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Incorporating:

Berriquin Irrigators' Central Council

Wakool Landholders' Assoc.

Deniboota Landholders' Assoc.

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Southern Riverina Irrigators is a representative body of the four landholder Associations listed above. These Landholder Associations are located within the Murray Irrigation Limited region of the Murray Valley. The water is of General Security and in excess of 90% of the 1600 landholders surface irrigate. The region has a low megalitre per hectare ratio and the 5 year drought that has gripped the Murray inflow regions has hit our district extremely hard. We have had below average water allocations which has had the effect of stifling the adoption of any new irrigation technology.

*One task for this study is to identify the main factors that affect water-use decisions on farms. Some factors may include utility charges and the traded price of water, the weather, the cost of alternative inputs, commodity prices, and the applicability and cost of irrigation technologies along with irrigators' awareness of such technologies.*

From our experience it is the availability of water that determines the use of the above. The price of temporary water is sometimes inflated by restrictions placed on the movement of water from one area to another. This inflated price, in conjunction with a low commodity price, could mean that the irrigator will not go ahead with that crop because the return is not sufficient once these added costs are factored into the cost of production. Conversely, as was the case in the last drought other industries, dairy and wheat, were able to use the water and survive.

The adoption of newer irrigation technologies has slowed due to the drought and the fact that some are not as cost efficient as first thought. It is not just water use efficiency that needs to be looked at but the energy costs as well.

*Given farm operations can be complex and involve managing multiple resources and inputs, how and to what extent, do the factors noted above affect on-farm water use and physical water-use efficiency?*

The majority of water use efficiency is driven by higher productivity. This comes in the form of higher crop and pasture yields, these are the main drivers. Other drivers are labor efficiencies and environmental benefits such as less water being used per ton grown and water infiltration into the water table. Water saved is then put back into the production system in driving the over all farm profitability

*How does this vary across regions?*

To my knowledge there is little variation from region to region in the above.

*What other factors are important?*

A consistent price for the commodity grown is becoming more important to irrigators. Some have been lured into the so-called "high value crops" only to find the price plummeting due to oversupply. The high value crops are high value for a reason. They are in short supply. Once more people enter the supply chain, the commodity is no longer in short supply. Grapes are a classic example. A consistent return is important.

*How do water-related farm management strategies (e.g. whole farm management plans) and current taxation arrangements or other government and utility policies affect on-farm water use and physical water-use efficiency?*

Our region has had Land and Water Management Plans in operation for over 10 years now. These encourage irrigators to adopt whole farm management plans for their recycling and water reuse through cash incentives from government and community. The majority of the funding is collected from irrigators. The other costs are met by those doing the works. The adoption of these water saving strategies has been quite significant. The water saved through this more efficient use, has been used to increase the amount of irrigating the farmer does. As stated earlier the area has a low megalitre per hectare ratio, so any saved water goes into increased water use/production.

*What are the key factors that affect on-farm decisions to invest in new irrigation technology or develop other water-related farm management strategies?*

To grow the productive use of the enterprise, see previous point.

Desire-The irrigator has to see the need for change and or improvement. His current enterprises need to be profitable so there is a solid base to carry the new operation for some time if needs be. They also need to see the benefit of the new developments. There has to be some long term gain for the business.

In our region we believe the adoption of water saving technologies is only attempted because the irrigator will get access to more water. As stated earlier, we have a low megalitre per hectare ratio and any savings would be utilized by that business to increase profitability.

The increase in the use of carryover is a management strategy that has developed during this drought. Rice is the predominant crop in our region and it requires a substantial water allocation early in the season for the irrigator to warrant making the up front investment in the crop. This has not been forthcoming; so many irrigators have been restricting water usage one year and carrying it over so they can continue their profitable rice cropping programs. The use of carryover has also been used by the dairy and winter cereal growers to risk manage seasonal conditions for the following season.

*To what extent does reduced water use feature in these decisions (compared, for example, with labour or other input savings)?*

It figures prominently, as water availability has reduced, irrigators drive their megalitres harder but only to give access to that saved water. Our irrigator members, in the main, are totally reliant on irrigated agriculture and without it would not exist.

*Are there any factors restricting the uptake of new irrigation technology or water related farm management strategies (such as a lack of awareness or information about on-farm effectiveness, or difficulties in accessing finance)?*

We see the lack of finance as the main obstacle. The type of crop grown under these more efficient types of irrigation are unprofitable to grow at the moment. If there is no money to be made at the end of the expensive installation, the irrigator will not adopt it. The NSW Rural Assistance Authority offer low interest loans but in many cases these loans are restrictive. Also the amount of money on offer hasn't kept pace with the rising cost of development. The RAA requires the first Charge on a property and the loan has a limit of \$100k .

*Are there any factors that may restrict irrigators' ability to make decisions regarding water use?*

Given the drought conditions over the last few years allocation rises have been extremely slow due to low inflows into the storages. This has placed the decision making process for irrigators planting summer crops to be very frustrating.

*If irrigation technologies or water-related farm management strategies improve physical water-use efficiency, is total water use reduced and, if so, what happens with the water 'saved'?*

Yes. As stated above. We have a low megalitre per hectare ratio and the 'saved' water is used on other enterprises on the farm.

*Under what circumstances might the adoption of new irrigation technologies or water-related farm management strategies increase total water use and is this common?*

This has been the case in our region. The increased adoption of whole farm planning and recycle systems below well developed flood irrigation systems has seen water savings of up to 25%. These savings are then used as more of the farm plan is developed. Once the profitability increased, in some cases the irrigator has bought more water to enable them to irrigate the entire farm. In some cases there is sunken capital tied to a farm which cannot be moved. An example would be a dairy. It is beneficial to put as much milk through these to drive down the per unit cost, therefore you must intensify the area in the immediate vicinity of the dairy.

