
- A system that ensures state of the art competitiveness for current and future irrigators;
- Improved customer service based around different customer groups;
- World class efficiency;
- A solid base for a viable irrigation community well into the future by investing \$1 Billion in funding for Stage 1; and
- Vibrant and resilient environment.

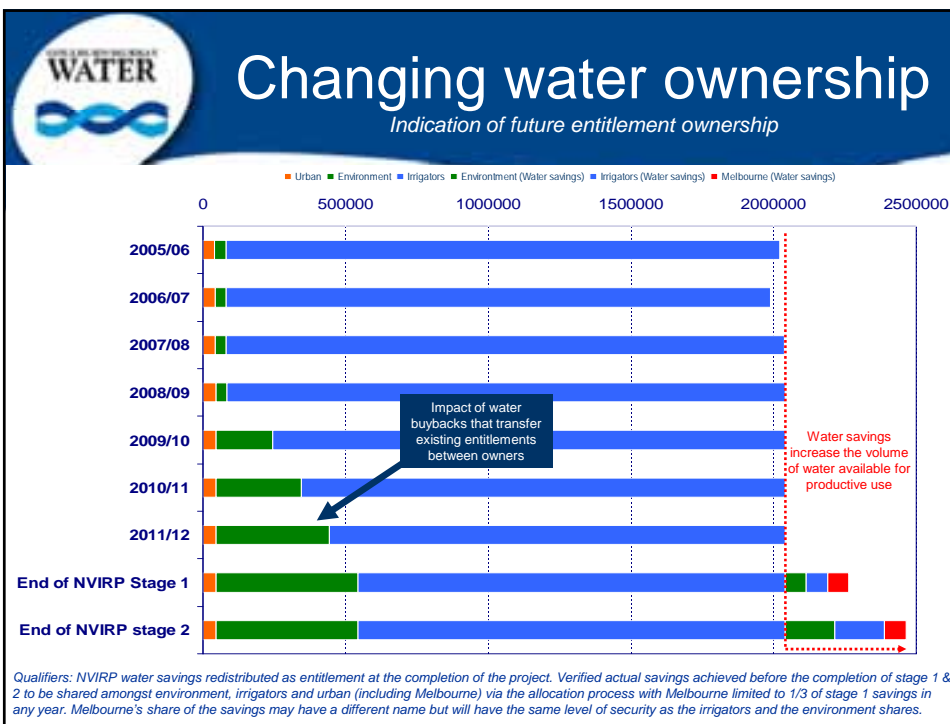
# Program of modernisation





## Modernisation projects and Targets

	Funding	Water Savings Target	
Water Recovery	\$56 million	25,000 ML	
Shepparton	\$142 million	50,000 ML	
Central Goulburn	\$55 million	18,000 ML	
NVIRP 1	\$1,004 million	225,000 ML	
NVIRP 2	\$1,000 million	200,000 ML	
<b>TOTAL</b>	<b>\$2.257 billion</b>		



**Delivering modernisation**

- Up to 50% of the existing 6,300 km channel network will be rationalised or replaced with privately operated connections
- Around 300 km of channel lining
- Rationalise or replace more than 20,000 meter outlets
- Install more than 5,000 channel regulators
- Works at 1000's of individual sites at the same time
- Operating on a live delivery network

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# Operations support centre

24 hours, 7 days a week for 9 months



**Monitoring** –'heart rate' monitoring of the channel system eg flow and level etc. Before mod this was spot readings and visual check by onsite water officer at least 2-3 times a week. (Instead of a continuous line of data we had dots of data).

**System schematics** – continuous real time updates enable more effective planning of deliveries and quicker response to change eg if it rains and farmers don't need their order we can raise all gates at once – reduce unplanned outfalls ie losses

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# Installing new technology

3 month window to measure up and prepare the old concrete structure into which we drop gates (Imagine dropping a new pane of glass into a window – measurement and site preparation are critical)





## Modernised technology

Automated gates along the channel network. Gates talk to G-MW office through a radio canopy network. (largest in the world!)



## Modern technology

Radio canopy network – towers that allow channel regulators to talk to G-MW



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# Channel lining

Capture leakage and seepage

An excavator is shown in the process of installing a dark, flexible geomembrane liner into a newly excavated channel. The machine's arm is extended over the liner, likely to position or secure it. The surrounding area is a flat, open field under a clear sky.

