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South Australian Murray Irrigators (SAMI)

Submission to Murray Darling Basin Authority

on the

proposed Murray Darling Basin Plan.

April 2012

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INTRODUCTION

South Australian Murray Irrigators (SAMI) would like to take this opportunity to submit the following comments to the Murray Darling Basin Authority for consideration and subsequent amendments to the proposed Basin Plan before it is presented to the Water Minister and subsequently the Australian parliament.

SAMI would first like to acknowledge the Murray Darling Basin Authority and all interested governments in their efforts to produce an all-encompassing Murray-Darling Basin Plan. We recognise that there is a need for this to occur in the name of the Basin's rivers and also in the interest of securing the future of the South Australian irrigation industries and the communities they support.

For too long ever increasing take has placed strain on the Murray-Darling Basin river. This has been predominantly for irrigation, however in recent times the competing interests of Mining, Urban Sprawl and the Environment has gained political favour.

The current version of the Basin Plan has fallen short of irrigators' expectations to deliver a balance that maintains irrigator's rights and restores an even handed management approach to water entitlement products across all water use classes.

SAMI feels that further licensing, scientific and social information needs to be recognised and considered before formulating the Basin Plan's future direction. Licensed entitlements need to be clearly defined, known volumes afforded under defined river inflow and storage scenarios.

The Basin Plan needs to restore confidence in the water reform process when the management responsibility is handed back to State governments to write their Basin Plan compliant Water Resource Plans. Licensed and committed consumptive volumes needs to be publicly detailed against the Baseline Diversion Limits and the further reduced Sustainable Diversion Limits within the accepted and amended Basin Plan.

The current proposed Murray Darling Basin Plan does not acknowledge issues which are unique to South Australia. As a result the reduction in diversions does not reflect a Sustainable Diversion Limit that respects the historical situation afforded to South Australian Murray Irrigators.

The current system proposed to determine Sustainable Diversion Limits as the current Long-Term Annual Average Level of take for a given valley only rewards state governments who have excessively allocated entitled takes from the river that were not sustainable. Decisions like this have impacted on those who are located downstream.

SA irrigators have historically used less than their full allocation for a number of reasons:

1. South Australian policy has been to treat the Cap as an annual maximum allocation rather than as a long term average.
2. South Australia does not issue supplementary licences and this should be viewed historically as development foregone and a historic benefit to the environment.
3. SA has only one class of irrigation water, which is high security. Until the millennium drought, SA Irrigators had always received full allocations against entitlement.
4. Growers of permanent crops, who are the substantial majority in South Australia, have needed to keep some water in reserve in case of an exceptionally hot season. When not used the remaining portion of unused allocation was sometimes donated to environmental flows.

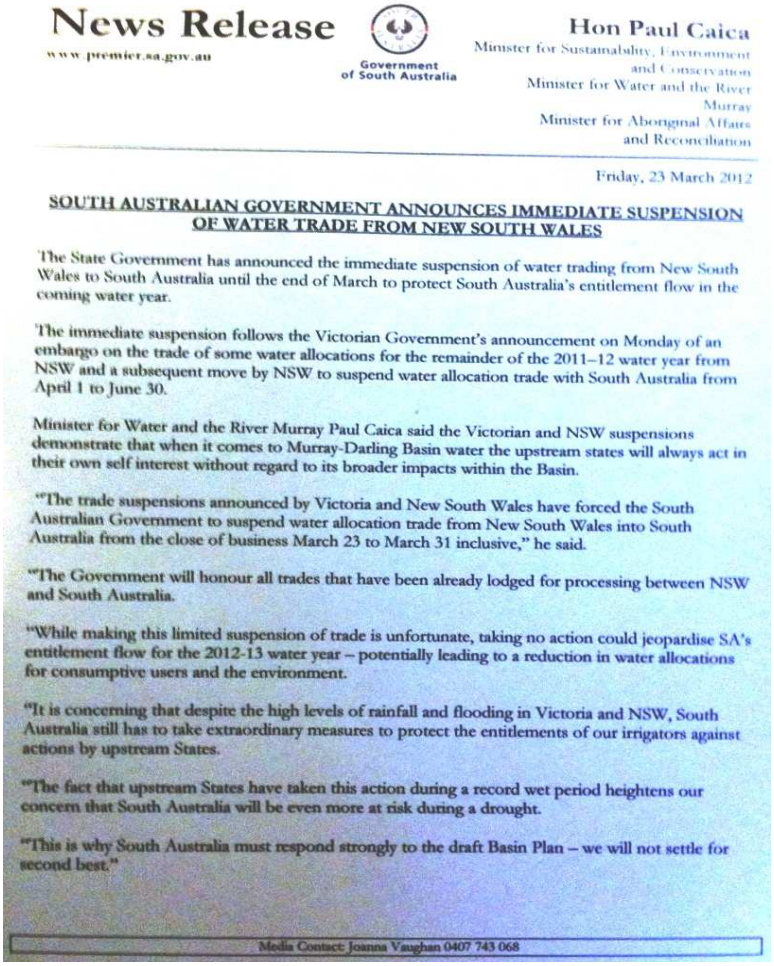
The current Baseline Diversion Limit is significantly below cap figure of 724.1 GL plus trades since 2007.

WATER ALLOCATION SECURITY

Water allocation security is delivered when confidence is restored in the water products to be managed by governments to deliver full volume entitlement wherever possible. Security in investment through known volumes being reliably committed to licenses and delivered 91% of the time as defined in the Living Murray Business Plan (MDBC, 2004)

The Basin States, South Australia, New South Wales, Victoria, Queensland, Australian Capital Territory and the federal Commonwealth Government of Australia, have all played their part in over entitling allocations across the Murray Darling Basin. Irrigators and all entitlement holders are only operating as best they can with the situations that have been afforded to them. The ever changing policies and priorities directly caused by competing State governments have created an environment of uncertainty which needs to be remedied sooner rather than later. This has been recently highlighted in the trade suspensions announced by New South Wales, Victoria and South Australia in response to the movement

of carryover water due to the differing rights and conditions afforded in the differing states



News Release

www.premier.sa.gov.au

Government of South Australia

Hon Paul Caica

Minister for Sustainability, Environment and Conservation
Minister for Water and the River Murray
Minister for Aboriginal Affairs and Reconciliation

Friday, 23 March 2012

SOUTH AUSTRALIAN GOVERNMENT ANNOUNCES IMMEDIATE SUSPENSION OF WATER TRADE FROM NEW SOUTH WALES

The State Government has announced the immediate suspension of water trading from New South Wales to South Australia until the end of March to protect South Australia's entitlement flow in the coming water year.

The immediate suspension follows the Victorian Government's announcement on Monday of an embargo on the trade of some water allocations for the remainder of the 2011–12 water year from NSW and a subsequent move by NSW to suspend water allocation trade with South Australia from April 1 to June 30.

Minister for Water and the River Murray Paul Caica said the Victorian and NSW suspensions demonstrate that when it comes to Murray-Darling Basin water the upstream states will always act in their own self interest without regard to its broader impacts within the Basin.

"The trade suspensions announced by Victoria and New South Wales have forced the South Australian Government to suspend water allocation trade from New South Wales into South Australia from the close of business March 23 to March 31 inclusive," he said.

"The Government will honour all trades that have been already lodged for processing between NSW and South Australia.

"While making this limited suspension of trade is unfortunate, taking no action could jeopardise SA's entitlement flow for the 2012-13 water year – potentially leading to a reduction in water allocations for consumptive users and the environment.

"It is concerning that despite the high levels of rainfall and flooding in Victoria and NSW, South Australia still has to take extraordinary measures to protect the entitlements of our irrigators against actions by upstream States.

"The fact that upstream States have taken this action during a record wet period heightens our concern that South Australia will be even more at risk during a drought.

"This is why South Australia must respond strongly to the draft Basin Plan – we will not settle for second best."

Media Contact: Joanna Vaughan 0407 743 068

The potential to affect a future year's security of irrigation entitlements is a worrying development.

Volumes committed to under licensing systems need defining under known flow trigger points that will provide businesses with the confidence to invest for the long-term. Farmers and all other water users need confidence to invest in water products. Assurance that governments of all persuasions will aim to honour their licensing commitments equally without imposed moral judgement needs to be ensured at a federal level to see the Basin managed on a fair, equitable and accountable footing.

