

Goulburn-Murray WATER

Modernisation of an Irrigation Business

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Once upon a time.....

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

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From now on....

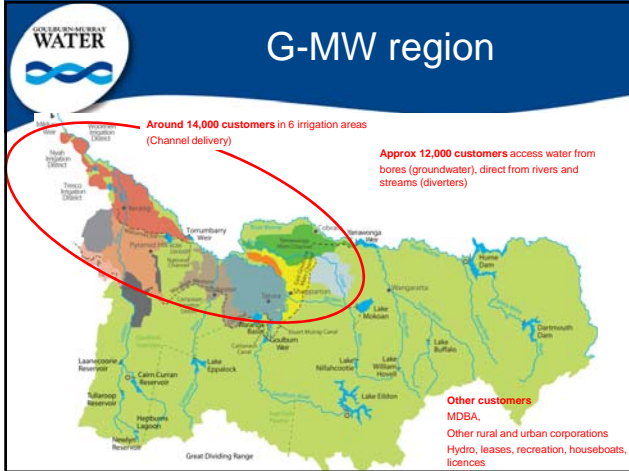
- ✓ Good soils
- ✓ Good climate
- ✓ Access to markets and processing

And irrigation services that deliver

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

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G-MW region



Victoria's Food Bowl
built on the back of irrigation

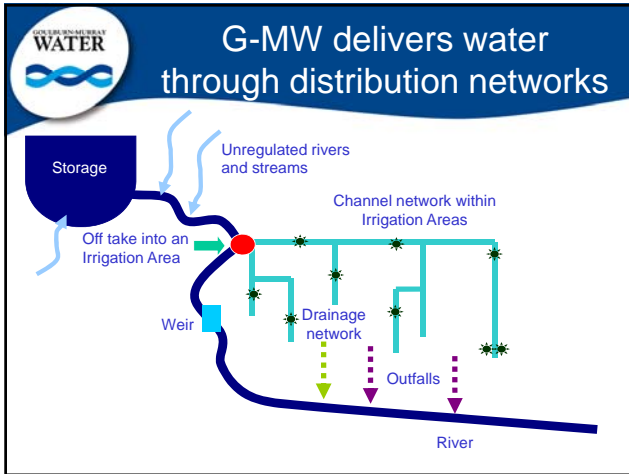
- Irrigation system construction began in late 1800s
- Social policy of closer settlement and drought proofing
- Expanded during post war 1950s
- One of Australia's most intensive & productive irrigation regions

Victoria's Food Bowl
intensive and productive irrigation region

800, 000 hectares of irrigated land

95% Australian Pears	60% Australian Peaches
40% Australia's Apricots	23% Australia's milk production
\$9 billion in production	\$1.52 billion exports





Customers

- 30,000 customers**
 - Surface water
 - Groundwater
 - Unregulated rivers and streams
 - Plus Urban Water Corporations, Hydro, Houseboats
- 40 services more than 320 individual tariffs**
 - Bulk water
 - Irrigation Water delivery
 - Drainage
- Deliver around 2,400,000 ML each year**
 - 3% Urban
 - 2% Environment
 - 95% rural and irrigation

Assets \$7 billion

- Manage 16 dams**
 - 12,000,000 ML of storage* (70% of Victoria's water storage capacity)
 - Can store 6 years of entitlements
 - Age: 11 – 138 years
- 76,000 structures**
 - Road crossings
 - Culverts
 - Bridges
 - Regulating gates
 - 20,000+ meters
- Gravity irrigation delivery**
 - 6,300 km of channels
 - 3,000 km of drains
 - 900 km of pipes
 - 150,000 km of unregulated rivers and streams

What we don't do!

- Own water**
Urban water Corporations, the environment and rural and irrigation customers own water
- Sell Water**
We process around **\$500 million** of transactions between customers:
 - Within G-MW region
 - With other Vic Water Corporations
 - Interstate
- Supply water on demand**
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.

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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)



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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



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Why?

