



Peak body for five landholder associations and 1600 irrigators in the Murray Valley

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**PUBLIC SUBMISSION**

**MURRAY DARLING BASIN  
AUTHORITY**

**Sustainable Diversion Limits  
Issues Paper**

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## SOUTHERN RIVERINA IRRIGATORS

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Southern Riverina Irrigators (SRI) is a representative body of Four Landholder Associations located within the Murray Irrigation Region of Southern NSW. Representation covers an area of 748,000 ha and 2389 landholdings.

As a member of NSW Irrigators Council, SRI supports the NSW Irrigator Council submission to the Murray Darling Basin Sustainable Diversion Limits Issues Paper. This submission seeks to add regionally specific information and as such, should be viewed in its own right.

### **PREAMBLE**

Australian landscapes have historically experienced wet and dry cycles. These cycles can be short term or long term over decades or much longer periods.

In NSW, regulated surface water systems have entitlements approved under Water Sharing Plans. Such entitlements have announced allocations that reflect water availability.

Under this system, the issue of drought or wetter or dryer periods, can be effectively managed through normal allocation announcement. The Southern Riverina has predominantly General Security water entitlements and as such, the allocation against entitlements, is an accepted management tool to address both climatic variances and water availability.

Progressive Government policies including the National Water Initiative (NWI), sought to deliver beneficial water policies to Australia, however it also created the expectation that water trade could effectively resolve Australia's long term water needs. Australia has no national policy for increasing water storages as mechanisms for securing future water needs to meeting growing population demands. In the absence of such a policy, environmental demands on water will have to be balanced with other consumptive uses.

Without some 'new' water, future competing demands will require efficiencies not just in agriculture, but also for urban and environmental use.

NWI policies that promoted separation of water entitlements from land, has led to the activation of water entitlements across all States. Prior to the separation of land & water, many entitlements or licenses, were termed 'inactive' or 'sleepers or dozers'. Increased activation of entitlements has placed increased demands on the river and supply systems. As a result, expectations of previous **excess** historical flows may have to be modified to meet changed demands. This is particularly relevant in relation to 'pre drought' and pre 'activation of all licenses' water flows into South Australia, where excess water in the system has meant that South Australia's state share of the Murray Darling Basin resource of 1850GL, was regularly exceeded during average rainfall pattern periods. These additional flows above 1850GL have in effect, created the expectations that the Lower

Lakes in SA, can be maintained at flood height, even in severe drought. Climate change modeling would indicate that maintaining excess flows above 1850GL base State entitlement, may not be sustainable.

In certain parts of the basin, such as the Southern Riverina, amendments and reductions to meet evolving Basin issues have already been implemented. For example, the NSW Government has implemented amendments to supplementary water provisions, impacting on previous usage and historical access rights.

In conjunction with policies that led to the separation of land and water, the imaginary concept of 'high value crops' which led to a concentration of permanent plantings, further changed the notion of water security and availability. A foundation principle of the NWI was to encourage the more 'efficient' and 'better use' of water, in effect, to encourage water use via trade, from low value crops to high value crops. However this concept of a 'high value' crop is flawed. Australia's agricultural robustness, stems primarily, from its diversity and lack of reliance on one enterprise. Domestic and International Markets, World trade issues, Climatic events and Government policies, can all combine to ensure that a 'high value crop one day, will be a low value crop another'.<sup>1</sup>

It essence, Australia may well be more suited to a balance of both permanent and non permanent plantings and the mix may better reflect water supplies currently and into the future. This system is more reflective of Australia's natural climate variances and recognizes the physical constraints of natural water delivery systems.

As Australia develops a national approach to water in the Murray Darling Basin , it is important to understand the impacts of competing Government policies on water availability. To date, this has not been sufficiently recognized in policy development.

Federal and State Government policy development is generally piecemeal and there is little recognition of cumulative impacts or cohesive policy frameworks. One such example is the move to high value horticultural or viticulture crops such as those encouraged by Managed Investment Schemes. The consequences of such schemes are long term and the fall out from poorly conceived concepts have long term significance.

Climate change is regarded as a major threat to the future of the Murray Darling Basin, however Australia's policy responses may lead to a further reduction in overall water availability. It is likely under the Carbon Pollution Reduction Scheme, Australian Industry will rely on carbon forestry offsets, particularly in the early stages of the scheme, to meet their emission liabilities. While industry reliance on offsets may be relatively short term as they move to less emission intensive options, early forestry offset provisions may lead to long term ramifications on the Murray Darling Basin. Forestry offsets legal obligations will continue in excess of 70 years and as new science emerges, the contractual framework will ensure that limited actions can be taken to reverse impacts on catchment hydrology.

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<sup>1</sup> High & Dry

There is no national approach to managing Catchment hydrology risk from major Bushfire events. Australia's approach to bushfire management is largely reactive and the traditional indigenous concept of cool burning is not adequately considered. Wildfires will always been a major component to reshaping Australia's natural environments, but their effect on long term catchment hydrology could be minimized through the reintroduction of land management options that limit high intensity impacts.

Equally competing demands on water are not recognized in Australia's long term forestry policies. The 2020 Vision has resulted in closure of National Forests from Harvesting regimes and an expansion of plantations for sawlogs and pulp in agricultural areas. Land use per say should not be determined by imposed rules but where substantial landscape change and impacts on Catchment Hydrology occur, then these factors need to be considered in the overall Murray Darling Basin Plan.

For the future benefit of the Murray Darling Basin, its environments and its communities, SRI encourages the MDBA to take all steps necessary to achieve a balanced outcome and recognized the complex factors that should be considered when determining Sustainable Diversion Limits.

SRI is particularly concerned that relevant expertise, established planning principles and associated investments to date in Murray Darling Basin, may well be undermined by the current process of establishing a new round of environmental requirements based on at this stage, an unidentified list. It is important to recognize the processes established through the National Water Initiative and ensure that States have sufficient time and resources to see these through to completion.

The concept of arbitrarily establishing a list of new environmental assets without sound scientific research, poses a long term threat to the Australia's prosperity derived from sharing of the Murray Darling Basin's natural resources.

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## **PRIORITY ISSUES FOR CONSIDERATION**

The scale of the Federal Governments investment of \$12 billion to achieve water programs in the Murray Darling Basin, to deliver for the environment and for consumptive use, should provide an effective mechanism to deliver long term water security for Australia long term food needs.

The Water buyback programs, of \$3.1 billion is acknowledged as a key mechanism to achieve water for the environment. As such it is imperative that this major investment program achieves appropriate and strong recognition in setting SDLs. As stated by the Federal Government, 'Water Buyback', should help reduce the need for major adjustments as part of SDLs.

There is much ambiguity and lack of clarity, regarding the MDBA planning processes, Water Recovery Programs, the Living Murray Program, other environmental water holders and the setting of the SDLs.

SRI wants to be certain that all water entitlements obtained through the water buyback and other water entitlement acquisition schemes, are kept separate to the SDL. Although the nature of these entitlements must not change; the fact that they are to be used for environmental purposes means they are no longer diversions, even when used for out of stream purposes. Environmental entitlements are not diversions and therefore would not be a component of consumptive water under SDLs.

Of primary concern, is that there is insufficient timeframes to accurately identify additional needs of the environment **prior to setting the draft SDLs**. Compounding this is the incomplete process of Water Buybacks. In essence, it appears that the MDBA is setting SDLs, in the absence of complete information and knowledge about how much water is required and where.

Southern Riverina Irrigators recognize that water recovery for the environment is a key policy platform of the Federal Government. Recovering water for the environment will have **long term implications** on regional communities and Australia's future food production. Therefore, it is essential that Australians in general and regional communities have confidence in the process.