SAMI has great concerns over the section in the Plan titled 'Exclusion of Government Agencies from Recovery of Loss or Damage'. SAMI believes that the principles and policies outlined in this section are discriminatory and can have third party impacts, and should be removed. The agencies of the Basin State as regulators, approvers of trades, water market intermediaries, policy and process developers and implementers can have a significant effect on the water market. Under the proposed legislation these agencies are not subject to the same scrutiny or legal equity as other participants in the water markets. This is not

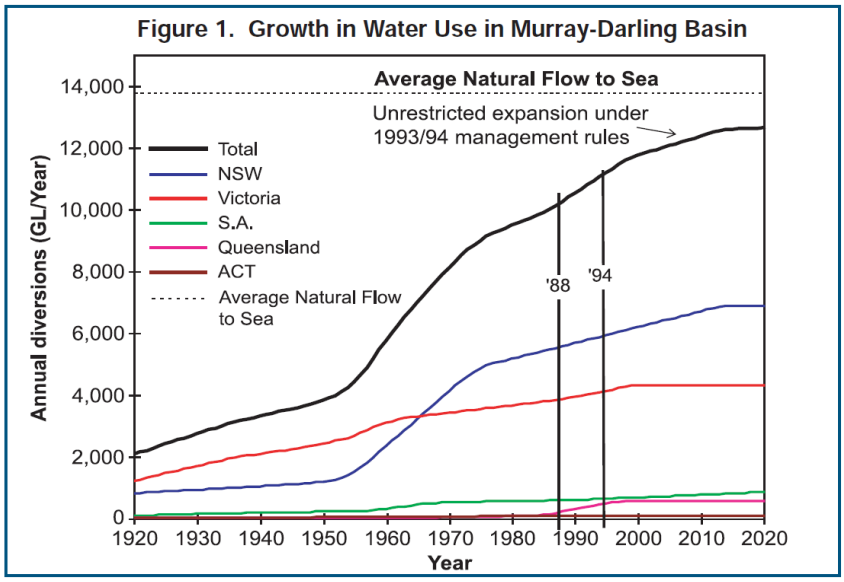
acceptable in free and fair markets and undermines the integrity of the water market systems. This is also a direct liability to regional communities who will have no protection from city centric departmental policy from afar based on ignorant and ill-informed views. Not making the Agencies of Basin States accountable for their actions under the water trade rules encourages inefficient and ineffective trading processes.

The Australian culture and the realities of historical circumstances have been neglected in the proposed Basin Plan. Local knowledge has been selectively rebuffed throughout the water reform process and this has had very real long-term social and cultural impact on regional communities along the Murray. The commitment to purchase the gap by the federal government has been a hard fought political win for regional Australia. But still there is no certainty in what the true volume of that gap is. An agreed position is yet to be settled upon incorporating both state and federal governments stating the situation as it is and compensating any lost security to volumes 91 years in 100. It has been said that there will be no compulsory acquisition of irrigators' water and we expect all levels of governments and policies to respect that. We are yet to see evidence that this is going to occur, particularly with respect to the Baseline Diversion Limit and how this compares to state entitled commitments.

In South Australia's case, inflows are largely delivered through the locked system of the Murray River and some of its tributaries. The Darling River flows had been historically unregulated and provided periodic environmental flows that assisted the flows in the lower stem of the Murray Darling Basin through to the Murray Mouth. In the past two decades these unregulated flows have been managed away through diversions and storage management decisions. Further provisions are needed to allow the drought and flooding rains that come from the Darling and its tributaries to be allowed to flow to its ultimate conclusion at the Murray Mouth in proportion to the seasonal inflows as they fall.

If the triple bottom line rhetoric of the water reform process is to be believed then the plan needs to take on a more human face.

South Australia, under decades of agreements, has received a known and delivered minimum volume of water that was sufficient. Surplus flows were diverted to the environment. This responsible and sustainable management practice has not only gone unreflected in the proposed Basin Plan but the state has been actively penalised through a Baseline Diversion System that rewards bad management practices as excessive take will assist in dragging up an average.



Source "The Cap" published by MDBC

Figures described for South Australia in various policy documents and correspondence includes 1850GL, 1154GL, 825GL, 805GL, 725GL, 665GL and 449GL. Some refer to diversions, some refer to take. Some represent entitlement shares and others represent volumetric allocations. Some are averages and others are not averages. This is not a solid starting point for a solid and successful Basin Plan. The range and anomalies are too big and have financial implications that are too large to ignore. What assurance do irrigators have under the new Basin Plan that the integrity of our assets will be maintained? The Plan looks to predict uncertainty rather than looking at what certainty the system does have. This needs to be clearly remedied in the next version of the proposed Basin Plan.

Having survived the drought, irrigation businesses now need unencumbered security in entitlement volumes within the current cap scenarios, which is needed to navigate the uncertainty of farming. This will allow sound business decisions to be made based on reliable and timely information. Water policy management parameters can be known to a minimum commitment points will provide stable policy incentives to invest.

UNCERTAINTY

In South Australia's case uncertainty has prevailed due to inadequate consultation in 2009 when the River Murray prescribed watercourse Water Allocation Plan was amended. As a consequence of rushing the policy, the security of the licensed product with which capital land based investments have been made, has been made annually variable as it's predominant characteristic.

Summer rain to boost opening water allocations in July

SIGNIFICANT rains over the summer period are expected to heighten the chances of Riverland growers accessing high opening irrigation allocations when the new water season begins in July.

While River Murray and Water Minister Paul Caica could not predict an opening allocation figure, he said overall storages in the Murray Darling Basin system are strong.

"The system has water in it and on the analysis that we've been provided with, that augers well for... allocations at this point in time," he said.

"(There) is some additional water coming into the system as I understand it, as a result of some recent rains but also a strengthening of the La Nina, which of course provides for significant rains over the summer period.

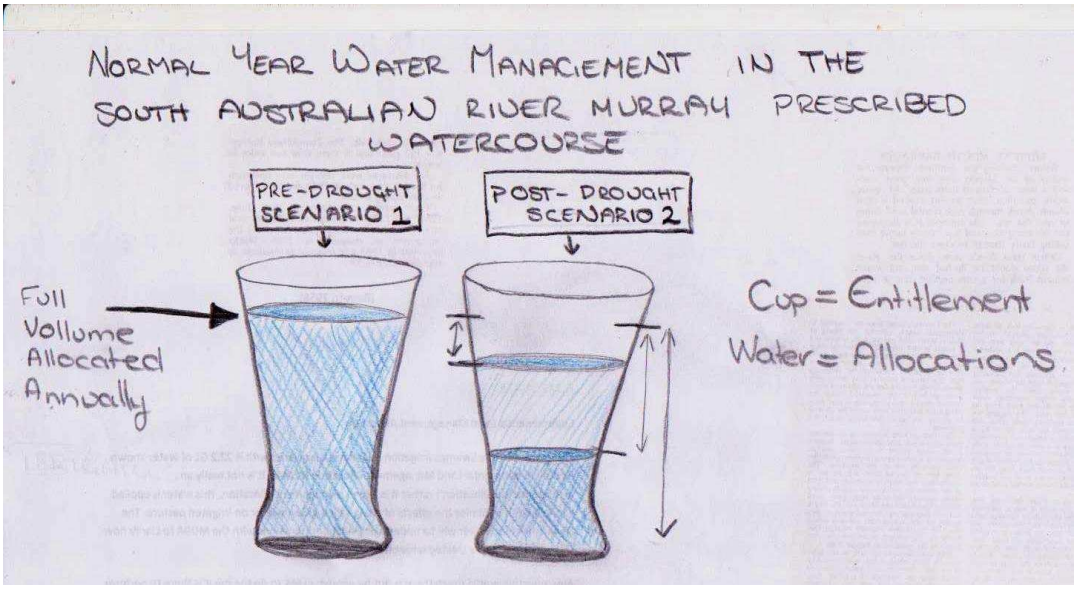
"We'll just have to wait and see but let's put it this way, we're in a very good position at this point in time.

"It augers well for next year compared to what we were looking at in 2006-2007."

Uncertainty is highlighted in the media releases printed in the Riverland Weekly in January 2012 following one of the wettest inflow years on record and a catchment at near full storage capacity. 2006 – 2007 was one of the lowest on record and storages were all near empty. This is not acceptable to irrigators in South Australia and was not the case prior to the drought induced 'special accounting' measures and subsequent drought allocation frameworks which have now become the normal situation in normal flow years.

South Australia is provided with a minimum flow scenario which is delivered. Provisions for this are made in the Murray Darling Basin Agreement and subsequent schedules of the federal Water Act. This has historically made the allocations against entitlements in South Australia more secure due to its geographical character.

The unbundling and subsequent removal of water rights from the land in the name of trade has opened allocations up to political variability and has made them less secure. Lost volumes will equate to a substantial financial burden on an irrigator's business and risk management strategy. The following diagram outlines this variability and the potential uncertainty and financial imposition that South Australian Murray Irrigators face.



Permanent and annual crops require known volumes of water to justify the capital outlay of infrastructure investments in these South Australian Murray Irrigation businesses. Any reduction in volumes at a state or federal level will place a financial burden on irrigation businesses that will need to purchase more and more entitlement to do what they had traditionally done with their initial entitlement.

The following letter to the editor below is written by the Managing Director of Jubilee Almonds and further highlights the need for the Basin Plan to clearly defined entitlement allocation volumes within known river flow scenarios.

6 • Riverland Weekly – Thursday January 26, 2012

LETTERS TO THE EDITOR

Wake up call over plan

PEOPLE of South Australia - Wake Up!

As a South Australian irrigator, I have major concerns that the implementation of the proposed Murray Darling Basin Plan treats all South Australian stakeholders unfairly.

In its impact on the environment, the river system and irrigators, the plan has ignored the historical investment and responsible behaviour by South Australia.

Since 1969, South Australia has capped its extractions and invested heavily in environment sustainability through salt interception schemes and irrigation capital improvements such as efficient pumping infrastructure, converting open channels to pipelines and metred water extractions.

Many of the improvements have been completed with investment from local irrigators and without the current government funding opportunities.

Whilst irrigation infrastructure upgrades in the eastern states will benefit the entire MDB, including South Australia, we are left with limited opportunity to make further water savings.

The plan must recognise South Australia's historical respect for the River Murray environment and water resource.

The key asset owned by irrigators is their water entitlement.

This asset enables irrigators to maximise production of food and is used as security to borrow funds to even out cash flows during the year.

The plan makes statements in the supporting documents that security of water entitlements will not be reduced but this statement is not included in the draft legislation for the plan.