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# Channel lining

A wide-angle view of a long, straight channel lined with a light-colored, possibly white or silver, geomembrane liner. The liner is laid out in a series of overlapping sections, creating a continuous barrier. In the background, a white truck and an excavator are visible, indicating ongoing construction work. The sky is overcast and grey.





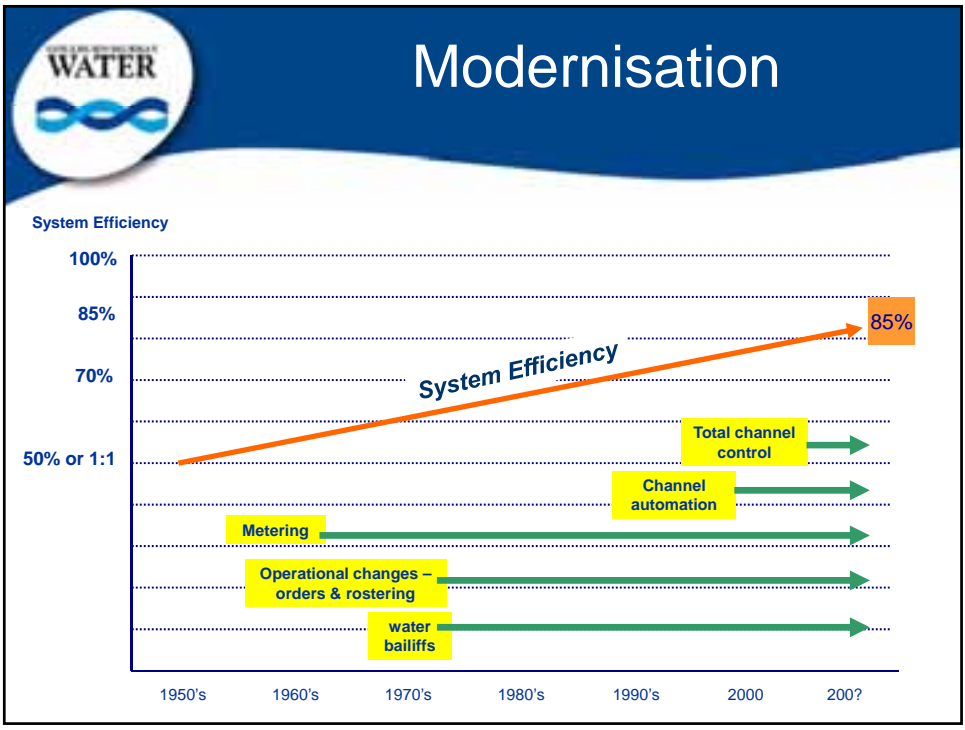
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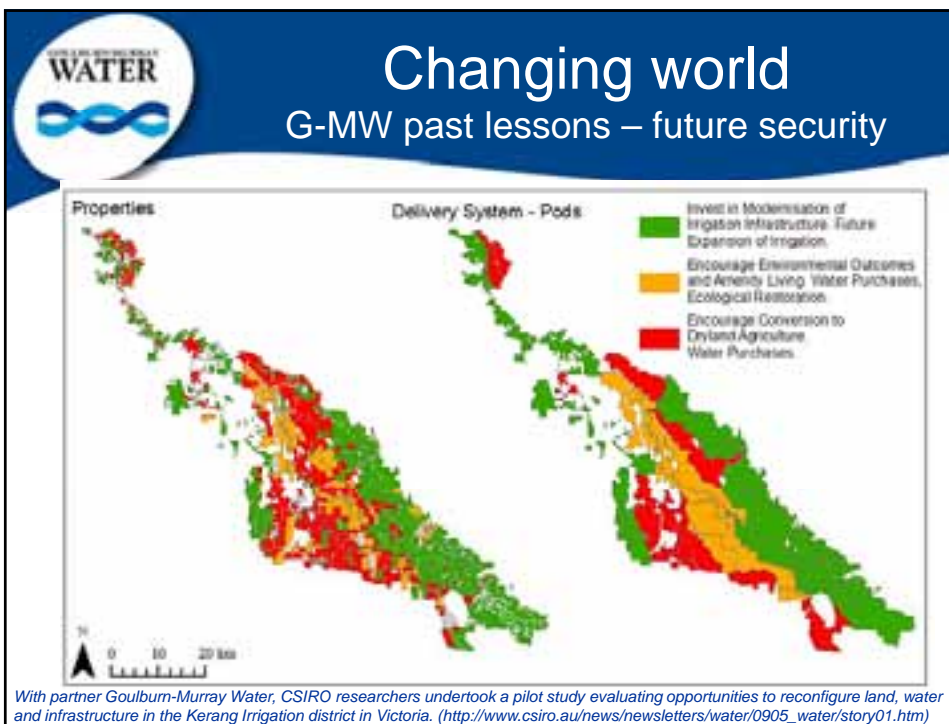
# Improved metering