#### **Key Aspects:**

**There is inconsistency between historic and current Water Recovery programs and parallel Government Planning Processes. In particular, the NWI, the Living Murray, Water for the Future (Buyback), establishing additional environmental requirements, complementary land policies (eg carbon forests) and setting of the SDLs.**

- 1. Lack of a clear MDBA business plan to adequately identify the most appropriate planning pathway to achieve outcomes**
- 2. Inadequate MDBA timeframes to comprehensively ensure baseline information and process of engagement**
- 3. Inadequate base data and insufficient science to underpin decisions**
- 4. Major basin decisions need to be staged to recognize baseline data limitations:**
  - a. science underpinning new additional environmental assets**
  - b. reliance on modeled scenarios for climate change:**
  - c. Long term social and economic implications**
  - d. Reliance on 'best available science'**

5. **Inadequate information about risks to State sharing arrangements and how these will be affected by SDLs**
6. **Inadequate transparency about total resources allocated to the environment - new requirements and the total amount of water currently provided to the environment (base river flows, dilution flows, transmission flows, current environmental entitlements (eg Barmah Millewa ), Living Murray Icon Sites (Water recovered) – how SDLs will be influenced**
7. **Scientific concern on the over emphasis of ‘flow volumes’ to measure river health**
8. **Insufficient independent analysis about environmental requirements of the Coorong and SA Lower Lakes – impacts of the SA South East Drainage Scheme and the ecological impacts of the Barrages**
9. **Inadequate understanding of key end of system flow requirements**
  - a. **Will the MDBA set a figure of the Murray Mouth or establish an environmental parcel of water for the Lower Lakes**
  - b. **How will this environmental water be quarantined from consumptive extractions once identified in SA cross border flows**
10. **Potential Basin inequity in setting the SDLs**
  - a. **Community concerns on the integrity and planning emphasis on Southern Connected systems of the Basin**
  - b. **MDBA needs to document and be transparent in establishing the environmental targets across all of the Basin**
11. **Competing Government policies, long term water implications of the Carbon Pollution Reduction Scheme – forestry offsets**
12. **Need for Valley by Valley stakeholder engagement for determining and preparing management plans for environmental assets. Strong need for collaboration with scientists/local knowledge**
  - a. **Capacity constraints**
  - b. **Engineering or other flow options**
  - c. **Third party adverse flood risks – legal liabilities**
13. **Inadequate recognition of the role of the Northern and Southern River systems and their contributions to major flood flow events in South Australia**
  - a. **Need for transparent understanding of physical constraints in the Southern Systems (eg Barmah Choke)**
  - b. **Insufficient acknowledgement of the role of Murray ‘in river’ infrastructure & its regulatory role in normal, high river and flood events**
14. **Lack of recognition of river(s) channel capacity and the impact of delivering water efficiently**

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## **SOUTHERN RIVERINA (NSW)**

Riverina and Murray Regional Organization of Councils (RAMROC) have identified that food production in the Murray, Murrumbidgee, Lachlan Valley and Lower Murray Darling Basin, directly employs around 30,000 people. These levels of employment are estimated to be six times the national average for agriculture. An additional 17,000 people are employed in agricultural productions and service delivery, linked to agriculture.<sup>2</sup>

Recovering water for the environment in the Murray Darling Basin, without appropriate planning, will have profound economic and social impacts on regional communities in the RAMROC region.

A recent RAMROC report identifies that for every 10 percent reduction in water availability, the value of agricultural production declines by \$220 million and direct employment declines by 4700.<sup>2</sup>

NSW Irrigators Council refers to NSW Government research (WSPs), that shows for every 270 megalitres of water removed from irrigation production, one direct job loss would result.<sup>3</sup>

RAMROC includes the Southern Irrigation region of NSW, encompassing the Shires of Murray, Conargo, Jerilderie, Berrigan, Moulamein and Wakool. A key supply of water in the region is via a private irrigation company, Murray Irrigation Limited (MIL).

MIL supplies irrigation and stock and domestic water to over 2389 properties and covers an area of 748,000 ha of land extending North of the Murray River, to Mulwala in the East, to Moulamein in the West. Water is delivered by the main Mulwala Canal from an offtake from the Murray river below Yarrawonga.<sup>4</sup>

This region was developed by the NSW Government as Australia's largest irrigation network between 1933 and 1964. The NSW Water Conservation and Irrigation Commission was responsible for the construction and operation of the irrigation district.<sup>4</sup>

The Southern Riverina Region of NSW is influenced by the main body of the Murray River, with water sourced from the Hume and Dartmouth Dam. It is the largest irrigated food production area in Australia with the irrigated development off river. It's location enables maximum water delivery efficiency, due to close proximity to Australia's major storage dams. Private water diversions from floodplain flows or floodplain harvesting, does not occur on Southern River systems and therefore is not applicable to Southern Riverina Water Supply issues.

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<sup>2</sup> RAMROC

<sup>3</sup> NSWIC

<sup>4</sup> MIL

## **Business Investment/ Environmental Sustainability Plans**

The MIL region is the largest gravity fed irrigation system in Australia. Irrigated agriculture in the Southern Riverina region has a long history dating back to initial developments in 1933. The highly regulated system has enabled strong business development, directly on farm and in regional towns. Irrigated agriculture producing food for Australia and overseas, was underpinned by Government policies that saw major investment in securing water for the future. The major dams, including the Snowy Mountains Scheme provide water primarily for irrigation purposes, with smaller amounts delegated to supply industries and towns. The city of Adelaide is also a designated supply.<sup>4</sup>

Underpinning that investment, the Federal, NSW and Local Governments collaborated with industry and communities, to develop major sustainability programs. First initiated by irrigators in the 1980s, the resulting Murray Land & Water Management Plans (LWMP) established in 1995 were a 30 year natural resource strategy, developed in collaboration at all levels. The initial ‘Heads of Agreement’ was signed in 1995. Federal, State and Local Government funding was designed over 15 year. Landholders funded a major component of the plans through levies on their water and through on farm investments. Direct Government investment to date is approximately \$68 million with landholder contributions of approximately \$347 million.<sup>4</sup>

On ground investments accounted for 96% of funding and this reflects the LWMP success as one of the best value-for-money programs in Australia in the last 14 years.<sup>4</sup>

Land & Water Management Plans include:

- Whole farm plans
- Wastewater storage
- Vegetation Management
- Education, Administration & Governance
- Stormwater management
- Research & Development
- Sub surface drainage
- Monitoring

Major investments have also occurred in the form of an ‘Asset Renewal Program’. MIL supply and drainage assets totaling \$804 million have been managed for long term food production in the Southern Riverina. To date the asset renewal program is 97% complete with expenditure in excess of \$100M over 15 years.<sup>4</sup>

Asset renewal Program includes:

- Civil asset renewal projects (roads bridges etc)

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<sup>4</sup> MIL

- Mechanizing regulator gates
- Stormwater construction
- Supervisory control and data acquisition (SCADA)
- Infrastructure maintenance

The Southern Riverina region has already been exposed to Government Water reduction initiatives, in particular, water reductions such as the Murray CAP announcements. An Interim cap was introduced in June 1995 and then the Permanent Cap introduced in June 1997. Then, an inter-governmental agreement led to restoration flows to the Snowy River (20% of average annual natural flows), plus the commitment to provide 70,000 megalitres to the Murray. In addition to this, The Living Murray Program saw another 500,000 megalitres allocated to the environment by 2010.<sup>4</sup>

Further contributions to the environment were made from the Southern Riverina region with investments in channel upgrades. This includes 30,000ML which forms part of the adaptive environmental water in the NSW Murray Lower Darling Water Sharing Plan. In addition, the investments in infrastructure in the NSW Lower Murray Darling Water Sharing Plan, includes the creation of a permanent water entitlement of 100,000 ML for the Barmah Millewa Forest (Murray River Icon site) (50,000ML NSW/50,000ML VIC) A further 50,000 megalitres (25,000ML NSW/25,000ML VIC) can be accessed under certain conditions. This forests entitlement is delivered as a result of Government/community plans developed to deliver ecological benefits for the forest and its environs.<sup>4 8</sup>

With the Southern Riverina Region experiencing significant changing water conditions, businesses have had to make the necessary adjustments and most have continued to invest for the future. Despite the changes, agricultural related businesses in regional towns had strong confidence in the future and continued to invest and provide services for irrigated agriculture.

The onset of the current prolonged drought and now significant new changes to Federal Government Water Policies has, however, set a new direction for businesses in this region. Business confidence is at an all time low and the long term ramifications are not specific to irrigated agriculture, but extend also to the economies and support networks in regional towns.

Investment certainty and confidence is needed to maintain future productivity. This will sustain the communities in the region and encourage continued investment in regional businesses at all levels.

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<sup>4</sup> MIL  
<sup>8</sup> MDBC

## ISSUE PAPER DISCUSSION POINTS

### 3.1.3 THE WATER ACT 2007

The Australian Government Water Act 2007 objectives specifically establish the interests of the environment in the future management of the Murray Darling Basin. The objectives also include, that basin resources are managed in a way that optimizes economic, social and environmental outcomes.

Internationally recognised principles of ecological sustainable development seek to achieve a balance of environmental, social and economic needs. Australia's National Strategy for Ecologically Sustainable Development (Dec 1992) endorsed by the Council of Australian Governments, accepts there is no universally accepted definition of ESD, but suggests:

- *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.<sup>5</sup>*
- *Put more simply, ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations. To do this, we need to develop ways of using those environmental resources which form the basis of our economy in a way which maintains and, where possible, improves their range, variety and quality. At the same time we need to utilise those resources to develop industry and generate employment.<sup>5</sup>*
- *There are two main features which distinguish an ecologically sustainable approach to development:*
  - *we need to consider, in an integrated way, the wider economic, social and environmental implications of our decisions and actions for Australia, the international community and the biosphere; and*
  - *we need to take a long-term rather than short-term view when taking those decisions and actions.<sup>5</sup>*

Australian policies for long term management of the Murray Darling Basin resources therefore should adequately consider both the short term and long term scenarios. It is important therefore, that policy decisions affecting the Murray Darling Basin factor in long term cyclical scenarios that have typically shaped the Murray Darling Basin's natural environment.

