PRODUCTIVITY COMMISSION RESEARCH STUDY

RURAL WATER USE AND THE ENVIRONMENT: THE ROLE OF MARKET MECHANISMS

VICTORIAN GOVERNMENT SUBMISSION

FEBRUARY 2006

KEY POINTS

- Victoria supports the National Water Initiative (NWI) objective to establish effective and efficient water markets that enable water to move on a temporary and permanent basis to more highly valued uses subject to protection for the environment and third party interests.

- The achievement of this objective will play a critical role in facilitating the economically efficient use of rural water and will influence options for managing environmental externalities associated with water interception and use.

- Victoria will continue to actively push the development of an expanded water market provided trade proceeds on a competitively neutral basis.

- Key issues that have the potential to inhibit the establishment of a competitively neutral water market include managing stranded assets and establishing appropriate exchange rates for the conversion of different water products.

- As the water market evolves, it will be important for jurisdictions to have appropriate arrangements in place for the reconfiguration of supply systems, so that irrigators' changing water supply requirements can be met.

- The *Water (Resources Management) Act 2005* establishes the legislative arrangements to enable reconfiguration in Victoria. These arrangements, together with strategies such as the *Pyramid-Boort Future Management Strategy* as an example, will assist in managing supply systems in a way that is viable to both the supply authority and irrigators.

- There is a need for a consistent set of national principles for access and exit fees to be developed, codified and enforced by appropriate independent regulators to provide certainty to water market participants as well as delivery capacity users.

- Exchange rates, which enable conversion between the various water entitlements without impacting on third party reliability, will continue to play an important role in facilitating increased water trading – increasing the choices available to irrigators, enabling them to purchase entitlements and convert them into the product that most suits their commercial needs. These exchange rates must be technically correct, verified by independent modelling, and applied consistently across state and district boundaries, in order to avoid arbitrage and potential loss of market confidence.

- Other Victorian examples of mechanisms that seek to facilitate the economically efficient use of rural water and deal with environmental externalities include: salinity impact management arrangements in the Sunraysia region; arrangements to enable the trading of environmental water; River Tender; and the requirement for water authorities to pay environmental contributions.

- This submission highlights other areas where Victoria is undertaking research to examine what other market mechanisms could be developed to complement an expanded interstate water market.

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1. INTRODUCTION

The Victorian Government welcomes the opportunity to comment on the Productivity Commission's research study on *Rural Water Use and the Environment: The Role of Market Mechanisms*.

The purpose of this submission is to:

- reinforce the need for expanded intra and interstate trade to proceed on a competitively neutral basis;
- comment on key issues that could inhibit the establishment of a competitively neutral water market;
- comment on market based instruments currently being used in relation to water in Victoria; and
- comment briefly on existing and future research on market mechanisms that will be undertaken in Victoria, noting that any comments or materials provided on this research do not represent the views or formal policy of the Victorian Government.

2. EXPANDED TRADE ON A COMPETITIVELY NEUTRAL BASIS

A key objective of the NWI is to establish effective and efficient water markets that enable water to move on a temporary and permanent basis to more highly valued uses subject to protection for the environment and third party interests.

The achievement of this objective will play a critical role in facilitating the economically efficient use of rural water and will influence options for managing environmental externalities associated with water interception and use.

Therefore, the water market should be the key focus for the Commission's study, noting that this is consistent with the Commission's Terms of Reference, which requires the Commission to 'recognise that the purpose of the study is to support the parties in achieving the water markets and trading outcomes and actions under the NWI.'

Victoria supports the broader NWI objectives and will continue to actively push the development of an expanded water market provided trade proceeds on a competitively neutral basis. Victoria perceives a competitively neutral market to be one where:

- entitlement holders do not enjoy net competitive advantages in the water trading market simply by virtue of the jurisdiction in which an entitlement is held;
- water trading and resource use decisions are not distorted by the market arrangements of any single jurisdiction; and

- there is fair and effective water trading across state and district boundaries.

Key elements required to establish a competitively neutral market include:

- clear specification of underlying entitlements;
- any external impacts to third parties not reflected in the private benefits and costs accruing to the parties to the transaction need to be addressed;
- institutional, regulatory and administrative arrangements that provide for timely and cost-effective transactions and approval processes;
- titling and registration systems, and comprehensive water accounting systems that provide certainty for trade and investment;
- pricing and financial arrangements for the provision of supply infrastructure that do not distort trading and are overseen by an independent regulator(s);
- governance arrangements that provide clearly-defined functions and accountabilities with respect to the water market and in particular ensure that market trading rules are not subject to control by market participants; and
- entry and exit barriers are minimised and applied consistently across jurisdictions if required to protect environmental or third party interests.