In recent years, the State Government has reduced the security of water entitlements and it is unclear of the direction of the plan.

Following the introduction of the plan, what confidence and security can I have as an irrigator into the future?

Can I expect my water entitlements to remain as one share equals one kilolitre, assuming South Australia receives its entitlement flow of 1850 gigalitres?

Water security and entitlements must continue to be what they were several years ago when their status supported investment decisions, ie, in they must remain as one share equals one kilolitre, in every year that South Australia receives its entitlement flow.

This is everyone's plan and will impact on everyone, whether you are an irrigator, you live in a River Murray community, or you live in the city.

With the proposed plan, Australian food production, integrity and security will be eroded.

I challenge all South Australians to have a voice and attend any community information forums to be held by the MDBA.

I, for one, am sick of getting a supposed "good hearing" when, in fact, no one is listening.

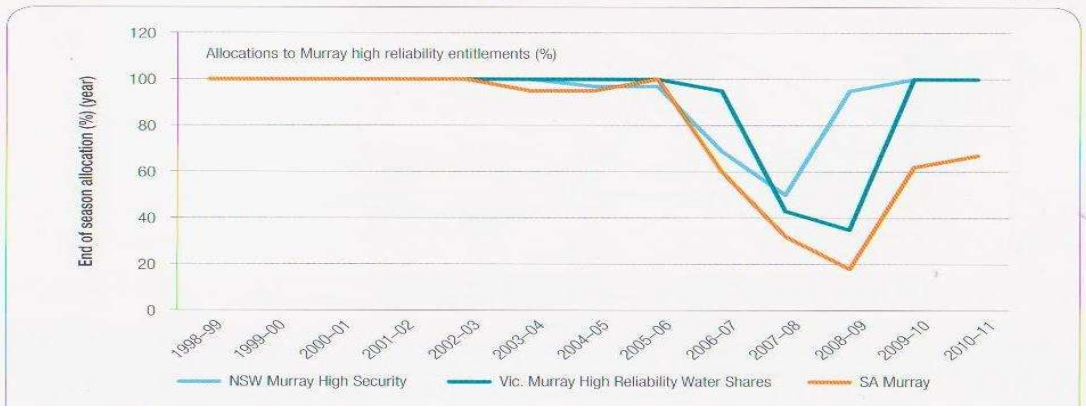
Brendan Sidhu,
Managing Director,
Jubilee Almonds,

Current and future irrigation and consumptive water use businesses will be cautious in their decisions to commit millions of dollars in infrastructure with no solid information on which to base these investment decisions, and unclear indication of what the financial burden will be to the business to maximise the use of the capital infrastructure investments.

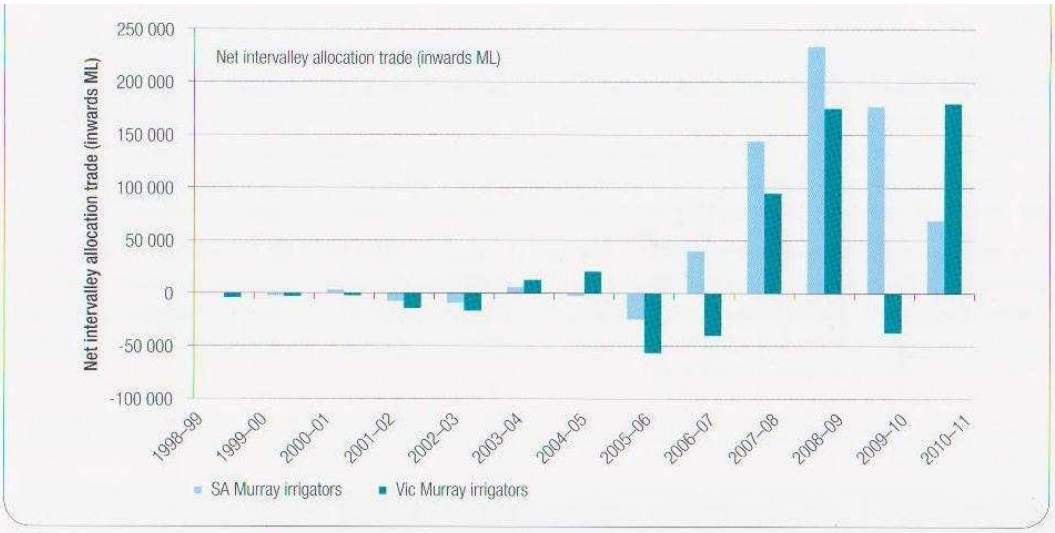
If the water reform process is to continue successfully then more serious thought needs to be put into how we are going to achieve water recovery for the environment without decimating hard built industries, property rights and regional communities.

The following graphs highlight this point detailing the impost that the South Australian Murray Irrigator has had to endure.

Figure 5: Allocations available to Murray high reliability water entitlements and net allocation purchases in the Victorian Murray system



(National Water Commission, 2011)



Sources: South Australian Government 2011, Goulburn—Murray Water 2011, NSW Government 2011, MDBA (various years)

Note: Total SA Murray trade data has been adjusted to account for purchases by SA Water for critical human needs for Adelaide and country towns. In 2008–09, SA Water purchased 106 GL. In 2009–10, SA Water purchased 60 GL.

(National Water Commission, 2011)

South Australian Irrigators need to look both at the Basin Plan and then gaze into the future to anticipate the impact on the State's Water Allocation Plan in 2015 to 2019.

The Critical Human Needs and existing environmental water allocations are not separated from other forms of take; and so the impact of the reductions will fall on irrigators once a State Water Allocation Plan is implemented. This seemingly unbending stance is a key factor in the undermining of the security of water allocations and undermining the communities' confidence in the State government agencies to adequately and fairly manage the river system for the people of this state.

The assessment of Darling River flows based on averages is absurd in the reality of its inflow patterns. South Australia needs to be a secured recipient of some Darling Catchment generated flows that the River has come to rely on from its source to its mouth. The feast or famine nature of that river is more suited to trigger point management than long term annual averages as this just does not respect the reality of Mother Nature. This was most evident in the years during the drought in 2008 – 2010 when inflows were received but not allowed to flow to their natural conclusion at the Murray Mouth.

The proposed Murray Darling Basin Plan does not clearly address with integrity the State induced Basin wide problem of over allocation. This plan does not clearly and succinctly summarise how much the basin is over allocated, where it is taken from and why. Honesty in addressing the issue needs to be paramount. It is time to call a spade a spade and detail without prejudice the last century of water diversions and the decisions that led to the circumstances that we find ourselves in today. Moral judgement on differing water entitlement share values, across classes, is the core issue that most directly affects the security of water access entitlements and their subsequent allocations.

SAMI would like to request that the Authority consider recommending that the State governments be made to honour their licensed commitments at a minimum known rainfall and inflow sequence as detailed in the Basin Plan. This is important to give the community confidence that the future of water management in the Basin will go forward with integrity free from tinkering and social judgements.

CARRY-OVER WATER

The Murray-Darling Basins dams are both historic and modern. It has been argued that they served their purpose for the most part of the millennium drought in providing some level of security for the river. This was evident in the fact that Adelaide (whilst on restrictions and irrigators on severe allocation cuts), did not run out of water. Blue-green algae outbreaks were managed to a minimum and nutrient levels minimised as so far as the extreme low flow scenario would permit. Hume, Dartmouth Menindie, Lake Victoria, Lake Alexandrina

and a myriad of others were able to be managed to minimise evaporation and ensure a water supply for downstream users.

Carryover options to irrigators during the drought created a minimum level of security that could be managed by the business. It was seen as an essential tool to assist with risk management. South Australian Murray Irrigators have again been left without adequate carryover provisions on the post drought management approach. The current situation has seen the negotiation for South Australia and the environmental waters to gain access to carry-over provisions and storage space in the dams. The Commonwealth Environmental Water Holder has also secured full storage provisions in the dams over the South Australian consumptive water. This does two important and detrimental things to the ecology of the river and the security in consumptive products in South Australia.

By storing all the environmental allocations in carryover, the management denies the river system of the natural timing and duration for flows in the system. The natural character of the river flows is interrupted. There is the potential for a management induced flat-lining of the rivers heights due to environmental water remaining in storages. Large and unintended environmental water releases are at risk of prevailing when unpredicted weather events place strain on stored environmental water volumes. A reduced proportion of storage space to environmental entitlement can be afforded in the National interest and in line with a desire to implement a fair and workable Basin wide water management system.

By floating South Australian consumptive carryover on top of all of the other water products in the Basin the intention of encouraging efficient water use is lost as the product is not secure. The rights of irrigators across jurisdictions are not equal and this creates unnecessary conflicts in trade amongst fellow Australians. For South Australian Murray Irrigators, this is a relatively small volume of water compared to other states and is an essential must for Basin water management moving into the future.

Dam storage capacities should not be allowed to be utilised and will not encourage utilisation and will undermine the integrity of existing Water Allocations. This was evident in the recent state manoeuvring which saw water trade restricted due to trade policy inconsistencies. This was later explained as being due to late trade accounting that is now moving accountability years. This is an absolute deception to our communities that accepted the unbundling.

Carryover is an important tool to allow flexibility and the encouragement of efficient water use and risk management and should be applied consistently across the Basin in the name of equality. The issue that South Australian Murray Irrigators private carryover water spills, because that water is "on top" is counteractive to efficient and effective Basin management. The rules for carryover mean that SA carryover will spill before environmental water. This seems

unreasonable and should be changed to reflect fair and equal Basin management as well as ecologically sound and safe storage management. The insistence on the status-quo is to ignore common sense management.