fairer sharing, improved service,  
*inaccurate meters reduce and delay allocations*





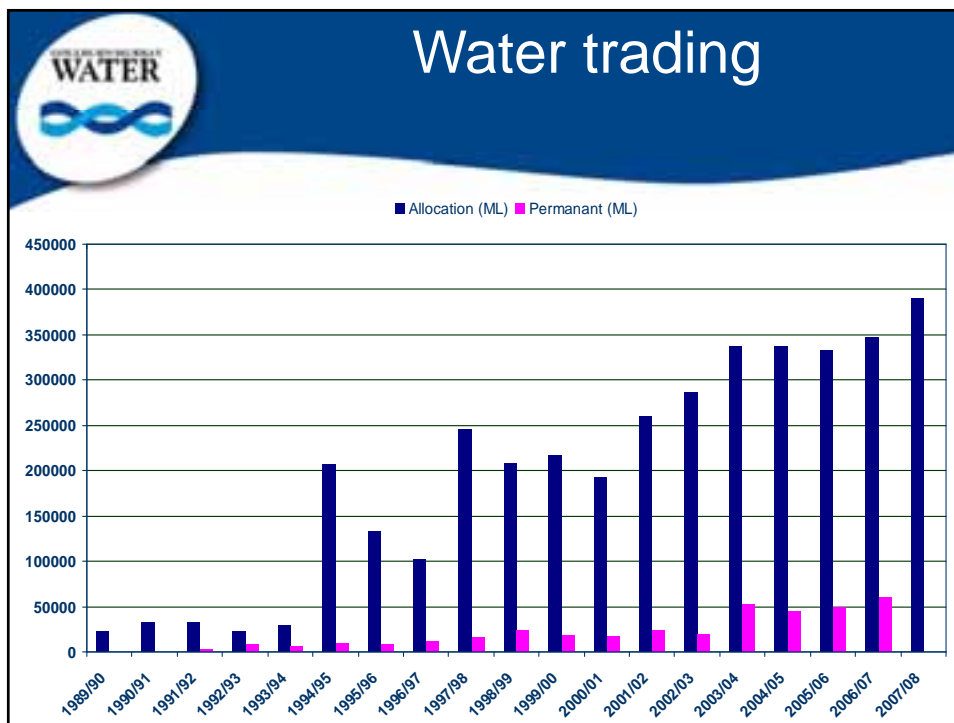
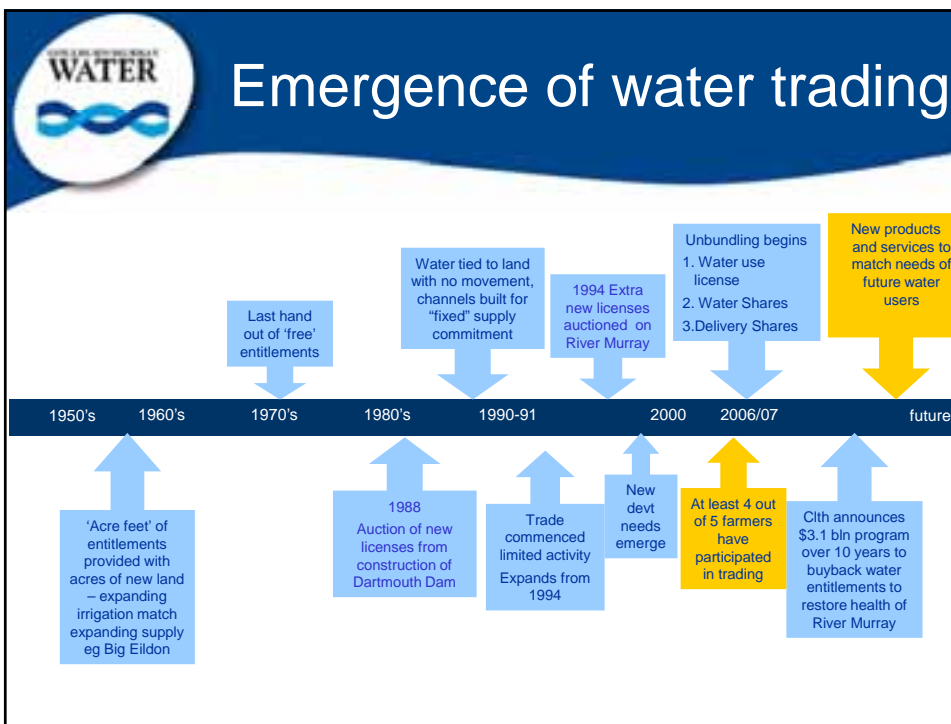


