

## Planning for future irrigation landscapes

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### Background

The Murray Darling System is the largest river system in Australia with a catchment area in excess of 1 million square kilometres and crosses four state boundaries. The Murray Darling Basin Commission (MDBC), under the auspices of the original ratified agreement, establishes and implements works programs, and facilitates water sharing provisions between the State Governments.

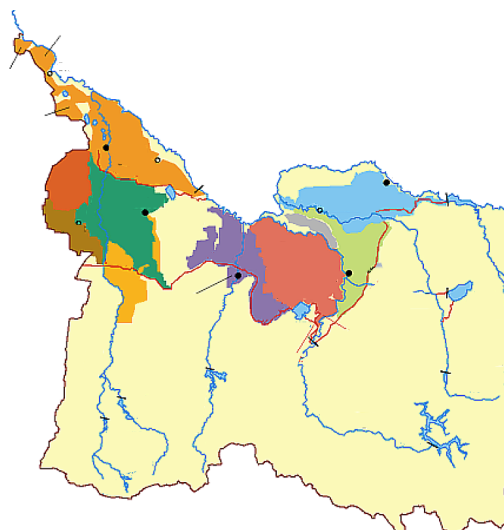
A recent basin initiative adopted by the MDBC, 'The Living Murray', seeks to improve the health of the Murray River and its tributary rivers with additional environmental flows. This initiative is reflective of a partnership approach, which has negotiated the vested interests of irrigators, rural communities and the environment. The increased environmental flow allocations will reduce historic water entitlements available to the State Governments including G-MW customers.

G-MW provides a full cost recovery gravity irrigation and drainage service to 15,000 properties in Northern Victoria within six separate full cost recovery operational areas.

In 1994 all MDBC State Governments agreed to implement programs to facilitate the trade of irrigation water at the farm level. Victoria's relatively open water trading regime is resulting in more productive use of water and the generation of new enterprises, investment and employment. Between 2002/03 and 2005/06 some 164,248 ML has been traded permanently within and from G-MW irrigation areas, and a further 1,293,000 ML has been traded temporarily across the G-MW region.

Water trading markets now exist for temporary and permanent trading of irrigation water entitlements. Water trade (both temporary and permanent), as a farm management tool, continues to provide irrigators with choice and flexibility to manage their water supply, especially in times of low water availability.

Since 1994, large volumes of water have been traded from some localities, making it a financial burden on water authorities and their remaining customers, to maintain supply infrastructure and levels of service (Figure 1 – Permanent Transfers of Water Entitlements Cumulative Movement of Entitlements 1991/92 – January 2007).



**Figure 1 Permanent Transfer of Water Entitlements, Cumulative Movement of Entitlements 1991/92 – January 2007**

The combination of temporary and permanent trade within and outside of the six Goulburn-Murray Water districts has already seen some localities trading away up to 40% of their water.

The delivery of irrigation supplies is primarily undertaken through a large network of open earthen channels which are subject to evaporation and seepage losses, and variable annual maintenance costs.

Planning partnerships between State Government, G-MW, irrigation areas, irrigation customers and communities, businesses and environmental stakeholders have commenced to work through the regional challenges and opportunities in order to secure and support sustainable irrigation landscape investments including healthy river and wetland environments.

### **The journey so far – Kerang-Swan Hill future land use pilot project**

In 2000-2003, a community based working group, together with government agency stakeholders, was charged with the task of choosing a preferred strategic regional development program for the pilot project study area.

The area had been chosen as a ‘Pilot’ because it shared many of the resource management and landscape change issues that have arisen at the national scale including:

- Changing community profiles;
- Agricultural viability and business scale required;
- Water reform, and impact of water trade on infrastructure;
- Recognition of ecological services;
- Balancing multi-use objectives for waterways with high environmental values;
- Salinity;
- Flooding; and
- Regional development.