WATER TRADE - CONSUMPTIVE WATER

Water trading is an important part of the water management reform process and has allowed the movement of water resources towards the most efficient and effective use of the resource. There needs to be a publicly transparent and readily available record system that maintains the integrity of licensed products over time. Transparency of the water registers needs to be in such a way as to provide security of tenure for those who invest. The permanent trading in water to the most efficient use should be encouraged and this is secured by security of title and trade.

The potential of the newly established water market trading system is not the primary focus of the irrigator, but has become a necessary option used to increase business options and mitigate against the annual risk of allocations being restricted. Irrigators trade water to allow irrigations to occur when further volumes are required to satisfy their crops needs.

Businesses determine water volumes required through short, medium and long term water and financial budgets utilising the most up to date water market information available at the time. These budgets are constantly revised, particularly during times of drought and water reform. Water volumes not utilised or traded at the end of the water year, are seen as contributing to down system environmental flows and it is expected that the system provides that integrity.

Transaction costs need to be realistic to encourage trading. Current levels are a hindrance to trade and result in undervaluing irrigator's assets. The point will soon be reached where trade will become cost prohibitive and cease to occur.

Good regulation of water brokers should be encouraged to ensure reliability of trades and security of funds; there should there be a national indemnity fund to protect irrigators trading their water which will need to be set up and endorsed by the government while the water market is in its infancy stages.

WATER TRADE - ENVIRONMENTAL WATER

Trade by the commonwealth environmental water holder while the system is still restoring to a level of health after the millennium drought is premature and must be given time for management systems to settle and trade policies devised. This is not evident in the current version of the proposed Basin Plan.

The commonwealth environmental water holder should never trade allocations for the sole purpose of making a financial profit. Farmers, irrigators and regional communities have been repeatedly told that volumes recovered are needed to address a degraded and over allocated river system with deteriorated health. The South Australia portion of the Lower Murray stem is down stream of all of the Basin's rivers and tributaries. Surplus flows required from environmental holdings should only be stored if it is not counter-active to the intentions of recovering water for the environment and to restore the river systems to health at locations anywhere downstream of where the entitlement is held. Storing water to sell to consumptive use or stored for financial reasons is to deny the river ecological flows in the seasons and for the durations that they occur.

Irrigators support the sale of limited environmental water during known flow conditions that does not set up a false sense of security in the regularity of these water volumes.

Less dam space is needed for the environment if opportunistic weather events were allowed to flow to their conclusion and not siphoned into inefficient dam takes. Some environmental dam space should be afforded but this shouldn't be unbendingly limitless at the expense of other Basin water users. Environmental carryover water should be managed to provide airspace within the Dams to allow intended certainty and equality to consumptive users. This can provide drought and flood mitigation actions that protect all water users equally.

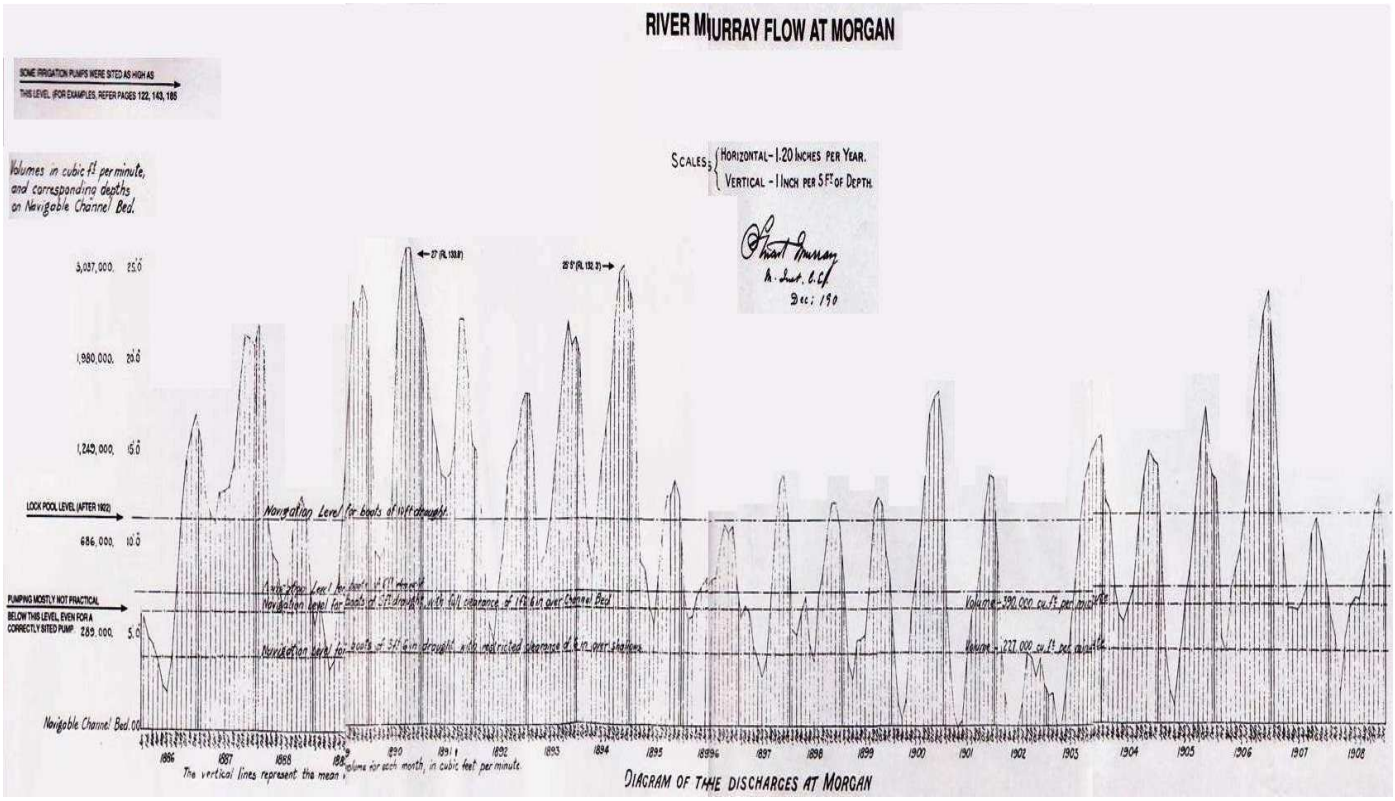
Dam and storage management actions can directly remove the mid-range environmental flows from the lower stem of the Murray and disrupt the seasonal nature of flow frequencies.

The extent to which the water trading market will assist irrigators will depend largely on the current water reform process. The release of the Basin Plan, the cooperativeness and integrity of State Governments and water transfer rules, will shape water trading and basin agriculture. Consistency across resource and licensing system jurisdictions should be enforced as a matter of priority.

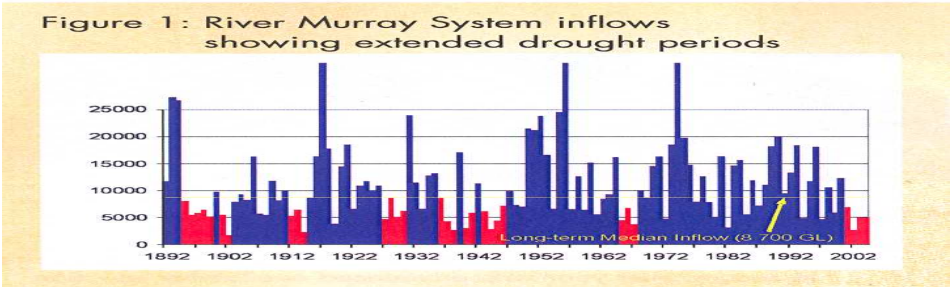
FLOW VARIATIONS IN THE SOUTH AUSTRALIAN RIVER MURRAY

The graph below taken from the records detailed by David Mack author of 'Irrigation Settlement – Some historic aspects in South Australia on the River Murray 1838 – 1978', and outlines natural river variation in the Morgan area from 1886 – 1908, 22 years. The top line in this graph is pool level post 1922 and the lower lines are a series of navigation minimums. The airspace of the graph below the top line is what has drowned low lying River Red Gums and kept some wetlands permanently in undated to the point that engineered solutions have been sought to artificially dry these areas. This graph also highlights why long term

annual averages are not sufficient to manage the variability of flows in the South Australian Murray Darling Basin and will not allow for solid management decisions to be made.