In this context, it is important to ensure that major decisions on balancing consumptive and environmental needs, are not specifically determined during periods of major prolonged drought. Despite the modeled predictions on climate change, currently Australia's Bureau of Meteorology is still unable to predict rainfall events beyond a

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<sup>5</sup> ANSESDSD – Ecologically Sustainable Development

window period of three months. In this context there is still much unknown in terms of long term rainfall predictions in the Murray Darling Basin.

Australia experiences regular drought periods, but since accurate records have been available, there have been three major notable drought events extending into ten year time frames. The Federation drought of 1895 – 1903, 1940's and the current drought 1997 – 2009 drought.

History has shown that during these exceptionally prolonged dry periods, significant economic, environmental and social change has occurred. In between such events, Australia has enjoyed significant periods of environmental and economic prosperity.

In determining the environmental needs of the Murray Darling Basin, Southern Riverina Irrigators contends that clear distinction should be made between natural drought sequences and the concept of 'over allocation'. Understanding natural drought sequences are imperative to inform planners when determining additional water to be allocated for the environment. It should be noted that the water supply to the city of Adelaide has been maintained during this most serious drought, despite a supposedly flawed and over allocated system.

Therefore, as a baseline point, Australians need to understand what standard or benchmark for the environment is sought. There may be an inaccurate presumption, that re-acquiring water entitlements can drought proof the nation. Despite modern infrastructure such as the Hume and Dartmouth dams, the Snowy scheme and many other dams in the Murray Darling Basin, Australia will never be able to achieve the concept of 'drought proofing the nation'. Rural communities acknowledge the benefits of the river regulation but also understand the concept that Australia will continue to have seasonal variations and that yield on water entitlements will always reflect that variation.

While it is often assumed that the environment does not have access to water in regulated river systems, policy makers need to recognise the multiple benefits for irrigation, towns and the environment, that regularly occur, in the provision of regulated water.

Without regulated river systems and the investments in the Snowy Hydro Scheme, Hume and Dartmouth dam, and smaller dam storages on the Darling system, many rivers and creeks would have ceased to flow in this current drought period.

Therefore in assessing the 'actual' needs of the environment, SRI encourages Government to develop an integrated approach that clearly and transparently identifies the goals and strategies, to effectively determine all needs of the Basin.

This would ensure greater understanding of the end goals, give greater certainty to regional communities and would maximise the efficient expenditure of Government dollars, in meeting the needs of the environment.

The MDBA must clearly state that a return to pristine conditions or any like pristine conditions is not attainable in the Southern Murray Darling Basin.

## **3.2 DEVELOPMENT OF THE BASIN PLAN**

There are significant community concerns in the Basin, that setting of Sustainable Diversion Limits will be a mechanism to rewrite historical State Water Sharing arrangements. If SDLs are based on a percentage cut within each state system, subject to identified environmental requirements in each Valley, then this would reduce the perceived risk that sustainable diversion limits for environmental water could bypass existing State based rights. This would also recognize timing inconsistencies between States and Water Sharing Plans.

Section 3.2 identifies that “The Basin Plan will take a consistent and integrated approach to managing the water resources in the basin”.

This is particularly important to ensure that social and economic viabilities of river dependent regions are sustained. Equally it will be important to recognise the integrated benefits for the environment that are currently achieved through the provision of consumptive water via Water Sharing Plans in NSW. Consumptive and environmental benefits from regulated or unregulated flows, are all impacted during periods of major prolonged drought periods as currently experienced.

Scenarios that rely on modelled predictions for climate change, may not reflect Australia’s natural environment. The Basin Plan should continue to factor in medium and long term historical rainfall scenarios in order to achieve the principles of ESD. Determining environmental needs during prolonged dry periods or on purely modeled scenarios, will artificially determine environmental requirements, that ignore natural climatic cycles typical in Australia’s history.

Basin communities have experienced significant impacts from previous Government policies on water to date. It is important to build on existing Water Sharing and Environmental plans and if there is new scientific information on specific environmental needs, then tailored arrangements within a region, should be determined and adjustments made.

In developing the new Basin Plan (2014), basin communities are at risk of an environmental ‘wish list’ being constructed that overshadows significant taxpayer, community and Government investments to date in regions.

The Basin Plan should build on the plans and works to date in terms of environmental watering of key assets. To rewrite plans and introduce new demands further erodes community confidence in the process of environmental reforms. Business and community confidence is at an all time low and further changes imposed under the Basin Plan will further damage future investment.

Salinity threats to the Murray Darling Basin have undergone substantial review and change. While the threat of dryland salinity remains an issue for key areas, the scale of impacts based on modeled scenarios, has not materialized. Significant Government investments has effectively managed salinity and reduced the risks in key areas. Equally it can be argued, that current knowledge on dryland salinity predictions and its management has reached a new level of understanding.

Therefore in the development of the new Basin Plan, assurances are needed that more accurate and up to date knowledge on salinity issues, underpins natural resource planning.

It is also important to acknowledge that management of salinity should not be the catalyst in the claims for a greater share of the Basin Resources. Community understanding of in stream salinity levels has matured and while specific areas continue to be at risk of saline levels, it is important that the full range of management options are utilized to ensure sound policy responses.

### **3.3 HOW EXISTING PLANS INTERACT WITH THE BASIN PLAN**

In developing the basin plan, the MDBA will need to recognise the different levels of planning across States and the level of community and government investment and development in Watering Sharing plans, both surface and groundwater.

Currently across States there are a range of instruments in place to manage water. States are at various levels of implementation of national water reform objectives and it is important that the new Basin Plan recognises achievements to date. There are varying degrees of implementation. Regions where water sharing principles have been implemented, should not face an unfair share of future change, in order to achieve new basin objectives.

The Southern Riverina region has experienced significant adjustment and change in relation to water policy. Change has included the Murray CAP adjustments. An Interim cap was introduced in June 1995 and then the Permanent Cap introduced in June 1997. Later, an inter-governmental agreement led to restoration flows to the Snowy River (20% of average annual natural flows), plus the commitment to provide 70,000 megalitres to the Murray. In addition to this, The Living Murray Program saw another 500,000 megalitres allocated to the environment by 2010.<sup>4</sup>

Further contributions to the environment were made from the Southern Riverina region with investments in channel upgrades. This includes 30,000ML which forms part of the adaptive environmental water in the NSW Murray Lower Darling Water Sharing Plan. In addition, the investments in infrastructure in the NSW Lower Murray Darling Water Sharing Plan, includes the creation of a permanent water entitlement of 100,000 ML for the Barmah Millewa Forest (Murray River Icon site) (50,000ML NSW/50,000ML VIC) A further 50,000 megalitres (25,000ML NSW/25,000ML VIC) can be accessed under certain conditions. This forest entitlement is delivered as a result of Government/community plans, developed to deliver ecological benefits for the forest and its environs.<sup>4 8</sup>

In terms of Groundwater, the Southern Riverina Region (016) has undergone substantial cuts in entitlements and the ramifications on businesses are now being absorbed.

In conjunction with the development and implementation of existing surface and groundwater water sharing plans, the region has experienced prolonged drought with 2009 drought conditions still in place. The economic and social impacts of the drought will take years to

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<sup>4</sup> MIL

<sup>8</sup> MDBC

recover from. Therefore while remote policy development on environmental water issues may appear environmentally achievable, the economic and social reality is quite different.

Further recovering of water for the environment will have long term implications on regional communities.

To ensure that community and businesses can remain in the region, it is essential that communities have confidence in the new Basin Plan. A mechanism to achieve such confidence and support, is by ensuring that the Murray Darling Authority recognize:

- Existing Water Sharing Plans
- Existing environmental water entitlements and plans for environmental assets
- Environmental outcomes achieved through the Federal Government's \$3.1 billion 'Water Buyback Program' and entitlement transfers to the environment from regions
- Recognition of purchase of entitlement for environmental purposes
- That environmental entitlements are not diversions and therefore would not be a component of consumptive water under Sustainable Diversion Limits
- the need to have transparent and scientifically validated claims for further contributions to the environment

Businesses both on and off farm have adapted to changes imposed under water sharing plans and further uncertainty will destabilize investment and employment.