A competitively neutral market that enables both temporary and permanent water trades should ensure a level of consistency between individual arrangements set up within the participating jurisdictions that prevents distortions in the operation of an open water market. It will also ensure that States and the Commonwealth capture the full economic benefits of expanded intra and interstate trade, noting that the ability to trade on both a temporary and permanent basis is required to give investors access to entitlements for a period that meets their commercial needs.

The establishment of a competitively neutral market will also assist in identifying where additional market based instruments or regulatory measures may be used to facilitate the economically efficient use of rural water and to deal with environmental externalities.

Table 1 below sets out the work already in place and/or currently underway in Victoria to establish the key elements of a competitively neutral market. Most of this work stems from the Government's *Our Water Our Future* policies and will be implemented through the *Water (Resources Management) Act 2005*.

Further details on these policies can be found in *Our Water Our Future* and related Fact Sheets available on the Department of Sustainability and Environment's website www.dse.vic.gov.au.

Table 1: Developing a Competitively Neutral Water Market

Elements of An Open Market	Victorian Reforms
Clear specification of underlying entitlements	The *Water (Resources Management) Act 2005* will enable the unbundling water entitlements into water shares, share of delivery capacity (delivery share) and a water-use licence, separating the tradable share from the other elements. It will also establish the Environmental Water Reserve to set aside a share of water for the environment.
Any external impacts to third parties not reflected in the private benefit and cost accruing to the parties to the transaction need to be addressed;	Victoria's existing trading rules to minimise third party impacts are outlined in Victoria's guide to trading, *The Value of Water*, and are available on the Watermove website. They include such measures as the salinity impact management arrangements in the Mallee, irrigation requirements of Water Quality Management Strategies and the future requirement to have water-use licences. A redrafted Schedule E to the Murray Darling Basin agreement will also outline trading rules to minimise third party impacts for an expanded interstate water market.
Institutional, regulatory and administrative arrangements that provide for timely and cost-effective transactions and approval processes	Victoria will be introducing a new water register (discussed below), which will reduce the time taken to process transactions. Victoria also has a centralised web based water exchange, Watermove, which provides price and other market information. Victoria is also working with the relevant states through the MDBC and NWI Committee to develop a consistent national approach to water accounting.
Titling and registration systems, and comprehensive water accounting systems that provide certainty for trade and investment	Victoria will be introducing a water register that will provide web-based information on all water entitlements in Victoria. A public, web-based water accounts database will also be introduced to provide access to data and information on compliance with water entitlements at the wholesale level.
Pricing and financial arrangements for the provision of supply infrastructure that do not distort trading and ideally are overseen by an independent regulator(s)	The Essential Services Commission is the independent economic regulator of the Victorian water industry. Its role encompasses regulation of prices, service standards and market conduct. The establishment of delivery shares will provide the basis for a pricing regime that attributes costs of infrastructure provision to the service received from the infrastructure rather than on the water entitlement held.
Governance arrangements that provide clearly-defined functions and accountabilities with respect to the water market and in particular ensure that market trading rules are not subject to control by market participants	Chapter Seven of *Our Water Our Future* clearly articulates Victoria's governance arrangements. The proposed reforms to arrangements for water regulation and trading, for monitoring and compliance with bulk entitlements, for managing water storages, recycled water and stormwater, and for shareholder governance are being implemented through a staged legislative program, which commenced with the *Water (Resource Management) Act 2005*.
Entry and exit barriers are minimised and applied consistently across jurisdictions if required to protect environmental or third party interests	Victoria supports the development of cross jurisdiction principles for access and exit fees, with the oversight of an independent body to assess how jurisdictions apply such principles.

3. KEY ISSUES IMPACTING ON A OPEN MARKET

There is a range of areas where inconsistencies between states could potentially distort the market, making entitlements in one state potentially more attractive relative to entitlements in other states. These areas include:

- policies to manage the social impact of water trading;
- policies and regulations to manage the environmental impact of water trading (eg regulatory and planning requirements for native vegetation management, salinity, nutrients etc);
- arrangements for providing water infrastructure; and
- market design and the infrastructure supporting the market (eg water registers, approval processes etc).