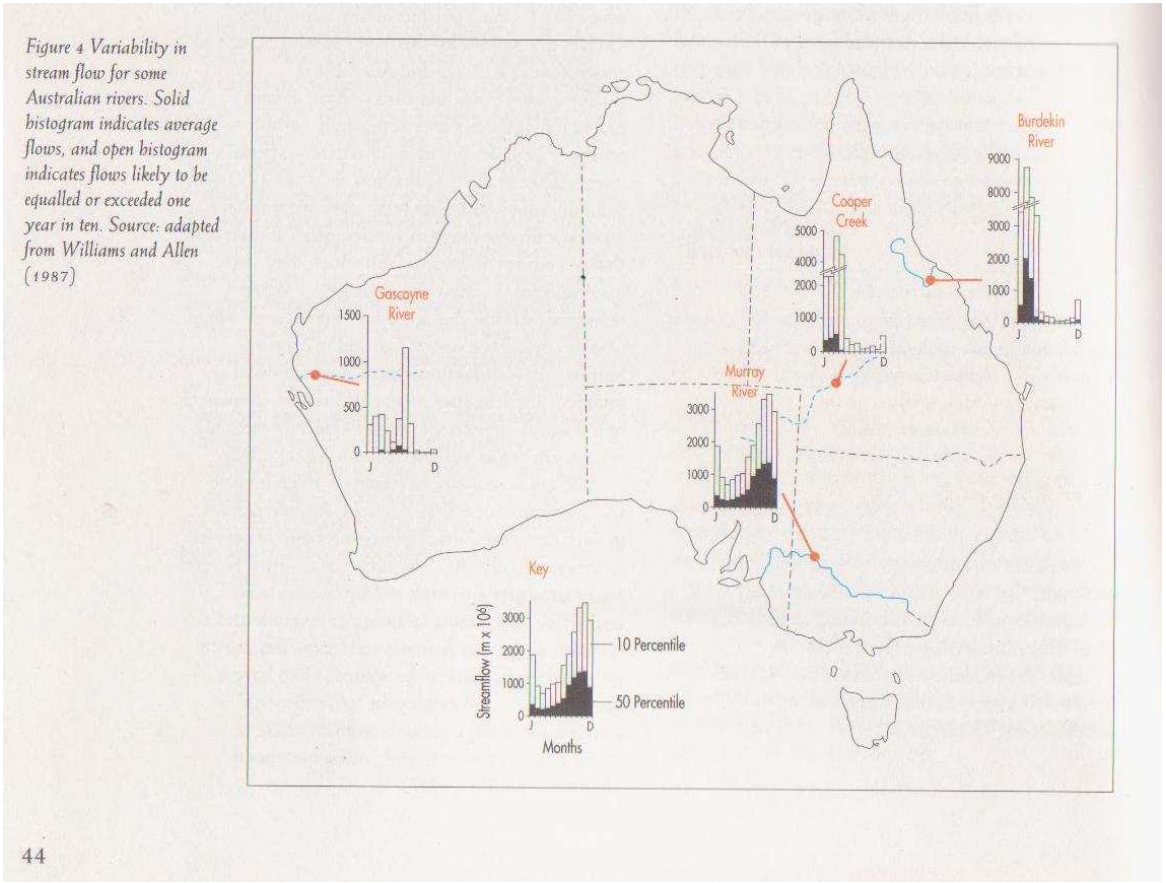


(Mack, 2003)



(River Murray Water Resource Assessment report. Department of Water Land and Biodiversity Conservation. 2007)

The proposed Basin Plan relies heavily on modelled and predicted outcomes rather than actual recorded and scientifically robust data. This does not provide the general public with any tangible and measured comparisons to accept the modelled predictions as fact. What the public want and expect the Basin Plan to provide is known volumes and frequency of flow events within the physical constraints of the system. The graph below shows long-term average seasonal and high volume inflow characteristic of some of Australia's rivers, highlighting the need for trigger point management under known flow scenarios.



(Mummery 1994)

An adequate and logical starting point is the inclusion and benchmarking of the Living Murray Icon sites. This is a known and existing management scenario towards which achievements have been made. Omitting all Living Murray and locking them down in fancy figure splits is just playing up to the spin that the system is in dire health. This is just scientifically untrue.

Wachtels Lagoon - photo by Caren Martin

River Murray in the foreground , Lagoon in the Background beyond the drowned trees,

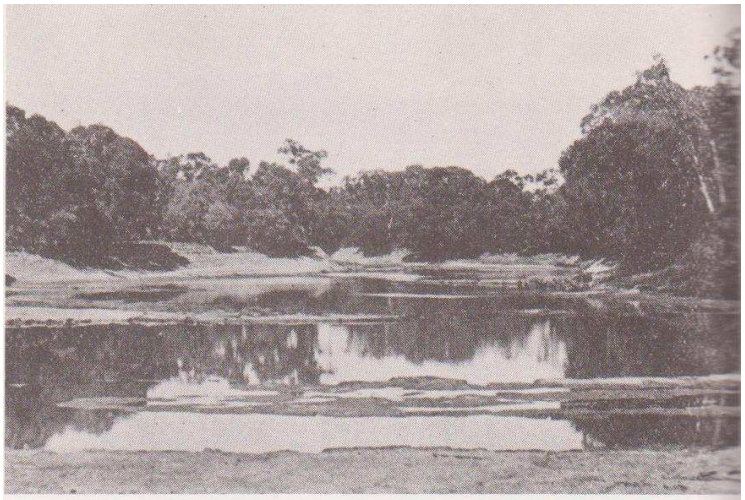
Locks and Weirs took out low-flow seasonal variation which was once part of the natural character of the river. Many of the dead tree shots that are shown in the media are in fact drowned trees. Dead decades ago due to the having their root zone permanently inundated due to the higher river levels maintained by the Locks and Weirs. This is an engineered fact that we cannot turn back from. The positive benefits provided because of engineered works in the river are large. As a trade-off for this variation in the system has evened out to a new normal referred to as 'pool level'. This level is relatively constant and has a desired minimum running value. Pool level can be manipulated to enhance the environment through the drying of wetlands that have been permanently inundated since the advent of locks and weirs.

The Shared Water Resources as expressed in the Act doesn't go far enough to include all of the Basins tributaries as you think would be the case under sound ecological, social and economic management. The Darling River has historically provided South Australia with periodic and erratic flows that are significant for the management of the lower stem of the Murray-Darling Basin. To deny this in the Water Act is not ecological and makes a mockery of the Basin Plans intentions.

South Australia needs periodic flows from the Darling portion of the Murray-Darling Basin to assist with lower end river health. The following observation was taken from a book detailing the Murray Valley in 1948.

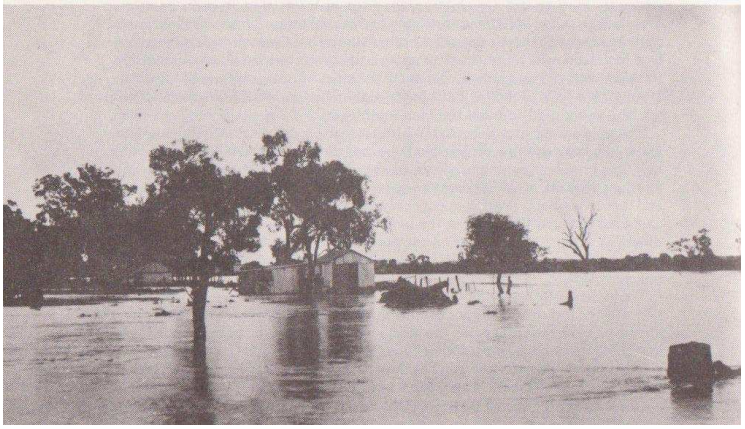
> *'The severest drought on record in the Murray district occurred in 1944. The Hume reservoir was practically dry, though fortunately for South Australia the Darling came down in good volume and there was abundant water in the lower Murray.'* (Holmes et al. 1948)

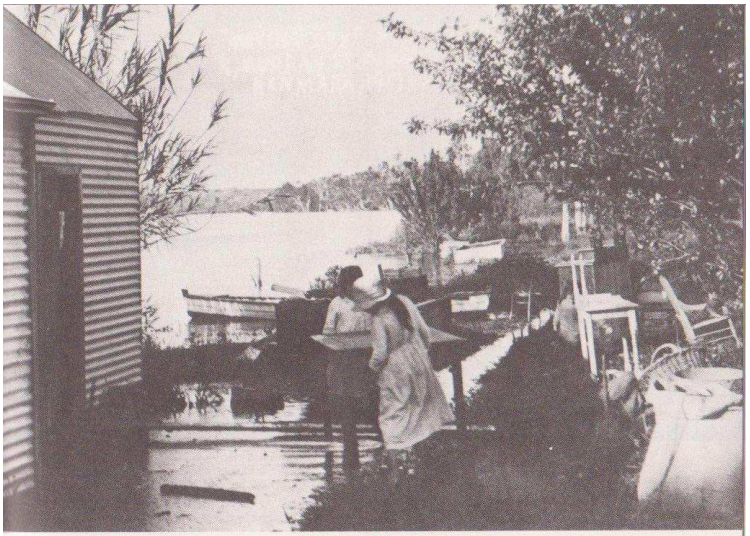
Variability, or droughts and flooding rains and an undeniable river fact as expresses in the historic photographs below depicting drought in 1914 and flood in 1917.



Low river in 1914. Navigation was sometimes impossible during dry seasons

The 1917 flood. This photograph was taken on the morning the bank broke, forcing us to move out. Our house is the little building down among the trees, on the left





We salvaged what we could from our old home, and moved into this place which, being built on blocks, was dry inside

3 Photo Sequence: Renmark river stretch in 1914 drought and 1917 flood. (Roysland, D. 1977)

WATER QUALITY

The following parameters were in Scheltinga et al. 2006, and are just one example of many documents that have produced good scientific management options that could be recommended by the proposed Basin Plan.

6 Abiotic Environment

There is clear evidence from around the world that alterations to freshwater flow regime affect the geochemical processes, water quality and abiotic habitats of estuaries (Rozas *et al.*, 2005; Gillanders and Kingsford, 2002; Scharler and Baird, 2000; Peirson *et al.*, 2002). The simple conceptualisation of Alber and Florey (2002) lists salinity, sediment, dissolved material and particulate material as the key estuarine abiotic conditions that might be affected by altered flow regimes. Their list is expanded from the Australian and international literature to include:

- salinity,
- sediment/turbidity,
- water temperature,
- nutrients and organic matter,
- dissolved oxygen,
- pH,
- hydrodynamics – including water velocity, shear stress, mixing and circulation patterns,
- geomorphology and abiotic habitat, and
- connectivity.