### **3.4 QUANTIFYING THE BASIN'S WATER RESOURCES**

In assessing future environmental requirements, there must also be a clear delineation between natural drought sequences and modeled prediction of climate change. Modeled scenarios of climate change suggest future risks to basin resources and therefore irrigated agriculture, however under such scenarios, the environment will also have to share the pain of water adjustments.

A reliance on modeled predictions should be treated in balance, with historical data. During prolonged periods of drought, it is easy to underestimate the natural flooding and drought cycles of Australian landscapes. In this context, a reliance on modeled scenarios of climate change underpinning major policy changes for the Basin, will have significant ramifications on future food production.

River system modeling used for quantifying the surface water resources of the Basin, should take account of historical inflows. The economic prosperity of the entire Murray Darling Basin and export income generated for Australia will be jeopardised should there be a reliance on modeled scenarios for assessing water resources in the basin.

The Water Act requires the Basin Plan to include a description of the Basin's Water resources and the context in how they are used. In determining social and economic circumstances of Basin communities, it is important that the long term economic data is obtained. Economic activities experienced in this current ten year drought scenario, should not be used as a basis for determining economic impacts for sustainable diversion limits.

### **3.5 IDENTIFYING CHARACTERISTICS OF ENVIRONMENTALLY SUSTAINABLE LEVELS OF TAKE**

In developing the Murray Darling Basin Sustainable Diversion Limits, it is important to recognize:

- The Living Murray Strategies and the environmental water currently allocated
- Non icon assets watering plans and environmental allocations
- Environmental benefits within the MDB, mutually derived from the delivery of consumptive water.
- That the environment has been factored into existing water sharing plans and base river flow requirements.
- Commonwealth purchases of water entitlements
- Cumulative Regional community impacts to date from the 1997 Murray CAP adjustments, environmental ‘buy backs’ and the implementation of Water sharing Plans

SRI is concerned about the transparency and review process of further proposed environmental assets that will influence the setting of sustainable diversion limits. There may be inadequate timeframes to ensure reasonable community understanding of what these assets are and how management options will affect sustainable diversion limits.

To ensure an effective Basin Plan, it is essential that the MDBA model a range of options. These options should then be presented and worked through to establish the most environmental, economic and socially advantageous options.

In assessing future environmental asset requirements it is also important that MDBA investigate all options to achieve maximum efficiencies when assessing and delivering environmental water. To achieve this, engaging regional knowledge, will be essential.

At this stage it is difficult to comment on identifying characteristics of ‘take’ levels, when the environmental assets that require protection, are not identified and the criteria for the future management is not determined.

#### **3.5.1 KEY ENVIRONMENTAL ASSETS**

#### **3.5.2 KEY ECOSYSTEM FUNCTIONS**

The process to date of identifying key environmental assets has not been made transparent. It is unclear what, if any, role regional communities have played in contributing knowledge to assessing environmental needs within a region. While it is acknowledged that Government Agencies including Catchment Management Authorities will provide specific advice, it is important that assets are supported by regional communities and that the assets list are not finalised without consultation.

SRI encourages the MDBA to enable a transparent review of proposed asset registers to ensure that there is widespread community understanding in relations to the protection of environmental assets affecting the setting of sustainable diversion limits.

Regional community involvement is essential to assist in determining flow information, flood indicators and historical flow patterns and timing. Building on existing flow knowledge, specifically local knowledge on flooding impacts on private land is essential.

During the developing of the Central Murray Floodplain Plan, consultants contracted for developing the revised 1974 Floodplain plan, liaised with and sought localized knowledge and data. Strong community involvement in data collection and planning, was essential to understand flood water behaviour and heights, during main flood events.

MDBA will need to actively engage with State Agencies, Floodplain plans and local landholders to ensure that decisions on the timing and delivery of extra flows determined by the environmental water manager, fully factor in adverse third party impacts. The cumulative effect of river and billabong heights, system levels and unplanned rainfall events over sub catchments and catchments, can have major adverse flood impacts that go beyond the benefits of flooding for environment. Ramifications on flood impacts on private land, including urban areas, such as Echuca and Deniliquin, could be potentially a major legal issue for the MDBA.

### **3.6 DETERMINING ENVIRONMENTAL WATER REQUIREMENTS**

The MDBA proposes to use a hydrological regime to determine the water program for each environmental asset.

In some circumstances specifically identifying environmental water requirements and delivery options for assets can occur in the short term. The complexities and issues around other environmental assets may require additional time and considerations. It will also be important to factor in the mutual benefits achieved currently through delivery of consumptive water.

SRI encourages the MDBA to **consult in the initial stages prior to setting of the draft SDL plan**. There are many considerations to take into account when determining and meeting the needs of the environment. In a regional sense, involvement of local knowledge and data will be critical to ensure that maximum efficiencies and options are fully investigated.

The MDBA has advised in consultation to date, that there is no 'identifiable' environmental list of assets in addition to those recognized under existing programs eg Living Murray. As such it is likely that a large list of 'proposed additional' assets will be submitted to the MDBA. It is important therefore, in meeting the principles of ESD that these additional demands for the environmental are balanced with the social and economic needs of the basin and Australia, in particular Australia's future food production.

We encourage the MDBA to actively involve local stakeholders in working through proposed new 'environmental' assets to:

- Identify engineering and flow options
- Assess priorities

Consideration for assessing the timing and delivery of additional environmental flows in the MDBA will need to ensure that no negative effects apply to third parties. Negative impacts may result from constraints of delivery capacity and thereby implications on the delivery of 'productive' water at critical times of food production as both general system and new additional environmental demands, are met.

It is important that the MDBA recognize the social and economic activity that now exists within the Murray Darling Basin regions.

In the Northern part of the Murray Darling Basin, floodplain flows are recognised in a different aspect, than floodplain flows in the more heavily populated areas of the South, particularly in NSW.

Northern Floodplain ecosystems continue to derive a level of benefit from overland flows. The design of agricultural systems and the complexities of water sharing arrangements between consumptive floodplain extractions and environmental needs, recognize the traditional overland floodplain flow patterns. While sharing arrangements continues to be a vexed issue, generally agricultural and community systems have developed around a highly variable floodplain.

In the Southern Murray connected systems, where population densities are more developed and water management is largely managed by major dam storages, the context of flooding takes on a new meaning. Floodplain planning has resulted in a series of complex levee system not to entrap water, but to retain flood waters within a conceptualized plan. While the beneficial effects of flooding for the environment, has increasingly gained greater understanding, there are a wide range of considerations that must be assessed.

Plans such as the Central Murray Floodplain plan are designed around specific flood heights. It is important to recognize the protection measures achieved by defined & constructed flood heights protection measures and this will need to be factored into decisions on delivery and timing of environmental flows, in order to prevent adverse community risk.

In planning for delivery of environmental water in Southern Connected systems, it is important to recognize third party flood risks that may result from additional environmental flows in higher river flow periods.

Since river regulation, major flood events in the Deniliquin region with significant economic impacts occurred in 1955, 1956, 1973, 1974, 1975, 1996 and 1981. Other flood events occurred in 1990, 1992 and 1993 and a small event in 2000

An example of an adverse flood event is in October 1993, where the town of Wangaratta (Victoria), faced significant flooding. The MDBA will need to assess the economic impacts of additional flood impacts on private land, shire council roads and related infrastructure if there are plans to create man induced flood events. The flood event of 1993 (eg Wangaratta) is of particular interest, because if a similar event occurred following an artificial top up of a Murray flood, the result of flooding would be catastrophic.

There is growing concern that while debate has centered on recovering water for the environment, the placement, delivery and use of the environmental water has not been adequately assessed. Impacts on dam storage, timing of releases and Water Sharing Plan issues will all need adequate consultation with the Basin community.

Planning for flood events to benefit key environmental assets for example in South Australia, cannot be solely linked to water flows from the Hume and Dartmouth Dams and contributing

tributaries. Major flood events in South Australia generally occur when high flows down the Darling system join high river events in the main body of the Murray River.

It is incorrect to assume, that it is possible to deliver major environmental flows down the main body of the Murray river and that this will deliver flood results in South Australia. The highly regulated Murray system and the series of locks and weirs in South Australia means that additional wetland engineering works may be needed to enable more effective delivery and application of environmental water.

In addition to the river regulation through locks and weirs, a key aspect to consider is the natural geographic constraint on the Murray River of the Barmah choke. In this ‘narrows’ section, the Murray River is reduced to approximately 27m to 30 m wide. The narrow section and the length of the Barmah Choke will limit the delivery of environmental flows. In addition to consumptive demands, it is important for the MDBA to balance all relevant factors in determining environmental water requirements for key assets.