Victoria notes that these areas will be considered in detail by a separate NWI study that will be undertaken to develop an overall design for an open, efficient and fully functioning water market. This separate study will look at the market arrangements in detail, considering the day to day market operations currently in place or proposed by jurisdictions, to identify any impediments and to assist jurisdictions in developing arrangements to facilitate expanded intra and interstate trade on a competitively neutral basis.

However, this submission now considers three key issues that have the potential to inhibit the establishment of a competitively neutral water market. The Commission's consideration and views on these issues may assist jurisdictions in achieving the NWI water markets and trading outcomes.

Managing Stranded Assets

The NWI recognises the need to manage the third party impact of stranded assets resulting from the trade of water out of a region (NWI paragraph 62).

Policies for managing the third party impacts of stranded assets and the associated social impacts include:

- direct limits on the total amount of water that can be traded out of a district on a per annum basis;
- arrangements to facilitate reconfiguration of supply systems;
- access and exit fees, discussed below separately, that seek to mitigate the financial impact on an irrigation supply business (and its remaining customers) of water trading out of a district; and
- adjustment funding, such as that discussed under clause 97 of the National Water Initiative, being directed to areas where water transfer is major and permanent.

In developing these policies, a key issue for consideration is the extent to which water trading is creating its own adjustment pressures or whether the adjustment pressures are driven by the market for agricultural products. Historically, adjustment pressures have been driven by agricultural market forces (eg impact of world market on Australian citrus growers) combined

with other social factors which are independent of world or local prices, such as an ageing rural population. While an effective water market may accelerate the rate of adjustment and bring forward any related social impacts, it will ultimately assist irrigators in responding to adjustment pressures.

This suggests that policies for managing the social impact of water trading should focus on building community confidence in water trading as the market evolves. A flawed or distorted interstate water market poses a significant threat to effective water policy.

Direct limits on the amount of water that can be traded include:

- an annual 2 percent limit on permanent trade out of irrigation districts in Victoria, which is due to be lifted to enable interstate water trading up to the threshold of 4 percent to commence on 1 July 2006; and
- the NWI threshold of an annual 4 percent limit on permanent interstate trade out of *water irrigation areas* (as defined in the NWI glossary), which is subject to a review by 2009 with a view to raising the threshold to a higher level if considered appropriate.

The manner in which these limits are applied - at the district level or at the larger level of a *water irrigation area* – will determine the extent to which water may be traded out of certain communities and could potentially accelerate adjustment in local areas and bring forward any related social impacts in these areas.

While direct limits on water trading can assist in building community confidence in water trading and address concerns about managing stranded assets, the limits on interstate water trade should be reviewed in accordance with the NWI and should continue to be applied consistently across borders. The NWI does allow for adjustment funding to smooth the path of reform and - consistent with previous Productivity Commission reviews of the efficacy of reform processes (eg Productivity Commission's *Review of National Competition Policy Reforms*) - this should be considered in any review process.

As the water market evolves, it will be important for jurisdictions to have appropriate arrangements for the reconfiguration of supply systems, so that irrigators' changing water supply requirements can be met.

In this regard, the *Water (Resources Management) Act 2005* provides the legislative arrangements under which water authorities can reconfigure their supply systems. Under these arrangements, rural water authorities:

- must share information and work in partnership with irrigators when reconfiguring water supply systems;
- discuss options with customers in order to achieve the most cost efficient method of continuing the service;
- may only stop providing a service if these is complete agreement with all customers affected, or through a Reconfiguration Plan that is prepared in consultation with stakeholders and may require endorsement by the Minister.

Irrigation customers will be entitled to compensation for direct financial loss if their property is no longer serviced. Compensation will be based on the processes outlined in the Land Acquisition and Compensation Act.

In relation to the reconfiguration of irrigation supply systems, the *Pyramid-Boort Future Management Strategy* (refer Box 1), currently being developed by Goulburn-Murray Water, is seeking to identify options for reconfiguring supply infrastructure so that the financial costs to irrigators of future supply are minimised.

Box 1: *Pyramid-Boort Future Management Strategy*

As over 25 percent of water originally tied to land in Pyramid-Boort Irrigation District is now used on other properties, either within or outside the Pyramid-Boort area, not all of the infrastructure previously developed in the region is commercially viable. Where supply systems can be reconfigured, not only are associated maintenance costs precluded, the costs of supply for irrigators are also reduced.