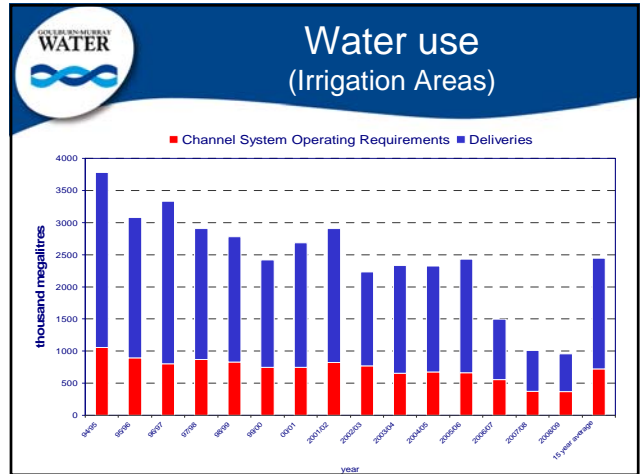
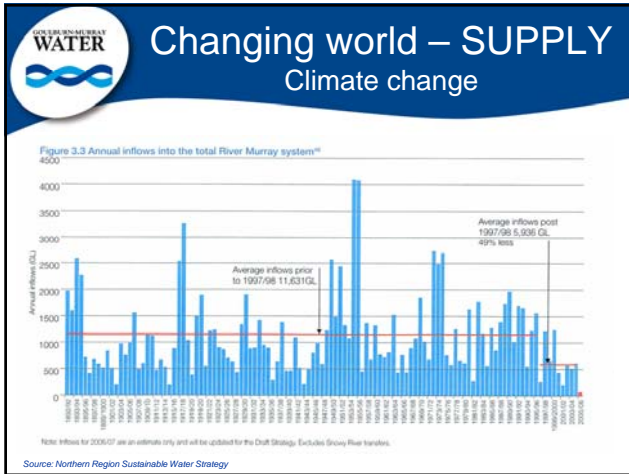
We have come to the sobering realisation that viable land and reliable water resources are limited



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Climate change





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%

Northern Victoria Irrigation Renewal Project
NVIRP
 waterforgrowth

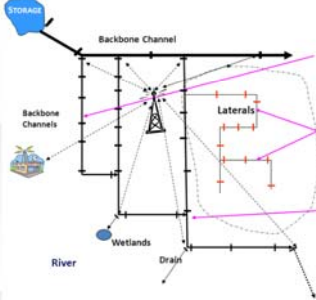
Vision



- 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.

Northern Victoria Irrigation Renewal Project
NVIRP
 waterforgrowth

Program of modernisation

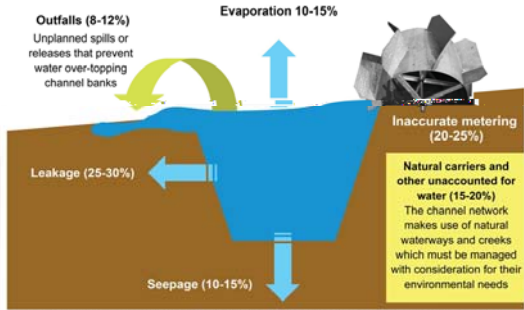


- Automate regulators on backbone channels**
 Reduce outfalls, gather info re leaks & seeps, real time transmission of data to central location.
- Connections Program**
 Identify where to rationalise delivery spurs & meters, requires consultation with irrigators in time.
- Target leaks and seeps on backbone channels.**
- Rationalise and replace meters on backbone channels.**

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System losses

(estimated ranges)



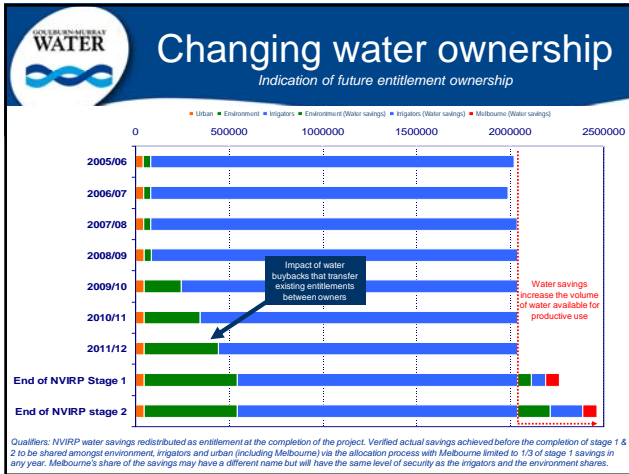
- Outfalls (8-12%)**
 Unplanned spills or releases that prevent water over-topping channel banks
- Evaporation 10-15%**
- Leakage (25-30%)**
- Seepage (10-15%)**
- Inaccurate metering (20-25%)**
- Natural carriers and other unaccounted for water (15-20%)**
 The channel network makes use of natural waterways and creeks which must be managed with consideration for their environmental needs

(%) indicates the amount of loss that is attributed to this component as a proportion of the total channel distribution losses in the irrigation areas. The estimates are based on historical data and past research, and will be constantly improved as more of the network is automated.