Public claims that Murray River health should be determined at the bottom of the system, notably the Lower Lakes and Murray Mouth, ignores the complexities of determining environmental needs for the whole 2225 km of the Murray River Channel as well as the Darling River system.<sup>8</sup>

### **Lower Lakes & Coorong**

There has been significant media and political attention to the conditions of the Lower Lakes and Coorong. As such, there is a perceived risk that environmental assets and the economic and social values of the Southern connected basin in Victoria and NSW, may be at risk due to increased water demands to meet environmental needs for the Lower Lakes.

This submission seeks an equitable position in relation to the protection of environmental assets across many parts of the basin. SRI encourages the MDBA in its deliberations, to recognise the full range of potential management options to improved the ecological health of Lower Lakes and Coorong.

### **Lower Lakes**

In determining the watering regime for the Lower Lakes and Coorong system, it is important for the MDBA to acknowledge contributing factors and not confine management options to using the ‘hydrological regime’ of the Murray River.

The Coorong, Lower Lakes and Murray Mouth are often referred to as one ecological system forming the end of the Murray River system. However in classing these systems as one, the historical influences on these assets can be ignored and it is important to acknowledge their characteristics as three different bodies of water.

Traditionally the Murray River entered the estuarine system of Lakes Alexandrina near Wellington and historical records identify the estuarine attributes of the region. The balance of fresh to brackish water constantly changed with river outflows and saline intrusions. Records indicate that saline tidal influences could influence up to 250km into the main body

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<sup>8</sup> MDBA

of the lower reaches of the Murray River. The Senate Standing Committee on Rural and Regional Affairs and Transport in its report on Water Management in the Coorong (Oct 08) refers to '*sediment sampling indicates that tidal prism regularly extended into Lakes Alexandrina throughout the last 6000 years*<sup>6, 7</sup>'.

Lake Albert is connected to Lake Alexandrina and does not have major independent inflow points nor is directly connected to the sea.

On completion of five artificial barrages, Lake Alexandrina and Lake Albert were converted to permanent freshwater lakes in 1940. Operating rules since have maintained a permanent average water level of 0.75m ADH.<sup>7</sup> Lake Alexandrina the largest of the two lakes covers an area of approximately 76,000 ha and is generally no more than 4m in depth. Lake Albert is approximately 16,500 ha and generally much shallower. On average the Lakes evaporate approximately 750,000 ML to 900,000 ML per year

South Australia currently has a water share of 1850 GL, and in periods when evaporation from the Lakes exceed river inflows then barrages gates are closed to prevent estuarine conditions reestablishing. Generally, gate operations ensure that the levels rise to 0.85m AHD in early summer, to address evaporation losses whilst maintaining relatively static water levels. By end of season, lake levels on average fall to 0.60m AHD.<sup>7</sup>

In historically wetter periods, South Australia has experienced well above its entitled share of 1850 GL's. In this context, maintaining the artificially preserved fresh water system of the Lower Lakes has been relatively easy. However, the cumulative affect of prolonged drought periods, activation of all water entitlements through trade, modeled impacts of climate change, will ensure that maintenance of these Lakes as purely freshwater system will need to be reviewed.

The operation and construction of the barrages has had major impact on the natural tidal actions within the Murray Mouth, leading to significant build up of sand. The barrages also continue to have major impacts on the tidal system affecting the Northern end of the Coorong.

Any proposals to build these barrages today, would almost certainly be rejected on environmental grounds. In the context of determining environmental watering requirements for key environmental assets, the operations and constructions of the barrages should be a key consideration.

The MDB plan is being developed on the basis of modeled predictions on climate change, therefore maintenance of an entirely freshwater system for the Lower Lakes should not be considered a long term viable option. SRI encourages as part of managing the overall environmental assets of the basin, modifications to the estuarine capacity of the Lower Lakes.

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<sup>6</sup> P Gell & D Haynes

<sup>7</sup> Senate Committee Rural & Regional Affairs & Transport

This submission draws attention to the report to the Murray Darling Basin Commission (MDBC) – Wetlands Management Program, Department for Water Resources ‘**River Murray Barrages Environmental Flows**’ – **An evaluation of environmental flow needs in the Lower Lakes & Coorong, a report for the Murray Darling Basin Commission (June 2000)**’.<sup>9</sup>

The Scientific Panel reported broad categories of recommendations which include:

- An environmental monitoring program for adaptive management
- Detailed barrage operating guidelines to meet ecological needs
- Automation of barrages gates for ecological needs
- Manage lake levels over a greater range of levels
- Modify Mundoo Barrage to increase flow capacity operate preferentially to limit sedimentation at the Murray Mouth
- Evaluate options for relocation and revised management of the barrages to enlarge estuarine areas to increase range of habitats
- Undertake complementary measures (ie Lake shore revegetation & stabilization, carp control etc)
- Integrate flow management options with other regional planning and management activities for maximum effectiveness

### **Coorong:**

The Coorong is a narrow strip of water or interconnected lagoons, that lie between the sand dunes on the coast and the main body of land to the East. The Northern Lagoon is impacted predominantly by the Tauwicheere barrage and is estuarine. The Southern end of the Coorong is landlocked with historical freshwater over land and sub surface flows entering the system. The interception of these flows has created the hyper saline conditions leading to environmental decline.

The major cause of hyper saline conditions in the Southern end of the Coorong is changed sub surface and surface freshwater flows, caused by the South East drainage scheme in South Australia lower reaches.

As early as the 1800’s , drainage schemes were implemented to reclaim land for agricultural purposes. Over 125 years drainage schemes fundamentally changed the landscape of the South East of South Australia. The main scheme was finished in the 1970’s with an additional upper South East scheme developed in 2000’s being completed currently under Natural Heritage Trust Funds.

Historically, water flows from Victoria and the South East of South Australia merged within the lower lying land between a series of low ranges that ran parallel to the coast. The ‘well defined water courses of the Morambro, Naracoorte and Mosquito creeks’ contributed water to Reedy and Avenue creeks and Bakers Range watercourse. Land levels are tilted from the South East to the North – West forcing water in a north westerly direction eventually merging in wetlands of Tilley’s swamp, Salt Creek , finally entering the Southern end of the Coorong.<sup>8</sup>

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<sup>9</sup> Dept Water Resources – report to MDBC

<sup>8</sup> Down the Drain

Groundwater flows also moved in a North Westerly direction and in wetter periods or high rainfall events, watertable rises would create flows in low lying areas, increasing the surface waters.<sup>8</sup>

Land formations meant that the main watercourses had no outlet directly to the sea and therefore flows were forced North West, culminating in the provision of freshwater flows to the Coorong.<sup>8</sup>

The South East Drainage scheme sought to intersect these freshwater flows and redirect them directly out to sea. The prevention of freshwater surface and sub surface flows to the South end of the Coorong is the major cause of hyper salinity. It is incorrect to claim that the Murray River flows contributed to the ecological integrity of the Southern lagoon system.

In developing the Murray Darling Basin Plan and Sustainable Diversion Limits, the MDBA will need to assess the impacts of major drainage schemes on the Coorong and the construction and operation of the barrages on the Lower Lakes. Failure to do so will jeopardise the integrity of basin planning and install loss of community confidence in the process.

When using a standardized hydrological regime to develop environmental water requirements, it will be essential that the requirements of the Lower Lakes and Coorong, are not defined strictly by this type of analysis.

**Conclusion:**

SRI recommends that the Basin Plan takes particular attention to the influences external to the Murray Darling Basin on the Coorong. It is probable that the Coorong should be considered worthy of a separate plan as the Murray Darling Basin has only a minimal impact on the environment of this important wetland. Further, if it is insisted that the Coorong remain part of the MDB Plan, then the plan must be expanded to manage the areas outside the Basin that impact on the Coorong.

**3.7 RELATIONSHIP BETWEEN THE ENVIRONMENTAL WATERING PLAN AND SDL'S.**

The principles of ecological sustainable development and complete objectives of the Water Act 2007 do not appear to be addressed in this section. Principally, while the MDBA acknowledges that a central element of the plan is the environmental water plan, this should not limit acknowledgement of social and economic considerations.

This section identifies that the plan will primarily address environmental considerations first and foremost. While other sections of the issues paper identify that the SDL's will be determine by factoring in social and economic considerations, 3.7 specifies that SDLs will limit the take of water to prevent the compromise of each water resource characteristics.

At this point neither the MDBA nor any other community or agency body has given clear indications of what environmental assets are to be protected, what the individual requirements are for each assets and how management options will be delivered. Yet by June 2010, the MDBA will have set SDL's.

SRI wish to express its concerns that there is insufficient time and data to attribute major changes to Basin planning on the grounds of unidentified environmental attributes and their needs within the relatively short time frame proposed.

### **3.9 RELATIONSHIP BETWEEN ECONOMIC, SOCIAL AND INDIGENOUS ASSESSMENTS AND SDLs.**

The objects of the Act do not reconcile with generally accepted principles of ecologically sustainable development. In essence, the emphasis of the Act is on the environment.