The *Pyramid-Boort Future Management Strategy* will seek to:

- respond to trade and demand changes by developing a process that enables the supply system to continue to deliver water to those that want it and are prepared to pay for it;
- provide irrigators with service choices in how and where they take and use their water;
- provide appropriate infrastructure - maintain the balance between cost and returns such that farmers and Goulburn-Murray Water remain viable; and
- encourage new investment and development.

Work on the strategy has revealed detailed information on trends in water trading, the major costs associated with maintaining the infrastructure and the viability of the farm businesses currently being serviced by this infrastructure.

Some of the future management options being considered as part of the strategy include designing tariffs to encourage the rationalisation of water outlets, providing financial incentives to encourage reconfiguration, establishing exit fees, providing differential levels of service and facilitating improved farming activities.

Further information on the strategy is available from Goulburn-Murray Water's website www.g-mwater.com.au.

While the Pyramid-Boort Future Management Strategy is still being developed and the first report is expected to be considered by Goulburn-Murray Water's Board in February 2006 and released in due course, the aim of these types of strategies is to build irrigator and community confidence in the water market, inform irrigators of the options available for managing stranded assets and demonstrate opportunities available to irrigators.

Strategies such as these are also likely to facilitate increased physical water-use efficiency and should assist in addressing environmental externalities through reduced irrigation run-off and reconfiguration of systems currently providing water to salt-affected areas.

Access and Exit Fees

In recent years, third party price effects and the possibility of stranded assets resulting from water trading out of a district have become significant issues, prompting the consideration of measures which could help prevent these problems whilst simultaneously ensuring that no significant barriers to trade are introduced.

Proposals that have been advanced for mitigating these financial impacts include charging regimes that incorporate annual *access fees*, tied to land, and the use of *exit fees* where water is trading out of a district. There are numerous dimensions to these issues and it will be important for the success of the NWI that consistent arrangements for managing the impacts of water trading out of districts are developed.

In the absence of a national approach, Victoria has identified what it considers to be the key requirements from a policy perspective for managing the issues discussed above. These include:

(i) establishing the notion of a serviced property irrespective of water ownership/application;

(ii) identifying the forward-looking financial commitment associated with the cost of maintaining the infrastructure to supply a serviced property; and

(iii) using these forward-looking financial commitments to establish pre-determined arrangements that apply when a customer decides that he or she no longer wants to be a serviced property (ie customer opts out of/breaks the supply contract).

Within Victoria, implementation of the *Water (Resources Management) Act 2005* will enable the introduction of charging regimes that include access fees based on the share of delivery capacity and exit fees. These charging regimes, based on the delivery shares, will facilitate equitable ongoing access to and the use of the supply system by attributing costs of infrastructure provision to the service received from the infrastructure rather than the water entitlement held. This is in contrast to the arrangements being put in place in some jurisdictions, where exit fees are paid on every megalitre permanently exiting the supply system, regardless of whether the seller intends to continue using the supply network or not.

While access fees will be introduced in Victoria from 1 July 2006, exit fees will not be introduced until at the earliest 1 July 2007. In the meantime Victoria remains interested in exploring alternative pricing frameworks for irrigation related infrastructure.

A practical way forward would be for a consistent set of national principles for access and exit fees to be developed, codified and enforced by appropriate independent regulators, or potentially a national regulator, to provide certainty to water market participants as well as delivery capacity users.

Exchange Rates

A critical component of the market design that will facilitate increased water trading in the short term will be establishing appropriate exchange rates to convert different water products.

The multitude of different types of entitlements across State boundaries is not necessarily a barrier to efficient trade. Under an equitable and efficient wholesale tagged entitlement regime, water products would retain their original characteristics in the state of destination.

Victoria supports the development of a wholesale tagged entitlement regime and is taking the necessary steps to introduce this regime by 1 July 2007. However, as the tagged regime is being developed and once it is in place, appropriate exchange rates will continue to play an important role in facilitating increased trade, particularly as investment in irrigated agriculture and manufacturing has been shown to be greater in regions with highly reliable entitlements (Working Paper 58, *Investment Trends in the Lower Murray-Darling Basin*, Bureau of Transport and Regional Economics, Department of Transport and Regional Services, 2003).

As the market evolves, investors will need to be confident that the water product can meet their commercial needs. A lack of confidence in lower reliability products could inhibit the use of these products for high value uses.