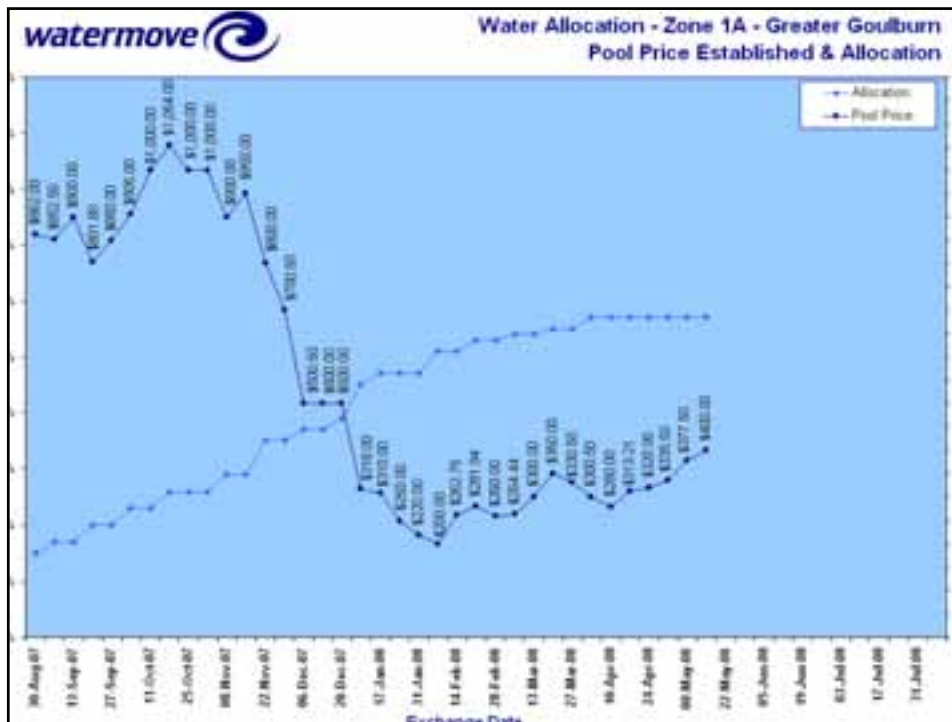


## Impact of policy

### Tools for managing risk

- Onus & opportunity is on individuals
- Unbundling of water entitlements
- Carryover
- Water trading
- Funding to improve on farm





## What will future look like? *'7 signs of success'*

- 1. Integrated co-operative partnerships**
- 2. Governance arrangements** delivering certainty for all water users across the basin
  - governments, communities, business and agribusiness and the environment, surface water and groundwater
- 3. Increased dedicated environmental entitlement** delivering multiple benefits across the entire basin through cooperative management
- 4. A smaller but more resilient irrigation footprint**, producing more, using less and continuously improving practices and productivity
- 5. Adaptive water infrastructure** from the dams to the drains
- 6. Informed water markets** that support the equitable, rapid and transparent redistribution of available water resources
- 7. Integrated water management (water grids)** that expand sources of supply and ability to move water efficiently



# Modernisation results




# Measures of success



Vibrant regional communities, successful export industries – 'realise our region's potential'



Support sustainable irrigated agriculture



Maintain healthy environments



Future security & investor confidence



Encourage continuous improvement in all aspects of water sharing and management