WATER

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	
TOTAL	\$2.257 billion		



- ## 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

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 heed their order we can raise all gates at once – reduce unplanned outfalls & losses



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Modernised technology

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



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Modern technology

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



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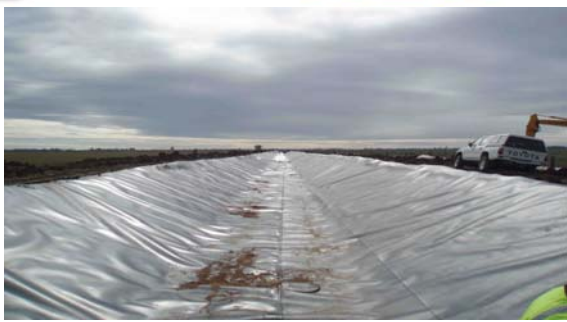
Channel lining

Capture leakage and seepage



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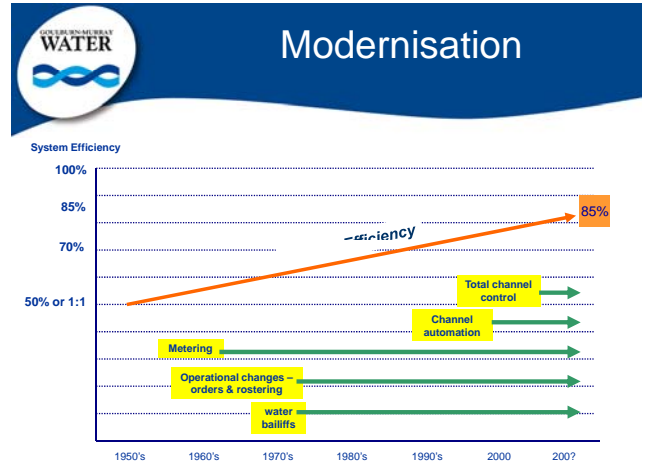
Channel lining

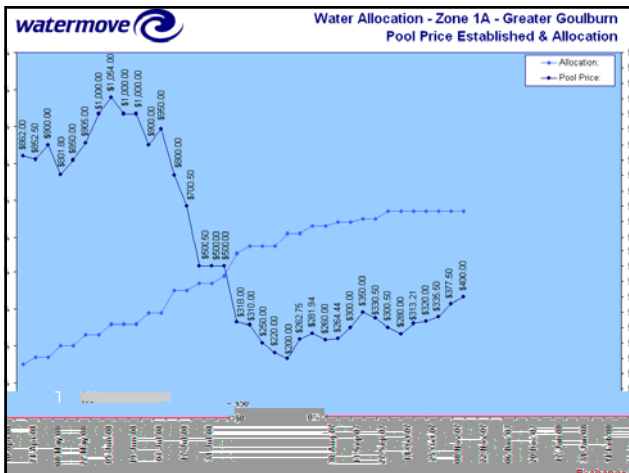
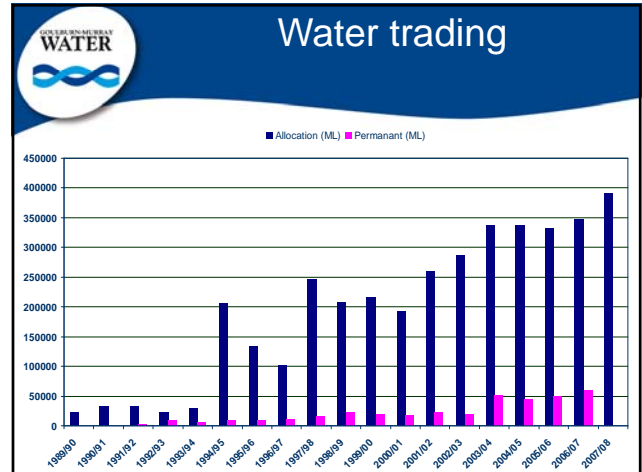
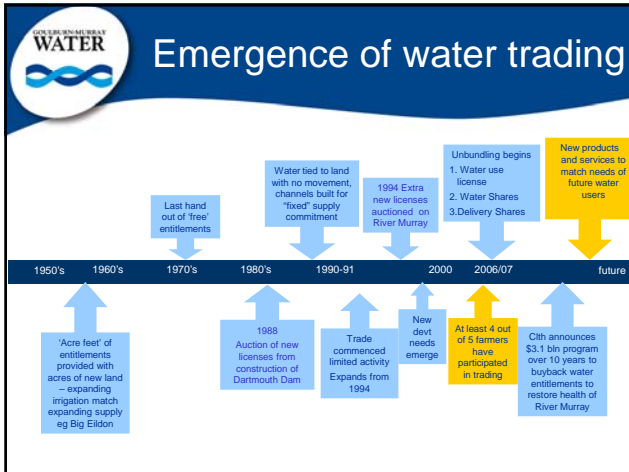


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Improved metering

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





- ## 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

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Modernisation results

2009-10 Modernisation Fact Sheet

2010-11 Modernisation Fact Sheet

2011-12 Modernisation Fact Sheet

2012-13 Modernisation Fact Sheet

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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

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Any Questions?