Exchange rates for water products enable conversion between the various water entitlements without impacting on third party reliability. Once appropriate exchange rates are in place, they can ensure the conversion of one entitlement into another is relatively seamless and not subject to high transactions costs or artificial distortions. They also increase the choices available to irrigators, enabling them to purchase entitlements and convert them into the product that most suits their commercial needs.

As intra and interstate trading expands, Victoria is concerned that inappropriate exchange rates could distort the water market and create arbitrage opportunities prior to the full implementation of a tagged regime.

As an example, a set of modelled exchange rates has been developed within the Murray Darling Basin Commission that would enable conversion between the various water entitlements without impacting on third party reliability. These exchange rates were very close to 1.0 for trade between high reliability entitlements and 0.63 for conversion of the lower reliability General Security to high reliability entitlement.

However, NSW currently uses an exchange rate of 0.5 for conversion of the lower reliability General Security to high reliability entitlement rather than the modelled value of 0.63, which was developed using a conservative methodology. Adoption of this 0.5 exchange rate without any adjustment to other exchange rates would result in a write down in the value of NSW's General Security entitlement relative to high reliability entitlement in Victoria and SA.

While Victoria, NSW and SA have agreed to do further modelling to confirm the technically correct exchange rate, continued application of an exchange rate, which undervalues NSW's General Security entitlement relative to high reliability entitlements, is likely to result in buyers seeking to buy high reliability entitlement rather than converting General Security entitlement.

Given that Victoria holds roughly 70 percent of high reliability entitlements in the Southern Murray-Darling Basin, Victoria is concerned that this could result in:

- most initial water purchases (after an expanded interstate water market is implemented) being sourced from Victoria, resulting in a disproportionate share of the structural adjustment issues and costs due to:

- Victoria's large proportion of higher reliability water entitlements;
- about 80 percent of Victoria's high reliability water being applied to dairy and low value mixed farming enterprises and therefore in positive market conditions, there may be a greater willingness to sell; and
- the vast majority of high reliability water in SA and NSW is already applied to high value horticulture and is not likely to be sold.

- sensible adjustment in low value irrigation enterprises, which are more likely to use low reliability entitlements, occurring at a reduced rate.

Therefore, expanded interstate trade should proceed using the modelled exchange rate for the conversion between NSW's General Security and high reliability entitlements. Victoria is working closely with NSW, SA and the MDBC to undertake further modelling to finalise a technically correct exchange rate.

4. OTHER MARKET BASED MECHANISMS IN VICTORIA

Some examples of existing market based instruments in Victoria that seek to complement the water market in facilitating the economically efficient use of rural water and deal with environmental externalities are now considered.

(i) Salinity Impact Management

In April 2002, the Victorian Government introduced a new system of salt impact levies in the Sunraysia region in the Victorian Mallee.

The region is divided into salinity impact zones – one High Impact Zone (HIZ) and four Low Impact Zones (LIZ). Under the system, irrigators in the HIZ can only buy water from sellers also located in the HIZ. Irrigators located in the LIZ 1 to 4 can purchase water from sellers in any impact zone but must pay a salt levy per unit of water traded if they buy water from a LIZ[1]. The salt levy varies depending on which LIZ the water is purchased from and is used to invest in salt interception schemes that generate 'Salt Disposal Entitlements'.

The scheme is designed to encourage irrigation development to areas that have the least impact on river salinity to ensure new irrigation occurs within a cap on the limits of the Salt Disposal Entitlements available in the Mallee established through the Murray Darling Basin Ministerial Council's Basin Salinity Management Strategy (BSMS).

The scheme has provided a useful tool for managing salinity in a region where irrigation development has been significant. A technical working group, under the auspices of the Murray Darling Basin Commission's BSMS Implementation Working Group, is currently considering whether similar cap and zoning arrangements could be developed upstream of Nyah in the Riverina region.

Further information on the salt levy is available from Lower Murray Water's website www.lmw.vic.gov.au.

[1] From 2007, it is proposed that the salinity pollution permit in HIZ/LIZ zones will be attached to the water use licence, rather than the water entitlement as is now the case. This will enable water trading to occur independently of decisions about whether water can be used on a property for certain purposes.

Research on other market mechanisms for managing salinity, nutrients and water quality is discussed below under the heading 'Current and Future Research'.