*What impact does the efficiency of water harvesting, storage and distribution have on on-farm water use decisions? How large are these effects and do they vary across regions and, if so, why?*

The uses of the catchment's are of importance to irrigators. If high water use industries such as introduced tree plantations develop within the catchments this reduces the run off into dams. This affects long term catchments yields.

A more efficient distribution of water has been achieved by Murray Irrigation Ltd. by reducing the flows from supply channels into drains. This however has reduced the flexibility of the water supply company to meet irrigator's water use as there is no spare water within the channel system. The efficiency gain in one area has been transferred to less flexibility for the irrigator. The greater use of on farm storages or on route storages would enable greater flexibility and fine tuning to optimize water use.

*What are the major environmental and non-environmental third-party effects of irrigation activity in your region?*

The region is a net importer of salt (Murray Irrigation Environment report 2006) The use of Land and Water Management plans has focused on better water use and the productivity gains and environmental benefits that come from this. There has also been a growing awareness of the biodiversity of the region with some 250 native animal species being recorded in the last 12 months.

*Are existing water markets providing clear signals on the 'true' value of water (including its value in social and environmental uses)? If no why?*

It is our opinion that the Murray Irrigation Limited water exchange gives true picture of the value of water. There are no costs associated with listing or buying water on this exchange. All water that is for sale is on a seller's board. The buyers will pay only what they feel they can with the type of crop they wish to grow.

*To what extent do water markets help on-farm water-use decisions?*

Water markets give an indication of what the value of the water is and give irrigators the opportunity of selling or buying. This is then used to assess the profitability of growing crops and pastures and thus informed decisions can be made whether to grow or sell the water to somebody who can utilize it.

*What factors affect decisions to buy and sell either seasonal water allocations or permanent entitlements?*

The amount of water available as allocation, the prices being received for the commodity produced and the general seasonal conditions in the region. The way the MDBC CAP was implemented has also affected the trade in entitlements. The CAP was introduced recognizing only licensed entitlement. History of Use was not recognized. Those who had a previous high history of use now purchase water. The trade in Permanent water isn't substantial. Some may argue that the retail tagging of water and exit fees are a hindrance to trade. We see that these mechanisms actually allow for long term adjustment of the regions where water comes from. The wealth of a region is where the water is used

and that region is in the best position to help readjust the region from where the water has been removed.

The major irrigation corporations have been unfairly targeted in allowing both permanent and temporary water to move. All irrigation bodies that manage water need to have mechanisms in place to allow water to trade both in and out. At the moment irrigators within the major corporation are at a disadvantage and see themselves being targeted.

It would also be prudent to allow the water that is traded to maintain its original characteristics. At the moment there are different water products (securities) across the states and these can be enhanced by allowing them to keep these characteristics. This would also allow the different agricultural enterprises to obtain the type of water that best suits their industry.

*To what extent do water markets assist or hinder the management of any off-farm implications of water use, including impacts on the environment or other third parties?*

Water markets do give the opportunity of more flexibility for the third parties. However, there is the risk that market distortion could occur at the expense of productive agriculture use.

*What impediments are there to trade in seasonal allocations or permanent entitlements?*

The use of trading rules to limit water moving. Examples of these include different closing dates for water transfers between states and valleys. (Murrumbidgee 31<sup>st</sup> Jan, Vic 28<sup>th</sup> Feb and NSW Murray 31<sup>st</sup> May. A high security irrigator on the Murrumbidgee must nominate by August 31<sup>st</sup> of the New irrigation season if they want sell water or not.). There are also internal rules that apply to corporations, smaller irrigation companies and irrigation trusts which were included in these organizations Constitutions to protect their water and keep it in the region. These apply to both temporary and permanent water.

The other major impediment to trade is some governments having to approve the water transfer. The South Australian transfer requires ministerial consent. As you can imagine this approval process is extremely time consuming.

*Within the existing water trading framework, what changes could be made to the water market to improve the economically efficient use of water on-farm?*

We would suggest that the trading rules between valleys and states be streamlined to allow water to be traded between agricultural irrigators. The water should also be only allowed to be traded where it was physically possible to do so. We suspect that other states still make use of the under usage by irrigators to boost allocations. This can make water transferring difficult. Transferring will generally activate this under used water and when the water is used it has CAP implications.

*What would be the likely costs and benefits of such changes?*

We don't see any real costs in this change. We envisage water trade mostly be of the temporary nature with not much permanent water being traded. This would not affect assets and infrastructure within the region from which the water was traded. The benefit would be that the water would be used on commodities that are returning the greatest profit at that particular time.

*How would developments in water markets, such as allowing river managers to trade in water and the development of rural-urban water trade, affect the efficiency of rural water use and the level of rural water-related environmental externalities?*

We would see this as a positive move, if the water traded was temporary. Australia is a country of extremes and regions are subject to varying seasonal conditions. Annual or temporary trade could help overcome these extremities. However, if permanent trade was allowed between these differing entities, there would be a huge distortion in markets and entire irrigation communities could be left with little water. Urban utilities and river managers would swoop on our water as they perceive it as being a cheap commodity. Over time we see this as a threat to productive irrigated Agriculture. The Urban

population has a much greater scope to buy water. Urban Utilities should be encouraged to be more water efficient, just as we irrigators have had to do.

*Would these effects be positive or negative, small or large?*

We would see these effects as large and extremely negative.

*How might any adverse consequences of such developments be addressed?*

As stated above, these developments could be advantageous if the trade was on an annual basis only.