However Act objectives 3 (a) and (c) do refer to managing Basin Resources in the National interest and in giving effect to relevant international agreements, recognize the need to optimize economic, social and environmental outcomes.

It is particularly concerning that “once a final set of SDLs has been determined for inclusion in the proposed Basin Plan an analysis of the social and economic implications will be undertaken”.

It is not transparent what involvement the community will have in providing or reviewing aspects of the social and economic impacts. There is a perceived risk that the MDBA will determine the impacts and that consultation on the impacts after the SDLs have been set will merely be a token gesture.

SRI acknowledges and encourages the MDBA to undertake analysis, but urges a review of the timing, to ensure that preliminary social and economic considerations are included in setting the SDLs.

While the MDBA plan acknowledges the need to undertake analysis at a local scale in areas most dependent on irrigation, it is clear from this process that significant gaps in analysis will occur from individuals or regions not classed by the MDBA as worthy of ‘local analysis’.

## **4 ISSUES**

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### **4.1 WHICH WATER RESOURCE PLAN SHOULD BE USED?**

SRI agrees with the MDBA approach to establishing boundaries for WRPs.

In relation to Groundwater systems that cross State Borders, it is important to include irrigation representatives on any review process.

The MDBA will need to recognise established principles in Water Sharing Plans and the considerable investments State Government and communities have made to date, in developing these plans.

#### **4.2 WHICH FORMS OF ‘TAKE’ SHOULD BE LIMITED BY THE SDLs**

There is insufficient information on the MDBA planning process to comment in full at this point. The concept of ‘take’ in assessing SDL’s which ultimately are used to set benefits firstly for the environment, raise the question about how Australia values the environment over its priorities for basic human needs.

If additional environmental issues are to be assessed prior to basic human supplies, then this raises some serious issues about the integrity of the Water Management Act and the resulting Basin Plan.

Environmental requirements should be not balanced higher in importance than supplying of water for human consumption, basic stock and domestic supplies and property rights for consumptive users. These considerations are already planned and recognised in existing water sharing plans.

Ultimately this could lead to decisions where by communities or individuals are unable to access basic water needs where no other options for water supply exists. Australians are aware and have adjusted to reduced water availability in times of low flows, but this section suggests a new line of priority that is beyond the original concept of sharing the basin resources.

When assessing the quantity of ‘take’, the MDBA will need to include the allowance for a range of activities that impact water supplies for the basin. In particular, the quantity of water set aside to meet human and all forms of industrial needs (eg mining).

Other large scale interception activities such as forestry planting and the emerging, carbon offset plantings will have major impacts on catchment and sub catchment hydrology. Therefore it will be critical that plantings of a scale impacting on resources, should be required to participate in the water market.

Environmental watering events and SDLs need to be planned and implemented in full acknowledgement of providing for human needs. Without such consideration, decisions may be made to supply water for environmental needs at times that may ignore the need for provisions of stock and domestic supplies. It would be prudent to ensure that basic planning of environmental water should be developed and delivered in conjunction with human needs.

It is important to recognize that existing water sharing plans have in built ‘levels of sustainable’ extractions and that these planning processes include provisions for regulation over such things as farm dams.

This submission has identified in the ‘preamble’ the need for Australian Government policies on water to account for inter related policies that potentially impact on basin resources. In particular the future of Carbon and commercial forestry plantings. In addition to this how other policies on mining impact on resources appears to be not adequately considered.

Competing Government policies and associated political influence, place at risk existing consumptive rights on water. There is a need for equity in recognising the range of existing entitlement rights, stock & domestic rights and environmental attributes, before factoring in

new rights that are yet to emerge. New rights or water impacts, should not undermine pre existing rights. Governments have determined that water has a property right and financial institutions have acknowledged this in their lending capacities.

New industries in regions that will utilise water over and above recognised basic uses, should be expected to participate in the water market.

#### **4.2.1 HOW SHOULD INTERCEPTION ACTIVITIES BE TREATED?**

SRI agrees that there is a range of activities that should be factored into setting the SDLs. The Basin Authority should acknowledge and include current ‘take’ for critical human needs as part of the SDLs. SRI acknowledges these provisions are appropriately inbuilt into existing water sharing plans. However, the concerns are that ‘future’ urban demands will jeopardise existing water sharing plans.

For example growth in population and or other industrial demands eg mining, will require participation in the water market to meet new demands.

There is considerable risk that the MDBA failure to recognise that individual States are at different levels of water sharing plans and processes, then SDLs may be set that penalize regions who have already implemented the principles of the National Water Initiative.

In the Southern region of NSW for example, groundwater and surface water plans have already been implemented. Significant adjustments have been made in surface water to meet the 1997 Murray CAP (based on 1994 extractions levels) and in relation to groundwater, entitlements have been wound back to meet estimated sustainable yields.

There are examples in other States eg South Australia, where mining or other activities remain outside licensing arrangements. Indeed Government processes endorse the continuation of such activities.

This raises the potential inequities in the Basin whereby SDLs are set but individual State’s planning process fall well behind National Water Planning objectives.

#### **CPRS**

There is real risk that the Carbon Pollution Reduction Scheme (CPRS) or its equivalent, will in its early stages, encourage major water intercepting activities affecting basin yields through a reliance of forestry activities as offsets.

There needs to be established a threshold or scale of interference so that traditional land uses and smaller scale forestry options are not subject to licensing or planning conditions as this would add an unnecessary layer of red tape.

However, appropriate planning to ensure that large scale offset options do not interfere with Catchment hydrology will be required. Their location and interference with major flows to key environmental areas should also be considered. An example of this is large

scale forestry plantations in the South-East of South Australia where interceptions of water tables and surface water flows are already identified.

Such plantations impacts combined with the major impacts from established SA Government endorsed land drainage schemes implemented over 125 years, significantly impact on the flows to the Coorong. It is being suggested that there will be further large scale plantings in the region. This is despite that fact the SA Government now recognises the need to restore natural surface and sub surface flows back towards the Southern end of the Coorong to reduce hyper salinity.

This highlights that overall Government policies can compete and impact on resources of the Murray Darling Basin and there is a distinct need for communication on issues to prevent impacts on water yields and environmental assets.

In the absence of sensible cohesive Government policies – then it is clear that Governments will opt for further impacts on the property rights of existing water entitlement holders

### **Mining**

In NSW, water extracted for mining requires a license and the holding of entitlements. However despite NSW being significantly advanced in water planning, some aspects of mining remain outside the process.

Of particular concern is the unplanned impact of mining on groundwater and surface supplies. For example long wall mining for coal has caused serious subsidence in creeks. Such water extraction sits outside recognized water sharing plans, but the impact on water is extremely significant.

In other cases, such as the Liverpool Plains region where relatively shallow aquifers are fed from the East, proposed Coal mining may impact on a variety of ways. It is unclear what impact will occur with open cut mining on parts of the Liverpool surrounding ranges.

In essence this issue is outside SRI regional interest, but in the context of total Basin resources, competing demands for water pose as risk to the entire Basin community.

#### **4.3 HOW SHOULD SDL PROVISIONS BE DETERMINED IN A WAY THAT OPTIMISES ECONOMIC, SOCIAL AND ENVIRONMENTAL OUTCOMES?**

This section sets the scene for concerning messages that could potentially undermine the property rights of water, determined under the National Water Initiative.

In particular, this section refers to a proposed approach to within valley sharing of environmental contributions and while it suggest minimizing impacts to entitlement holders, it goes on to suggest that further work could ‘examine and estimate as far as possible’ any specific impacts on water users.

The MDBA paper already suggests that minimal social and community impacts of SDLs will occur and that these would be confined to areas reliant on irrigation. This suggests that there will be a significant risk to those outside ‘defined importance’ as irrigation areas and therefore ‘estimates’ will be made in the absence of a study.

The Federal Government has enshrined in the concept of a property right that ‘water trade’ will effectively move water to areas of most appropriate use. However this paper is suggesting a ‘reliability profile of water supply to particular entitlements’ in particular sequences (eg drought). Of further concern, is that the MDBA is proposing to identify the types of enterprises that could be affected, in essence this suggests to the reader that the MDBA will ‘cherry pick’ crops that could be turned ‘off’ for the benefit of the environment.

SRI finds this aspect of this paper particularly concerning and totally rejects this concept.

Recent history has identified that Government planning process that seek to select ‘winners & losers’ is fraught with danger and invariably leads to perverse or unintended consequences. In light of this the MDBA should not artificially select regions over another based on ‘productivity’ or selected ‘high value crops’ or water entitlement security. To do so would pose the question, is this process about the ‘environment’ and identifying its specific ‘needs’, or alternatively reshaping the Basin water regions to achieve an ‘unidentified’ objective.