A brief summary of the management packages developed by the working group include:

***Property Land Use and Development Package*** explicitly introduces the concept of paying landholders to provide environmental benefits for the wider community, for which, previously, they have not been adequately reimbursed.

***The Regional Development Package*** was designed to create new opportunities for economic growth and help build community strengths. This would tap into the broader catchment and regional initiatives, including Local Government initiatives. It could cover initiatives for: business development, ecotourism, community development, industry innovation, and development of secondary industry.

***The Environmental Services Package*** was designed to provide payments to landowners who create wider community environmental benefits. This can be for reducing River Murray salinity through using salty water, for creating floodplain storage, for creating carbon credits, for biodiversity assets or other ecosystem services where public benefits are created.

***The Land Bank Package*** was designed to create viable units of land from fragmented under-utilised land parcels, which separately would be unviable. The Land Bank would address unused land offered up and amalgamate it into viable units for new or existing businesses. The package offered benefits those wishing to retire land from irrigation, and for those wishing to expand.

***Regenerating the Lakes Package*** is a combination of land use planning and water management change designed to create better water quality and services for horticulture, improved environmental outcomes, improved recreational values and possible significant savings in water.

***The Floodplain Restoration Package*** is designed to create extra flood storage and reduce the impact of floods. This involves identifying potential floodplains, reinstating floodplains and the development of management regimes to enhance floodplain diversity. Private landholders would receive payment for environmental services and flooding benefits created.

### **Victorian State Government water reform**

The Victorian Government has maintained a proactive approach to water management issues. The onset of drier conditions and the current drought has accelerated the State Government's commitment to both national water initiatives and the new water reforms for urban and rural water authorities. The reforms address growing metropolitan and regional population growth, water trade in irrigation areas, new irrigation developments, and commitments to providing water resources to improve the environment of key rivers and streams including the Murray River.

In June 2004, of the Victorian Government's White Paper outlined over 100 actions to improve the way in which communities use water and manage water for towns and cities, irrigation and the environment. The White Paper outlined an extensive array of legislative reforms that would be enabled by amending the Water Act 1989. These reforms have provided irrigators with a level of water supply choices, and irrigation communities with a framework to address irrigation landscape change, often referred to as reconfiguration.

One initiative initiated has been, in return for reducing the available sales pool available to irrigators and to recover water for the environment the State Government has agreed to fund \$6.0M towards the development of six reconfiguration plans and will co-invest (\$50M to recover 25.0 GL of water savings) in irrigation reconfiguration programs where this will provide clear benefits to the community and to industry.

Two irrigation areas in Northern Victoria have commenced the development of reconfiguration plans.

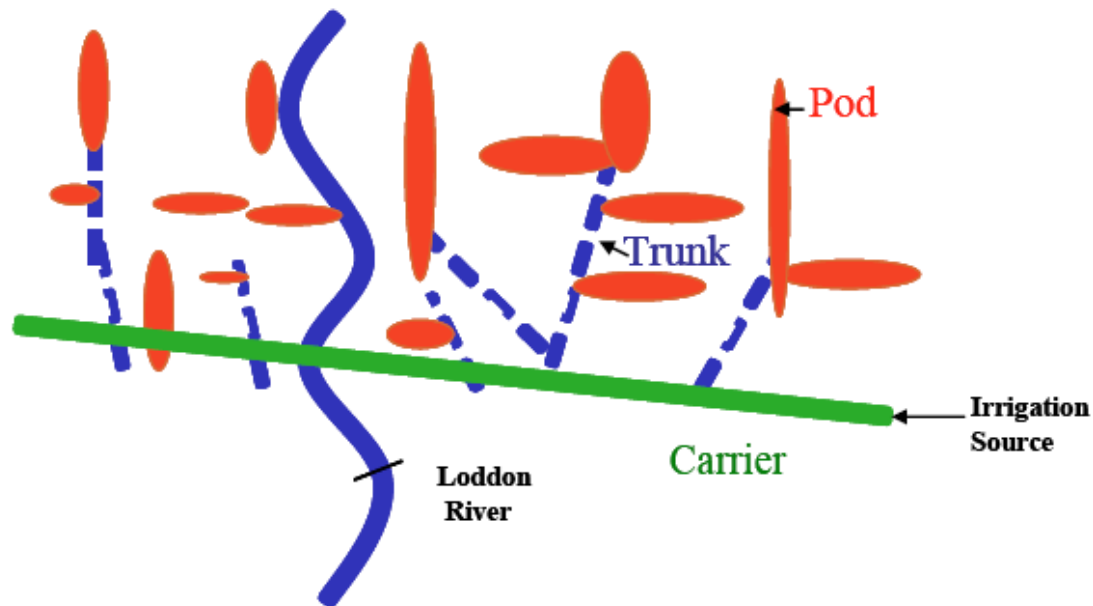
### **Pyramid Boort future management strategy**