(ii) Trading Environmental Water

The *Water (Resources Management) Act 2005* will establish the Environmental Water Reserve to set aside a share of water in rivers and aquifers across the State for the environment. The Environmental Water Reserve is established by:

- limiting the volume of water made available for consumption through various mechanisms - conditions on bulk entitlements, surface and groundwater licences, rules established in water management plans, and caps on water use such as permissible annual volumes and sustainable diversion limits; and
- in some regulated rivers, establishing environmental entitlements.

Catchment Management Authorities (CMAs) will be responsible for managing the operational delivery of the Environmental Water Reserve in regional Victoria. In the metropolitan area, Melbourne Water, as the waterway manager, will undertake this role.

As managers of the Environmental Water Reserve, these authorities will manage any new environmental entitlements but these entitlements will be formally held by the Minister for the Environment.

Where there is an environmental entitlement held in storage, the *Water (Resources Management) Act 2005* will allow for all or part of it to be traded on the temporary market where this does not affect the achievements of the objectives of the Environmental Water Reserve.

Trading will only be allowed within the constraints outlined in an operating strategy, which will define the target ecosystems that may be watered (eg river reaches, individual wetland areas), how and under what conditions they will be watered, how much (if any) of the allocation is tradeable and the circumstances under which it could be traded.

Each year, in line with the operating strategy:

- the environmental condition of each of the target ecosystems will be assessed, or a decision made on whether conditions for temporary trading are met and consultation undertaken with local groups;
- advice will be provided to the Secretary of the Department of Sustainability and Environment on the volume available for trade or required on the temporary market; and
- the Secretary will approve the trade which occurs through an independent broker.

Funds from temporary trading will be used, according to statewide guidelines and priorities prepared by the Department of Sustainability and Environment, for environmental water management costs, works to improve the effectiveness of environmental flows, or temporary purchase of water when necessary.

These arrangements will provide environmental managers with the opportunity to maximise the use of environmental entitlements in line with an operating strategy approved by the

Minister and to integrate trading of the environmental entitlement with other river restoration programs. They also provide the opportunity to maximise returns to the economy by providing extra water for consumptive use at times when the needs of the environment have been met.

(iii) River Tender

River Tender is an adaptation of the 'BushTender' process that uses a market based approach to encourage landholders to undertake native vegetation protection and rehabilitation.

River Tender is an auction style incentive and extension program to assist landholders in the management of riparian lands to achieve river health benefits. River Tender aims to offer landholders the opportunity to gain financial support for entering into agreements to undertake works to maintain or improve native vegetation within the riparian zone.

River Tender uses a tender based approach where landholders are requested to make a 'bid' which is the amount of financial assistance they want to carry out actions to protect and enhance riparian vegetation on their properties. Bids are assessed against both the amount of money requested and the 'river health benefit' that will be gained by undertaking the actions associated with the bid. Successful bids will be those that offer the best value for money for riparian protection and restoration and not simply the lowest bid received.

The development of the River Tender approach and undertaking of a state pilot was initiated through the Victorian Water Trust- Healthy Rivers Initiative. The trial was coordinated by the Department of Sustainability and Environment along with the North East Catchment Management Authority.

The first round trial of River Tender occurred between January and June 2005 and was focused on riparian lands along the Ovens River and its floodplain. Some statistics on the first round are set out in Table 2 below.

Table 2 Outcomes of River Tender (Round 1)

Expressions of Interest Received:	120
Properties Visited & Assessed:	49
Number of Ecological Sites Assessed:	134
Number of management plans written:	47
Total Area of Ecological Sites Assessed	907 hectares
Total Number of Bidders (Landholders):	22
Number of Successful Bidders (Landholders)	18
Number of Sites for which Bids were received:	33
Number of Successful Sites:	26
Percentage of Successful Sites	78%
Total Area of Successful Sites:	784 hectares
Total River Frontage of Successful Sites	59 km
Funds committed to on-ground actions over 5 years:	$422, 200
Average size of property under Agreement	30 hectares
Median size of property under Agreement	4.5 hectares

The second round of River Tender is currently underway, again with a focus on the Ovens River and its key tributaries. Expressions of interest have been received and the CMA is working with local landholders to develop farm plans and their bids for evaluation in the coming months.

In addition to the state pilot, the North Central Catchment Management Authority has commenced the application of the River Tender process for rivers in the upper Loddon and lower Avoca catchments based on the state pilot.

The Department of Sustainability is currently evaluating the pilot program with a view to providing CMAs with an alternative market based approach to riparian management.