(e.g. Aleem, 1972; Jordan *et al.*, 1991; Mallin *et al.*, 1993; Boesch *et al.*, 1994; Jassby *et al.*, 1995; Boynton *et al.*, 1995; Davies and Kalish, 1994; Vörösmarty and Sahagian, 2000; Webster *et al.*, 2001, 2003; Alber and Flory, 2002; Gillanders and Kingsford, 2002; Peirson *et al.*, 2002; Lamontagne *et al.*, 2004; Rozas *et al.*, 2005; Douglas *et al.*, 2005; Ford *et al.*, 2005).

6.1 Water quality

The main physico-chemical water quality parameters of interest for freshwater inflows to estuaries are nutrients, salinity, turbidity and temperature, though organic matter, dissolved oxygen and pH may also be important. However, "the main cause of poor water quality in regulated rivers is not necessarily the flow regulation itself, although this can exacerbate the problem. Poor water quality usually results from inappropriate catchment and channel management, so it could be argued that manipulation of flows (under the guise of 'environmental flows') to ameliorate this problem, by flushing or diluting contaminants for example, addresses the symptom and not the cause of the problem" (Gippel, 2001, p. 82).

Reduction of freshwater flow can lead to decreased flushing and increased stratification of a water body. Stratification of estuaries is caused by differences in density between fresh and saline waters. Stratification can lead to anoxic conditions and poor water quality and result in decreased fish, shellfish and crustacean abundance, and contamination of tissues; nutrients may also be released from sediments causing algal blooms (Peirson *et al.*, 2002). Deeper estuaries (typically, drowned river valleys) are more susceptible to stratification as a result of reduction in freshwater flow.

6.1.1 Salinity

Flows have a major impact on the salinity of an estuary, which in turn impacts the species living there, particularly the invertebrates and plants (see Drinkwater and Frank, 1994). Altered flows can result in changes to the area of an estuary as

increased freshwater flow reduces the estuary length and reduced flows allow saline waters to penetrate further inland (see Gillanders and Kingsford, 2002).

In some cases reduced flows may result in the estuary and nearshore waters becoming hypersaline. An extreme example occurs in some estuaries in Western Australia which are threatened by hypersaline conditions arising from sea water intrusion and evaporation as well as saline run-off from the catchment salinity (Malcolm Robb, December 2005, pers. comm.).

In estuaries where tidal currents are not strong enough to mix the water column then stratification can occur with low-salinity freshwater floating above the denser, high-salinity seawater (OzEstuaries, 2006). This may lead to anoxic and hypoxic events because bottom waters are effectively isolated from the gas exchange across the water surface and from photosynthesis by plants (OzEstuaries, 2006).

A study by Davies and Kalish (1994) on the Derwent River, Tasmania, showed a clear relationship between river flow and the location of a salt wedge in the estuary. Flows of 75 m^3/s were needed to displace the salt wedge from its reference position. They also found a negative relationship between salinity and dissolved oxygen (DO), high salinity resulted in low DO, thus periodic high flows were needed to maintain adequate DO levels.

Maintenance of a salinity gradient can be of importance for juvenile fish which often have a wider salinity tolerance than the adults (Liz Barnett, 2006, pers. comm.).

6.1.6 pH

When seawater (approximately pH 8.2) mixes with river water (typically pH 7-7.5), pH tends to decrease. Chemical modelling shows that altered freshwater flows have the potential to change natural pH ranges and gradients in estuaries because river water has a much higher pH than seawater if it evaporates to the same salinity (Radke, 2002).

Changed pH can result in animal kills and disease outbreaks, poor water quality, release of metals and other toxicants, and loss or disturbance of habitat.

6.4 Connectivity

Flows influence both the longitudinal and lateral connectivity of an estuarine system, with low inflows maintaining longitudinal connectivity and high flows allowing lateral connectivity (i.e. with floodplain lagoons, etc.). The habitable area available (e.g. for feeding or nursery grounds) is thus influenced by the flow regime.

A loss of longitudinal connectivity between the estuary and upstream river systems can have severe impacts on fauna which migrate during their lifecycle between fresh and salt waters (e.g. eels, barramundi). A loss of lateral connectivity between the estuary and adjacent waterbodies can have severe impacts on fauna that use these water bodies as nursery grounds. Recent research on floodplain wetlands associated with the Fitzroy River (Qld) has shown that relatively small-scale local flooding can be sufficient to maintain water levels in estuarine littoral pools and produce biologically useful connectivity (Coastal CRC AW (Fitzroy Wetlands Connectivity) project draft report – Marcus Sheaves, 2006)).

"The loss of [lateral] connecting flow is also likely to result in ecological processes in the adjacent waterbodies not being activated or maintained. Note that connectivity loss, particularly marine-estuary connectivity as resulting from estuary-mouth closure, may also result from the processes concerning reductions in flushing and channel-maintenance flows" (Peirson *et al.*, 2002, p. 15).

(Scheltinga DM et al. 2006)

The National Action Plan for salinity and water quality identified 800 EC at Morgan 95 % of the time, as a first step target to start addressing salinity impacts. The Hindmarsh Island group parameters would like to only see Lake Alexandrina never exceeding 1000EC. Lake Albert's historic flow sees salt accumulate and EC values double + that of Lake Alexandrina. Lake Albert's water quality problems stem mainly from manmade barriers that have restricted the ability for natural flows to flush the Lake.

High river flows are still not delivering potable water to some irrigators in Lake Albert. SAMI supports the Meningie Narrung Lakes Irrigator Association's, The Five Point Plan which details works including;

1. Removal of the Causeway at the entrance to Lake Albert
2. Removal of the artificial Bund in total
3. Selectively Dredge the Narrung Narrows
4. A channel and/or a pipeline at the Southern End of Lake Albert to the Coorong
5. Return natural flows to the southern end of the Coorong. (SE drains)

Acid Sulphate soils are a result of the build-up of nutrient loads that have been kept dormant in the anaerobic (without-oxygen) caused by the locking and permanent inundation of river sediments caused by the weirs and the barrages. The drying out of these areas during the drought and into the future has an effect on the chemistry of the traditionally anaerobic environment which oxygen in the air has caused the pH to alter producing acid sulphate soils. Intermittent wetting and drying and cracking is the natural way of allowing this problem to naturally disperse. But we are currently dealing with a situation that is a result of 70 + years or permanent inundation and the build-up of a large nutrient load in river sediments. Landholders in the region below Blanchetown have experienced this quite severely and extensive infrastructure investment would be needed to see the enhancement of this regions farms through reconfiguration and renewal spending.

Barrage and lock upgrades to allow flow control structures to open from the bottom and allow these sediments to pass naturally is a simple and effective method of creating management efficiencies and could be built into barrage infrastructure upgrades.

ENVIRONMENTAL LAND MANAGEMENT ALLOCATION (ELMA)

The Lower Murray Swamps irrigation region has associated with it 22.2 GL of water known as the Environmental Land Management Allocation (ELMA). It is not really an 'environmental allocation'; rather it is a land management allocation. This water is applied to the land to minimise the effects of rising saline groundwater on irrigated pasture. Any reduction would mean there is not be enough ELMA to do the job it is there to perform and with our current acid sulphate soils issues our current allocations of ELMA is essential. The reasons for ELMA are not only salinity but even more importantly now to help avoid acid

sulphate soils and to reduce severe cracking / slumping of the levee bank which defines the river channel in areas in the Lower Murray.

CLIMATE CHANGE

The current intention of the proposed Basin Plan is to define management around Long-term annual average flow scenario ignores and undermines this fact. To do this to the highly variable Murray Darling Basin is to sentence it to death. Averages in a highly managed system tend to be managed as maximum or minimums which will remove the peaks and troughs of environmental variability that the health of the river requires.

The Windsor enquiry described its report as 'Drought and Flooding Rains'. This was not only for poetic reasons. The title quite adequately describes the ecological character of the Murray Darling Basin. Science has been quite clearly expressed through observed and measured data which has detailed the historical water flows and frequency. Climate change flow scenarios are largely unknown. Further and extensive monitoring and measuring is needed to provide real and observed data that befits scientific method and will validate modelled assumptions.

If we hypothesise on the concept that more extreme weather is to prevail into the future then we should look at the extreme ends of known and measured data and plan management scenarios within this minimum to maximum range. This can be done relatively easily with the recorded data currently available. To state that it is unknown what the future holds for the basin is a fallacy and doing an injustice to river and basin communities. The ambiguity is blatantly reflected on page five of the 'The Draft Basin Plan: Catchment by Catchment', supporting booklet where it states;

> *'Modelling suggests that the Basin will also become hotter and drier overall, particularly in the south.'*

This statement does nothing to encourage confidence in the climate change models. Some research has suggested that the catchment will actually get wetter over-all and that we may be able to expect an increase of inflow contribution from the Darling system.

Other research has indicated that there may be an increase of summer rainfall across the entire basin. There are predictions a more tropical climate to prevail in the Riverland regions of South Australia rather than a scorched one. Such variability is normal and will not see the extinction of the Basin. The sclerophyll plants and saltbush communities are a testament to this.

Water storages, barrages and locks and weirs have enabled the system to largely mitigate against a certain number of consecutive low inflow years. Flows up and above the minimum committed entitlement requirements should be returned to the river under the seasonal conditions that they fall.