In the Pyramid Boort Irrigation Area, located on the floodplain of the Loddon River, 737 irrigation services are managed as 583 businesses in the Pyramid Boort Irrigation Area. This is some 150 less than seven years ago and furthermore 25% of water rights, tied to the original land parcels in the Pyramid Boort Area, has been traded outside the irrigation area or to other lands within the area.

This outcome has diminished the confidence of some irrigators and has curtailed irrigation investment in some areas. In other areas, significant new areas of irrigation have been established with high value enterprises. In combination, these issues drove the need to undertake the 'Future Management Strategy' (FMS) to address the reduced customer base, the spatial shift in demand for irrigation water, stranded irrigation assets, and a need to accelerate asset maintenance works.

In order to achieve desired long term outcomes including distribution costs remaining competitive to attract new development, avoiding expenditure on low use assets, keeping irrigators abreast of technology changes and capturing technology to improve water management efficiency, the FMS has identified and partitioned infrastructure costs more accurately by dividing the irrigation supply system into three distinct components i.e. Carriers, Trunks, and Pods (Figure 2)

It was found that the operational costs of carriers and trunks were reasonable and that these assets could remain as the framework of any new irrigation reconfiguration plan. Within the 32 identified pods, a significant range of operational costs were identified. A key challenge is to reduce the delivery infrastructure costs within the pods.



**Figure 2 Model of carriers, trunks and pods**

### **The opportunities**

Land, water, environment and community cannot be managed independently of each other; change in one impacts on the other. This is especially true in many situations in the Murray Valley, where rivers, floodplains and wetlands have many different functions. The result of this interconnection has been that any explicit plan to change land, water and environmental management is difficult to agree upon. It involves many different aspects, the consequences are difficult to predict and the default option, of maintaining 'status quo' is the path of least resistance

### **Modernisation**

More recently the focus has moved to modernisation. Modernisation of irrigation areas absorbs the learning of past programs and will focus initially on the key 'backbone' aspects of irrigation supply infrastructure. At this time there are willing water savings investors seeking opportunities to invest in the 'carriers' and 'trunks' in irrigation areas over the next three to five years during which time other investor opportunities (public and private) to develop and negotiate land use change outcomes will be sought within the 'pod' areas. Such additional investment could be driven for a range of future land use outcomes including; amenity living zones, salinity impact reductions (River Murray), areas returned to the natural floodplains to provide flood pondage areas and biodiversity outcomes, and large scale viable dryland agricultural areas provided with secure stock water supplies

Unashamedly the modernization investment strategy thus far has, to a large degree, focused on civil /irrigation supply infrastructure as a consequence of permanent water trade, the need to deliver water savings, and the subsequent need to restructure irrigation infrastructure within each irrigation area onto a viable long term business base. The approach appears to be sound given the many change driver pressures on irrigators and thus the adage 'if you don't change something, nothing will change' should act as a catalyst to activate other investors, seeking economic and/or environmental outcomes, to seamlessly integrated with future G-MW modernization programs of irrigation areas.