(iv) Environmental Contribution

The pricing of externalities is another issue of relevance for the Commission's study.

This section provides information on Victoria's experience with this issue, particularly with regards to implementation of the *Water Industry (Environmental Contributions) Act 2004.*

The breadth of water interception/harvesting activities, and water use within Australia has in the past and still continues to generate significant adverse impacts on our natural ecosystems. However, accurate identification and quantification of these impacts is a difficult issue, as few interceptive and/or use episodes are homogenous in terms of their impact. Indeed, there is often a spatial and/or temporal 'disconnect' between an interceptive or use activity and its effect on natural ecosystems - problems experienced in recent times with rising water tables and salinity are an example of this 'disconnect'. These considerations pose numerous challenges for efforts to recover the costs of managing and addressing environmental externalities through regulated pricing frameworks.

Victoria notes that the issue of pricing for water related environmental externalities has been considered by COAG and supporting committees at numerous times since the establishment of National Competition Policy in the early 1990s, and is mentioned explicitly in paragraph 73 of the National Water Initiative. However, COAG has never endorsed or published any guidelines on how pricing for externalities might be achieved in practice.

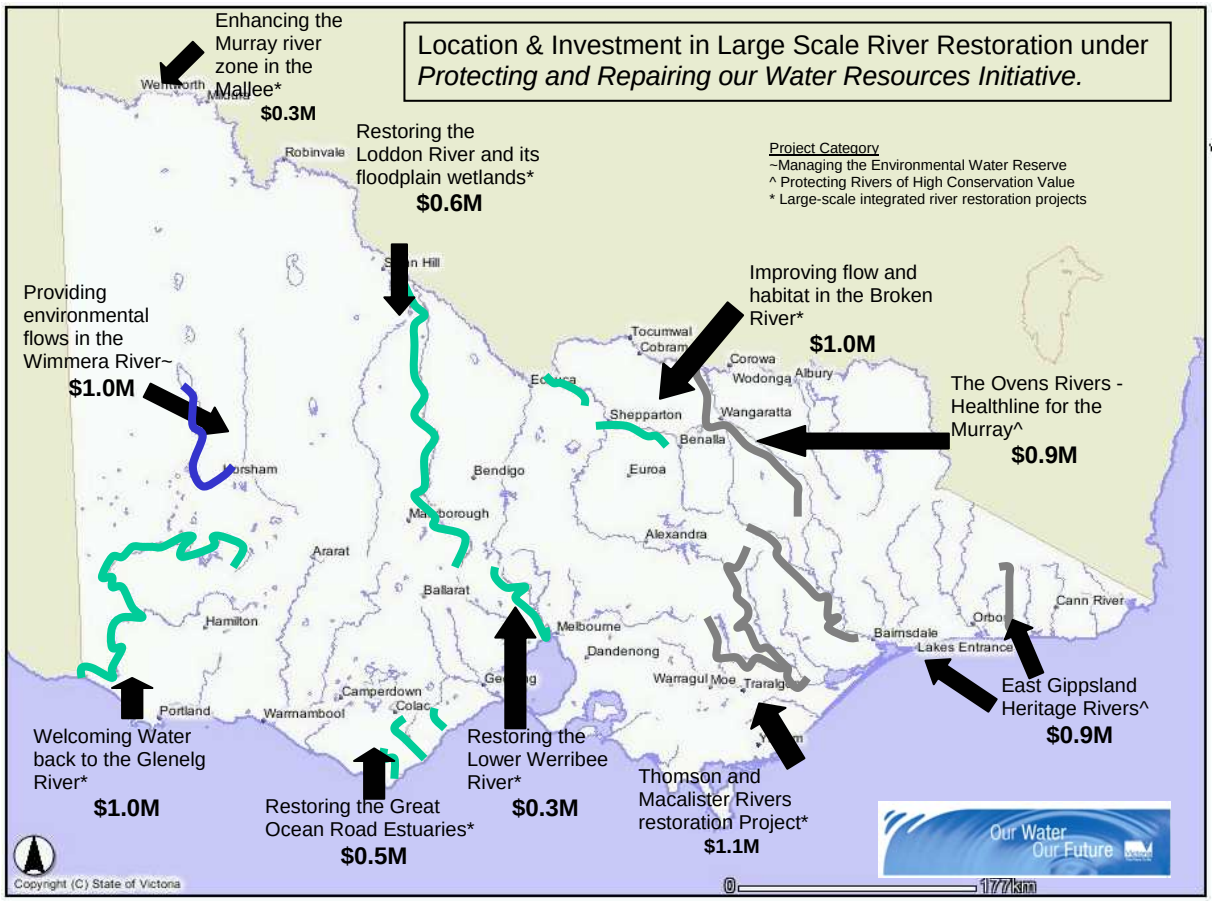
Against this backdrop, the Victorian Government decided to introduce a requirement for water authorities to contribute to the costs of initiatives promoting the sustainable management of water and addressing the adverse environmental impacts of water use. The requirement - initially for the four year period 2004-05 to 2008-09 - was provided for in the *Water Industry (Environmental Contributions) Act 2004*.