Climate variability in the Basin is known and averages appear to be a poor way of expressing and managing its impact. We are concerned that the impact of drought on irrigators is likely to be even more extreme after implementation of the plan than at present and communities will not be viable over large areas of the Basin.

LAKE ALEXANDRINA, LAKE ALBERT AND THE COORONG

The Coorong, Lake Alexandrina, Lake Albert and the Murray Mouth are a complex series of ecologies. All differing from one another, yet interacting to operate a big complex ecological system. Evidence has shown that the Lakes were naturally intermittent between freshwater and sea water intrusions. It is widely accepted that the Lakes had a freshwater characteristic more often than not due to the sheer volumes of water that would have flowed unencumbered through the lakes and out the mouth but in times of low inflows sea water would have intruded up a receding river.

The health of the Murray Darling Basin system is varied. Lake Albert is generally more saline than Lake Alexandrina and this is also the case at the eastern end of the Coorong compared to the West. The construction of causeways and barriers to flow, particularly through the Narrung Narrows has created freshening issues in Lake Albert. The construction of the South Eastern drainage scheme saw an estimated 30GL per year diverted from the groundwater swamps and out to sea. This water would traditionally have flowed under the dune systems into the eastern end of the Coorong. The following excerpt was taken from the Australian Junior Encyclopaedia 1958, which was largely written by government agencies.

BARRAGES

The barrages were built to satisfy the needs of humans in respond to these climatic low flow periods and the need for reliable navigation and irrigation water. This is no different to building a high rise building and living 30m up in the air. It is not natural but it serves a human purpose.

South Australian Murray Irrigators find themselves caught between past and present management philosophies. Positive outcomes have come from the building of the barrages, weirs and locks. This revolutionary infrastructure was able to create a stable river and nurture world competitive industries. Further infrastructure is now needed to enhance environmental flows and address some of the unknown adverse effects that such large

changes in the landscape have bought. Returning to the character of the river in the 1940s is not an option and to entertain this notion is to deny the river's recent social culture which is in tandem with our recent human development.

The Barrages were intended to restrict the inflow of salt water into the system and increase the habitability of the surrounding landscape. It was largely successful at its job but in the process changed the characteristic of the region. The barrages have been in successful operation for the past 70 years. Past infrastructure initiatives are a reality that present and future managers will be able to utilise and enhance the system by creating the sought balance between the environment, society and related economies. This is a good this and something that should be cherished. We cannot go back to the horse drawn cart era of the past. The developments in the irrigation industries have been of nation building proportions and this should not be undervalued.

MURRAY MOUTH BARRAGES

Before reaching the Southern Ocean, the waters of the Murray flow into great lakes with a water surface of more than 280 square miles, and then, after passing around several islands, break through high coastal sand dunes to meet the sea. The entrance is a dangerous one for navigation and few vessels larger than fishing boats attempt to cross the bar.

When great floods came down the river, the lakes would be flushed out and would remain fresh for a considerable time in spite

MURRAY MOUTH BARRAGES

of inflow and ebb of salt water with the tides, but in times of prolonged drought on the Murray Catchment, and low river flow, salt water from the sea would come in to make up for the evaporation from the vast exposed surface, and the quality of the water would deteriorate. It was apparent that increasing diversions for irrigation from the Murray and its tributaries would make the position progressively worse, unless something could be done to keep out the salt water when the lakes were at a low level. To do this, the South Australian engineers, with great skill and courage, designed and built, for the River Murray Commission, a unique and spectacular system of barrages to control the whole of the flow in all the channels between the mainland and the various islands in the Murray Mouth lakes. They are set well back from the sea so that they are protected from the violence of the ocean storms by the natural sand dunes along the coast.

These barrages, of which there are five, totalling nearly five miles in length, are really great sluices with hundreds of openings some of which can be closed with stop-planks, and others with steel gates on hinges to regulate the flow of river water from the Lake Alexandrina to the sea, and to prevent altogether any flow from the sea to the Lakes. Fishermen can readily pass from the lakes to reach the sea or the long narrow arm known as the Coorong which is on the sea side of the barrages by taking their boats through a lock in the main barrage near Goolwa which can take vessels up to 100 feet long, or through a second lock, suitable for smaller boats, in the Tauwitchere Barrage on the far side of the system.

The Goolwa channel from the mainland to Hindmarsh Island, although not nearly as wide as others to be crossed, is the deepest and it carries seventy per cent. of the total flood flow. The Barrage across this channel is 2,200 feet long. It is built on a heavy concrete floor in which are embedded the projecting tops of a veritable forest of long timber piles driven deeply into the fine silt and sand which forms the bed of the channel. Under the concrete there is also a long line of steel sheet piling forty feet deep right across the channel to prevent any water percolating under the structure.

The Barrage itself is made up of concrete piers eleven feet nine inches apart, between which strong timber stop boards can be lowered by a power operated crane running on rails across the top of the structure. The water here, in time of flood, will be up to twenty-three feet deep. The second and third of the series are the Mundoo and Boundary Creek Barrages, the latter being quite small between Ewe Island and Mundoo. The fourth and fifth Barrages are most impressive as they extend for very considerable distances across the wide but shallow channels between Ewe Island and Tauwitchere Island and from that island to the mainland at Pelican Point.

Both these Barrages are built on soft limestone in water which is only a few feet deep at low tide. They consist of concrete floors on which there are hundreds of concrete piers, one every fourteen feet with the openings between the piers closed by curved steel "Taintor" gates hinged to the piers so that they can be very easily raised or lowered when required. The Ewe Island Barrage has 111 gates and is one and a half miles long with its embank-

Murray Mouth Barrage—Goolwa.

ments on each side. The Tauwitchere Barrage has 322 gates and is more than two miles in length.

The Barrages were brought into operation for the first time early in 1940 and have proved an outstanding success.

Total capital expenditure to 30th June, 1954, was £12,884,143 out of estimated cost of £14,000,000 for works approved under the Agreement as amended in 1948. Works approved in 1954 will increase expenditure to approx. £19,000,000.

(Barrett, 1958)

SOCIAL IMPACTS

In the interest of adhering to the Water Act the plan must have regard to the Environmental Social and Economic impacts. The following table should be expanded on to maintain this intention and weigh values equally. Regional communities are an important part of the nation and should be supported as such through the next and critical stages of the water reform process.

Environmental	Social	Economic
Quantify outcomes	Entitlement holders	Water value
Environmental water committed to license	Location impacts	Opportunity cost of water purpose (mining, irrigation, urban, etc)
Accountability and protection of water not committed to license	Secondary community economies - direct(Elders, etc)	State policy and influence
End of system flows	Tertiary community economies - indirect (schools, etc)	Water markets. Entitlement Allocations, Security of investment. Futures and derivatives.

Local information needs to be listened to and put into action where practical with minimum fuss to get on with river management and free communities from the burdensome ongoing imposition that is water reform. A fresh look at how this is to occur needs to be initiated and resourced with those with adequate skills breaking free from the status quo.

South Australian Murray Irrigators supports the concept of a Basin Plan in the anticipation that it delivers a healthy river system allowing all entitled irrigators along its reaches to be able to access their full entitlements and be assured of that water's quality.

We want certainty but we don't want certain death. The licensing systems across all interested states needs to be equitable, consistent and fair to reflect the history of culture and investment that the irrigation industry has brought to the nation and entire Murray Darling Basin.

South Australia's freeze on new allocations since 1968 and only having one type of water means there is considerably less flexibility in mitigation actions that can be taken. As a consequence our communities are missing out on this investment.

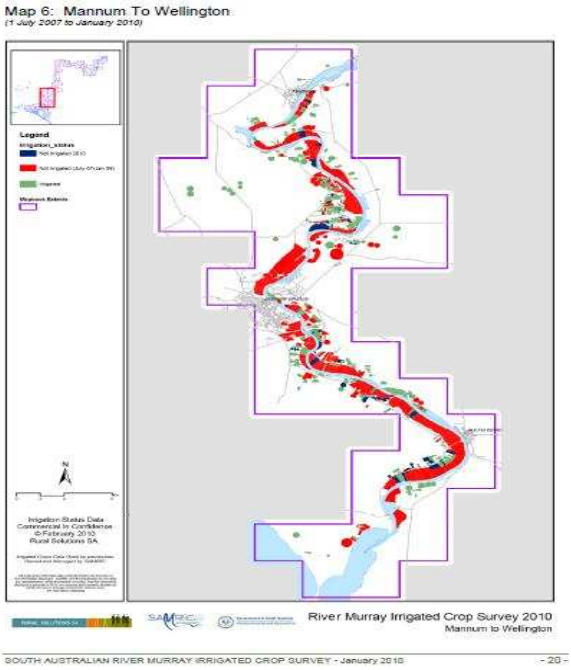
The South Australian portion of the river is connected to all of the basin's rivers and tributaries. The culture of indigenous peoples, white-man's colonisation, the soldier settlement schemes, the contribution of immigrants through the 50s 60s 70s and 80s and 90s

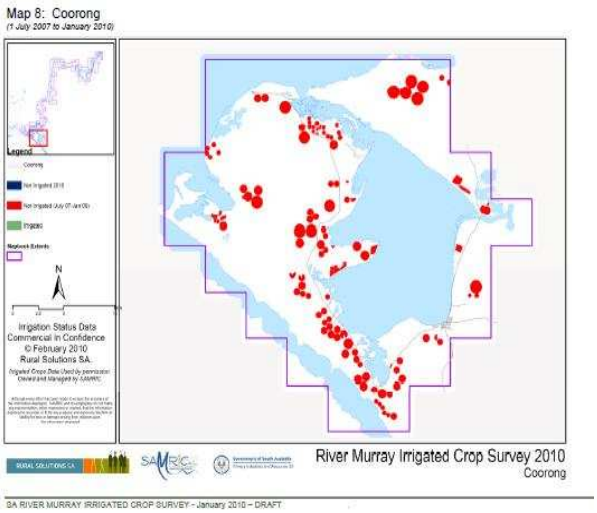
The technical farm development we have today has made the river and its communities what they are today. The communities and its people are a product of that history and culture. Wounds are still exposed from disregarding past cultures and history is at risk of repeating itself with the Plan in its current form.