Setting of SDLs or obtaining water for the environment should be based on **transparent and clear objectives with water purchases or adjustment specifically designed to meet those needs.**

This submission strongly encourages the MDBA to deliver appropriate planning processes that avoid the perception of ‘re configuring the basin’ to suit other objectives.

#### **4.3.1 INTERVALLEY SHARING OF ENVIRONMENTAL WATER**

It is essential that equity between states and regions is achieved in the provision of environmental water.

Southern Riverina Irrigators strongly encourage the MDBA to include regional planning and genuine consultation in the procurement, management and delivery of environmental water. An example of a successful and collaborative environmental initiative has been the facilitation and utilization of environmental water allocation to the Barmah Millewa Forest. Understanding examples of this and other community/Government initiatives, would assist future acquisitions and use of environmental water, ensuring Government investments are optimized.

Environmental water recovery should be addressed by contributions from all States. However the Federal Government needs to address the fundamental differences of water and its regulation within each State. For example in NSW, water is separated from Land, yet in Queensland water remains linked to land.

Purchasing of environmental water entitlements and distribution for environmental benefits should recognise and make provision for those differences. A key mechanism to overcome such differences, may be purchasing and utilising environmental entitlements within each basin State. Through this approach, it may be possible to identify the most

appropriate and efficient mechanism for returning water to the environment. This would bypass jurisdictional differences, while still ensuring that environmental benefits can be effectively apportioned across the basin.

There is a major concern that the Basin Plan will try to ‘cherry pick’ sites and an expectation that water contributions will be provided from upstream options. This may limit environmental options and certainly ignores the physical constraints of supply networks

In the case of the Northern system, identifying environmental assets will require SDLs to acknowledge the characteristics of the landscapes and floodplain flows. Sourcing water closer to the environmental asset would allow more efficiencies to occur and maximize options.

When securing water for the benefits of South Australian assets, then SA should contribute through its own SDLs.

It is important that the setting of SDLs factor in buyback provisions, existing water entitlements under the Living Murray and contributions within States.

SRI is particularly concerned that social and economic considerations based on economic production figures, will determine the share of environmental contributions in each state or region, as part of establishing SDLs.

For the MDBA to suggest or infer that production figures in valleys should be a vehicle to decide SDL for the environment, this would send alarm bells right throughout Basin Communities and Regional councils. Of particular concern is that the MDBA is even considering that production values on gross dollars ‘per megalitre’ basis, could be used in decisions on SDLs. This ignores that the notion of a ‘property right’ established under the NWI and ignores consideration of enterprise viability.

The MDBA should be aware that previous statements, including those made by representatives of the Murray Darling Basin Commission, encouraged the so called notion of a ‘high value’ crop. This along with other commentators and resulting Government policy, contributed to the over supply situations that exists in some sections of the Basin.

SRI draws your attention to the Wine Grape Industry. In agriculture it is not possible for bureaucrats or even agricultural experts to pick what is a high value crop. The concept of a high value crop may be underpinned by Government policies on tax minimization schemes. In addition, what is a high value crop one day, may be a low value crop another, as Australia is currently experiencing with wine production.

At the time of writing, Australian rice which feeds 40 million people per day, on farm prices of \$400 to \$550 per tonne looks more like a high value crop than chardonnay grapes at little more than \$100 per tonne. Annual crops also best fit the water availability profile, of the Murray Darling Basin.

History has highlighted the problems and inefficiencies of encouraging developments in downstream areas that are further away from the actual water source. Supply restrictions and transmission losses have been a major concern in recent years.

SRI strongly rejects the notion that the MDBA, would consider using agriculture production values to determine the weight of impacts achieved through SDLs. This action would be contrary to all the principles of water planning under the NWI.

The mere suggestion of this option further jeopardises the confidence of businesses in the basin and should be rejected outright.

#### **4.3.2 SDL PROVISIONS DETERMINED TO OPTIMISE ECONOMIC, SOCIAL & ECONOMIC OUTCOMES - PROPOSED STUDIES**

There are significant community concerns that the MDBA will not have sufficient or relevant data to adequately inform the full range of social and economic considerations that should underpin SDLs.

The plan will have long term significant economic impacts, yet the social and economic considerations will be set within less than a 6 month period. Further, the planning process will rely on 'existing data', which in itself may not have sufficient information to suit this purpose.

It is clear as the MDBA paper already indicates, that only a 'selected' section of communities will be assessed, leaving open a large range of interests that will not be considered. Of equal concern is that basis of social and economic information. The Southern Riverina Region has been subject to almost 8 years of low water allocations due to the protracted drought. Long term droughts have occurred in this region previously, notably in the Federation, 1940s, and currently in the 2000s. In between these periods significant food production has occurred and the regions social and economic activity reflects periods of significant prosperity.

It is important that social and economic aspects are factored in to reflect the entire production scenarios of the region. Equally important is the need to establish the 'real' needs of the environment, reflect historical river and rainfall cycles and run models. Identifying 'environmental needs', should also model in options to maximize environmental water efficiencies, via engineering solutions. Such an approach would maximise the efficient use of environmental water, thus reducing the impacts on proposed SDLs.

It is important also, to fully analyse existing environmental provisions through base river flows, transmission loss provisions, environmental sharing as part of Water Sharing Plans, specific environmental entitlements already achieved (eg Living Murray, Barmah Millewa) as part of the 1995/1997 CAP.

It would be inaccurate to limit or not acknowledge, the full environmental contributions from a region to the environment to date. Such an approach could suggest that the community has a 'capacity' to contribute further to environmental water and would have the effect of double contribution for some communities.

A major flaw in the social and economic considerations, will be, that the true cost of impacts to regional communities, will not be known until the end of the total period of adjustment. The economic viability of reducing water availability has an incremental and almost insidious approach, where business confidence is gradually reduced.

The submission draws your attention to the preamble section and the value of irrigated production to employment and the social and economic fabric of Australia.

One aspect of social impacts not considered in any Government Planning is the over emphasis through public policy, on crop types, for example grapes. Grape production is a strong part of Australia's agricultural economic value, however an over emphasis on any one crop product, can shift the economic focus and stability of a region, leading to over supply and economic decline. This is a major risk for the MDBA social and economic planning, where a 'high value' or economic production component is 'pre determined'.

SRI is particularly concerned about 'inferred' discussion points with the MDBA that suggest a 'reliability' factor may influence the application of a SDL. This would suggest that certain regions may be 'sacrificed' or be deemed as less important, to the Basin future prosperity.

We urge extreme caution in this respect, as the NWI established a clear notion of a property right and as such lending institutions and regional communities have implemented actions according to that principle. If the MDBA proposes a lessening or a 'weighting factor' to that property right that substantial redefines its status, through the introduction of a new 'reliability' factor, this would indicate major contradictory policies, with the NWI. This method of water acquisition for the environment is contrary to the principles of the Property Right and will adversely impact on business balance sheets and subsequent equity ratios at a time of pre-existing financial stress. We strongly object to any water acquired to meet new SDLs that is not market based.

This region as a general security supply system, strongly rejects the concept of a new 'reliability' factor as a means of determining new additional contributions to the environment. Particularly, if the contributions to meet additional environmental, demands are not spread equitably between regions.

Additional water requirements for the Murray River environmental assets, should be met with contributions from all regions. The MDBA should not introduce a 'reliability' factor that enables one region to contribute more on the basis of revised rule changes to an existing entitlement.

To underpin business confidence and planning in the Southern Riverina region, it is essential that the MDBA Plan does not undermine the current method of allocations or amend State Sharing arrangements.

In order for the MDBA to optimize social, economic and environmental outcomes, it is important to establish a preliminary list of environmental assets prior to the draft SDL

plan in June. We strongly urge the MDBA to consult directly with stakeholders in the regions to discuss options for prioritizing assets, and preparing management options.

This would enable effective options to be introduced that could optimize social, economic and environmental outcomes.

Early discussions with regional stakeholders could:

- Identify the key environmental attributes to be protected, efficient volume and delivery mechanisms for water delivery
- Identify environmental efficiencies such as engineering works to reduce social and economic impacts
- Utilise existing statistical data to assist with ‘best available’ science,
- Identify social and economic considerations
  - Exclusive of drought
  - Inclusive of drought (including economic recovery implications)
- Identifying current and previous contributions to the environment through Water Sharing Plans , Buyback and existing environmental programs
- Risk to regional ancillary services, health, education, skills in associated regional businesses
- Cumulative social and economic impacts from parallel Government policy

SRI argues that the inconsistent timing of programs and the setting of SDLs will not allow the MDBA to gain an accurate understanding of the true impacts on regions when timing inconsistencies exist. It is worth restating, that water recovery for the environment is not confined purely on farm, although the primary risk is at that level. Risk will permeate beyond into towns and regions, undermining the whole economic fabric of sections of the Basin. There is a perceived risk that the major areas of risk are the Southern connected systems, in particular Victoria and General security supplies in the MIL area.