In establishing the requirement for water authorities to pay environmental contributions, the Victorian Government recognised that much of the degradation and damage to our natural ecosystems has occurred over time, and in some instances as a result of previous government policies. To apportion the responsibility for the degradation and damage of our natural ecosystems to certain sections of the community would be unjust and inequitable, thus the decision that all water authorities should make a contribution to the costs of repairing and managing our environmental assets.

From a practical point of view, Victoria's approach as outlined above – which is supported by robust governance arrangements for Victorian water authorities - provides the greatest opportunities for reducing and addressing the adverse externalities associated with water interception and use, particularly in the short-term.

For example, in 2004-05 environmental contribution funding of $18.5 million was allocated to a range of river and aquifer health programs, including $7.6 million for 10 large scale river health projects to improve conditions in key rivers, estuaries and floodplains. These projects, outlined in Figure 1 below, form part of the first stage of a four-year $100 million river and aquifer health program funded by environmental contributions.

Figure 1: Large Scale River Health Projects Funded by Environmental Contributions



5. CURRENT AND FUTURE RESEARCH

The following discussion outlines the existing and future research on market mechanisms that will be undertaken in Victoria. Any comments or materials provided on this research do not represent the views or formal policy of the Victorian Government and should be considered as preliminary thinking that may be used to inform policy development in the future.

Managing the Environmental Water Reserve

The Department of Sustainability and Environment is currently undertaking research on a range of policy instruments that could be considered to manage the Environmental Water Reserve on unregulated rivers.

The research considers how property rights and institutions/markets (or lack thereof) can impact on the task of managing environmental flows at the least cost to the community. Some options being considered for generating environmental flows include assigning preferential property rights for the environment or irrigators, purchasing partial water rights or options to partial water rights, or establishing a queuing approach where water right holders would nominate an amount they would need to be paid to forego pumping.

Research on Farm Management Decisions

Various research papers have demonstrated that practices that maximise the commercial benefit and satisfy the needs of the producer are fundamental to whether a practice is adopted and within what timeframe (Kaine and Bewsell, 2000; Kaine, 2004; Kaine and Johnson, 2004). For example, re-use systems for border-check irrigation are often used to improve the timing of irrigations as opposed to capturing irrigation run-off.

This research has also shown that practices are rarely adopted for their environmental benefit alone. For example, automatic irrigation systems for border-check irrigation are often adopted primarily for lifestyle and labour saving reasons (Sandall, Cooksey and Kaine, 2001; Kaine, 2004; and Kaine and Johnson 2004).

Research on Market Mechanisms

Research has shown that mechanisms such as incentives will increase the rate of adoption of those who are already likely to adopt (Kaine and Johnson 2004; Leth *et al* 2006). This research showed that to influence a larger proportion of the farming population a mix of instruments will be required that incorporate regulation and / or additional markets such as cap and trade markets.

In Victoria, the Goulburn Broken and North Central Catchment Management Authorities in partnership with regional and State stakeholders, are investigating the appropriateness of new markets such as cap and trade markets to improve water quality in irrigated agricultural catchments (Leth and Johnson 2004; Leth *et al* 2006). They have selected salinity and phosphorus as priority issues. Currently, primary producers have unrestricted emission rights that are now in conflict with the rights of others in relation to water quality.

The research found cap and trade markets to be technically feasible (Ford *et al* 2006; Leth *et al* 2006). Cap and trade markets are unable to be trialled in the field due to the need for compulsory participation and the perpetual effect of market transactions on business performance once the trial has been completed. The benefits of cap and trade markets might be outweighed by the transaction costs associated with defining and enforcing the property right (Leth and Johnson 2004).

Further information on this research can be sourced from the following references.

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