This identifies the major community concern that MDBA planning should specifically identify environmental targets and the water should not be ‘re allocated’ to South Australia under the provisions of base flows to the Murray Mouth. This perception is heightened by the over emphasis on ‘flow volumes’ and not other specific environmental attributes.

This submission expresses major concern about the risk of not establishing clear and transparent environmental needs prior to setting SDLs and formulating reports on the social and economic consequences.

#### **4.4 – HOW SHOULD SURFACE WATER-GROUNDWATER CONNECTIVITY BE DEALT WITH?**

The National Water Initiative set in place plans for each State to implement Water Management Plans across all water sources. The level of achievement in this respect is not uniform across States and there are significant areas that are behind the planning

process. This is particularly evident in macro water sharing plans eg in NSW or in more broader water sharing plans eg in South Australia.

In addition, there are significant gaps in other aspects of consumption – eg mining in certain States. In SA for example, there is not a uniform approach to mining extraction and water planning. It appears that in SA not all mining activities require a license entitlement to extract.

In NSW, mining activities that utilise water for mining operations would be subject to entitlement requirements. However, in the actual extraction of minerals, unplanned interception of groundwater or river water, does not require an license entitlement.

Therefore, it is important for the MDBA to recognize the inconsistent planning processes between or within States and account for the transitions that have already occurred.

The MDBA should also not arbitrarily set one SDL for both groundwater and surface water systems as there is a strong need to recognise unique characteristics and interactions that occur across regions and within different States. It is blatantly apparent that across the Basin, there are still major deficiencies in science and water planning between States. In addition, there are still huge gaps in knowledge between surface and groundwater interaction across all areas.

In certain areas, such as the Peel River in NSW, it may be possible to determine a level of interaction between surface and groundwater in specific areas. In other areas where movement of groundwater is manifestly slow, often meters or centimeters movements per year, interaction is less tangible.

Groundwater connectivity may differ or be regarded as not directly connected if water level response between surface and groundwater flows/extractions do not reflect similar levels. In this case it may be geological formations separating systems or other similar regional factors.

Given the complexities of Australia's landscape, the influence of climatic events and water planning scenarios , the setting of one SDL for both groundwater and surface water will be extremely risky for the MDBA.

In the report “ Exploring the Impact of Groundwater Use on Australia's Rivers – Exploring Technical, Management & Policy Challenges” published by Land & Water Australia (April 2007), it states “*due to the complexity and variability of the natural environment there is no single robust and technically simple tool for predicting the impact of groundwater pumping on stream flow.*

*Over the last 20 years various attempts have been made to link surface water models with groundwater models to calculate stream flow impacts. These attempts have had mixed success because of the different scales and variability in time periods used in the analysis”<sup>10</sup>*

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<sup>10</sup> Land & Water Australia, Exploring the Impact of Groundwater Use

Applying long term planning for the setting of SDL for both surface and groundwater is highly complex. While the interaction of groundwater and surface water is recognized, it is the level of connectivity, timescales and external influencing factors that will create model and policy risk for the MDBA. Often connectivity may roll over decades or in the Great Artesian Basin (GAB) more.

It may be more prudent for the MDBA to ensure that water sharing plans are placed across all water sources and extractions methods and to ensure that sustainable diversion limits and extractions are placed in areas of the Basin. This would ensure consistency with the NWI.

#### **4.5 HOW SHOULD SDLs BE SET AND EXPRESSED?**

The MDBA time limitations will not enable adequate and comprehensive planning. In addition there are a range of new staff that will have to come to terms with a highly complex water system across the entire Basin.

Therefore SRI recommends that setting SDLs should be done utilising existing knowledge. In particular, the recognition of current Interstate Water Sharing arrangements, existing water sharing plans and State based data management systems.

SRI also expresses concerns about modeled data on climate and rainfall predictions. The MDBA also indicated levels of uncertainty and gaps in the data underpinning decisions that implicate long term changes to the Basin and its communities. Given these data gaps and the need to ensure a level of caution on modeled scenarios, SRI argues that the MDBA should take a precautionary approach, that recognizes existing Water sharing models and plans. In particular, these models and plans already have inbuilt flexibility to account for seasonal or longer term rainfall variations.

Bureau of meteorology indicate that current capacity limits the prediction of rainfall events to within three month periods. Climate models will have risks from a range of external factors, but it is important to understand the range of assumptions that have contributed to long term water availability in the Murray Darling Basin.

In the absence of ‘actual’ data, SRI considers that environmental contributions over and above those recognised in existing Living Murray Icon Programs, State or Federal Water Recovery Programs and Water Sharing Plans, in the Southern connected systems, should only occur with transparent and verifiable science.

Australia is regarded as the land of droughts and flooding rains and the major storage dams servicing the Southern Connected Systems do deliver in the majority of years.

However, it is important to note that **NO** Australian storage facility can hold enough water to meet general yearly demands, hold additional forward reserves and in conjunction with this, hold storage to meet the extended drought scenarios as we are currently experiencing.

There is an underlying concern in the language affecting the basin plans, that the Murray Darling Basin Plan can achieve 100 % water yield on water entitlements, regardless of major drought events. This comment is not directly to the MDBA , but SRI is concerned that in the absence of specific water knowledge, such presumptions would be made.

Re-creating the wheel in terms of ‘water management in the Murray Darling Basin’, is not feasible. Nor is it practical in real terms to redesign the system during a major drought and within a six to twelve month period.

Water Sharing Plans in NSW established under the NWI, also clearly define property rights. Lending Institutions acknowledge and plan for this in their financial arrangements. To undermine this, would have major financial ramifications for Australia.

As per the statements outlined in 4.4, this submission encourages the MDBA to recognize existing Water Sharing Plans established in all States and recognize that not all States have not completed Water Sharing Plans or Macro Water Sharing Plans.

In the absence of technical and scientific data to establish one SDL across both surface and groundwater, the establishment of sustainable extractions within each region should be a Basin priority. This should be consistent across States. Once in place, then the process of reflecting the contributions between surface and groundwater in meeting the needs of the Basin will be consistent.

#### **4.5.1 SDLs SPECIFIED ONLY AS A LONG TERM AVERAGE VOLUME?**

Until further information on environmental protection measures are understood, SRI reserves the option of addressing this section at a later stage.

#### **4.5.2 SDLs SPECIFIED WITH THE ASSISTANCE OF MODELS?**

SRI is unable to provide informed comment on this section at this stage. To express a view, would suggest that much of the planning and data information sets have been transparently provided, to inform comment. It is clear at this stage of discussions, that the MDBA itself, has not established what new environmental assets are to be protected. Nor have there been plans of management determined.

We encourage the MDBA to defer decisions on this section until stakeholders have received a draft list of proposed additional environmental assets. As suggested earlier in the paper, SRI encourages the MDBA to hold stakeholder discussion groups within individual valleys to facilitate plans and priorities for current and additional environmental assets.

#### **4.5.3 CURRENT MURRAY DARLING BASIN CAP ARRANGEMENTS FOR SURFACE WATER**

In 1995 the Ministerial Council set CAP limits for the Basin’s rivers based on 1994 levels to protect the environment. The CAP for Queensland was not set at that time however was to be determined and implemented at a later stage. The committee at the time

recommended that the CAP on Queensland diversions should be implemented by early 2005.

Water Sharing Plans in NSW affecting the Southern Riverina are consistent with the MDBC CAP diversions agreed to in 1995. In assessing new environmental water contributions from States or regions to meet the needs of as yet unidentified environmental assets, it is important that the MDBA recognize current Water Sharing Plans that meet CAP conditions.

There has not been consistent application of the 1995 CAP through Water Sharing Plans across all States or regions in the Murray Darling Basin. This is particularly evident in Queensland, where separation of land and water issues remain unresolved.

The inequity of CAP application should be a major factor when determining further environmental contributions via the setting of SDLs.

SRI considers that at this stage it is difficult to provide informed comment on a range of factors outlined in the issues paper in section 4.

#### **4.5.4 DEVELOPING SURFACE WATER SDLs WITH THE ASSISTANCE OF RIVER SYSTEM MODELS**

SRI is unable to provide comment at this stage. Further information is required from the MDBA, in regard to the proposed list of additional environmental assets, plans of management, delivery options and possible engineering solutions to maximize environmental water efficiencies.

## **REFERENCES:**

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**Land & Water Australia, Dr R Evans, SKM; Exploring the Impact of Groundwater Use on Australia’s Rivers – Exploring Technical, Management & Policy Challenges (April 2007) (10)**