Newspaper illustration 1887, depicting 1830

The benefits of the plan will be lost if communities are destroyed and farmers are forced off the land due to inflexible plans

The following pictures were determined in 2010 using satellite imagery. The red unplanted areas show the maximum reach of drought. If certainty is not returned to allocations then further restriction of horticultural production will occur due to the effects of a management induced drought.





INFRASTRUCTURE AND INVESTMENT

South Australian Murray Irrigators have been largely unsuccessful at accessing and transitional arrangements provided by the federal government. South Australian Murray Irrigators have conceded that the larger portions of this money will need to be spent where the problem has occurred, but nothing has been done to address the unique position that South Australia finds itself as early adopters of irrigation efficiency technology and having no surplus available to easily give. This innovation is now being penalised through the inability to participate and take the South Australian irrigation regions practices to increased productive levels. This money permeates through regional economies a fact that South Australian Murray Communities have missed out on when they needed it the most.

ENVIRONMENTAL WATERING PLAN

The Living Murray and its icon sites is a more direct and encompassing environmental watering plan than that expressed under the Basin Plan process. The documents make aspirational statements rather than measured and scientifically validated triggers to aspire to and assist in returning the River to health. An end of system flow scenario is needed for the Murray Mouth and by default the river reach downstream of the Wentworth junction. It is this stretch that is of most importance to South Australian Murray Irrigators and we recognise that these flows must come from all the rivers and tributaries in the Basin.

Photo – Caren Martin

River Murray Between Locks 6 and 7, 2009

Where and who is responsible? It appears that the States are responsible but most environmental water is held by the Commonwealth and in the real world it crosses state boundaries. The relevant sections appear below:

Division 1— *Preparation of long-term watering plans*

1.01 Preparation of long-term watering plans

(1) A Basin State must prepare a long-term environmental watering plan for each water resource plan area that contains surface water (long-term watering plan).

(2) A Basin State must give a long-term watering plan for a water resource plan area to the Authority:

(a) no later than 24 months after the commencement of the Basin Plan; or

(b) within another timeframe agreed to by the Authority and a Basin State."

This appears to make the process excessively complex and too late as the water is available now and should be used to maximise environmental benefit without damaging the productive capacity or the environment through excessive wetting of limited areas.

CRITICAL HUMAN NEEDS

Just how critical is critical? Urban water supplies and needed in the National interest. Reducing reliance on Murray through further storm water management, desalination, dams and storage, grey water, tanks and building codes is a must to reduce the impact on irrigators' entitlement security.

Critical Human Needs, including quantification of stock and domestic diverters, are a much higher percentage of SA diversions and hence, unless these are counted separately, a larger impact will be felt by irrigators. With a reduced amount available and critical human needs needing to be available then a larger proportional reduction to irrigators will occur in SA due to their higher percentage of total take.
As an example in the Southern Basin CHN is:

- In South Australia 204GL out of total 700GL (29%)
- New South Wales 61GL out of a total 4,991GL (1.2%)
- Victoria 77GL out of 4,021GL (1.9%)

The allocation of water remains a State responsibility and hence South Australian Irrigators will not know their irrigation security until the Water Allocation Plan in 2019 is implemented. Licensing conditions need to be managed equally with integrity to not place the financial burden of allocation priorities solely on the South Australian Murray Irrigator.

MENINDIE LAKES

Management options for Menindee lakes should be explored for efficiencies. Ecological enhancement and the need for further Basin water management options. The Nation needs decisive infrastructure management options that can be utilised by all interested stakeholders including downstream users whose security of supply has the potential to be hindered through poor lake management actions.

FLOODPLAIN HARVESTING

Many storages in the Murray Darling Basin excessively lock up the Basins headwaters which in turn has a detrimental effect on downstream users. The 'Surface and/or Groundwater interception activities – Initial Estimates' report Commissioned by the National Water Commission (Sinclair Knight Merz et al. 2010) report, details a first attempt a quantifying and defining water affecting activities that fall outside the current basin accounting and licensing systems.

The report attempts to ...

'... develop a national baseline paper that documents:

- *The location of significant intercepting activities that fall outside the current entitlement framework.*
- *The potential rate of expansion of each activity over various time periods*
- *And estimates of current water usage of each activity in water management areas used in the Australian Water Resources2005 report (NWC 2007a,b)*

This report includes a definition and description of activities that intercept surface water and groundwater and identified the following activities for further analysis:

- *Overland flows*
- *Farm dams*
- *Stock and domestic bores*
- *Plantations*
- *Peri-urban development.*

...A key challenge of this project was to source relevant, quantifiable data relating to the intercepting activities. By definition, these activities fall outside of regulation, andso there is a lack of data relating to their development and hence their impact on water resources.

The study outlines estimates of:

Overland flows ... 2600GL nation wide with the majority occurring in the Murray Darling Basin... 950 in NSW ... and 1625 GL in Queensland. (Sinclair Knight Merz et al. 2010)

Further metering, monitoring and measuring is required to adequately account for water use in the basin.

CONCLUSION

The South Australian Murray Irrigators association would like to thank the Authority Members for their time in reading and considering this submission. SAMI looks forward to the next version of the proposed Basin Plan and water reform processes as they move towards whole of basin management with honesty, integrity and accountability. If this is achieved then irrigators can look forward to their future and that of their communities with confidence.

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Submission to the New South Wales government: Office of Water on the NSW Floodplain Harvesting Policy: Draft for community consultation – April 2010

The South Australian Murray Irrigators (SAMI) would like to take this opportunity to provide comments and input into the New South Wales government Office of Water on the NSW Floodplain Harvesting Policy: Draft for community consultation. SAMI would like to express its support for the intention of this policy in setting in motion the procedures to document, account and licence Floodplain Harvested water resource extractions.

Water resources in the Murray Darling Basin can be managed in a sustainable way under sustainable development principals and we believe a revised version of this policy document has the opportunity to deliver that outcome. Review of this draft document has highlighted some general comments that SAMI would like to make.

1. SAMI disagrees with the take infrastructure establishment date of 2008. Instead we suggest the Cap establishment date of 1994 The Cap in 1994 is a benchmark moment in Water Allocation history. As a minimum no works should be recognised through out the recent drought period particularly 1999 – 2009 where the nations water resources were on peak stress, special accounting provisions and record low inflows. Infrastructure initiated in this period should not be recognised as legitimate take and should require a water purchase from currently established tradable water products to maintain its continuance to operate.
2. The draft policy document lacks an overall level of detail required to adequately relay the legislative rules and regulations that govern water resource management. SAMI would suggest a further draft re-write and a second round of consultation on that draft be considered so more informed consultation and policy can be made. More specific examples of the policy and its working with-in the community needs to be made throughout the Draft NSW Floodplain Harvesting Policy.
3. There is no reference in this policy document as to who will implement its provisions, when this will occur and who will be responsible for its accuracy.

DOCUMENT DETAIL REVIEW

SECTION 1 – Key points of the Floodplain Harvesting Policy

There is a need to specify in more detail the specific policy and examples of policy implementation particularly stage #2, #3 and #4, particularly in the statement that unregulated river water resources as the total volume available is accounted within existing access licence share components and Long-term Average Annual Extraction Limits (LTAAEL).

QUESTION: Is this policy methodology best science or estimates in the absence of further knowledge?

The granting of works approvals under the processes set out in this policy document is not good enough. Works approvals should have already been sought for and water resource-take. If this has not already been issued then works should be deemed illegal and decommissioned or water purchased to balance the water take budget. Page 2 dot point 1 should specify approvals for take at 1994 Cap levels taking into account down stream catchment obligations and the National Water initiative

Page 2 dot point 3 details the intention for the establishment of policy to help facilitate trade. Whilst this is encouraged SAMI feels that this policy document details the intention of the policy and not stating the actual policy itself. Further detail is required here and further consultation with a more thorough draft policy. This revised draft should align with the Basin Plan and the subsequent Water Resource Plan for these catchments. It should also refer to data detailed in the CSIRO Murray-Darling Basin Sustainable Yields report.

SECTION 2

Page 2 section 2 titled ‘ purpose of and the need for policy talks about the need to improve the reliability of supply to down stream water users. This section needs to further detail the importance of the delivery of flow variability and its importance for the health of the Basin as a whole.

Section 2 paragraph 4 details some provisions under the State Water Management Act 2000 stating that …’where excepting water taken under a basic landholder right or applicable licence exemption, all water extracted from a water resource in NSW needs to be licensed. If all works are to be assessed under this policy are to be licensed then this policy needs to detail those exemptions more rigorously so as to be clear to licence applicants what is deemed acceptable under ‘…water taken under a basic landholder right…’ and an ‘…applicable licence exemption.’ Real life examples would assist in the ease of understanding if works are likely to be exempt.

SECTION 4

Page 3 Section 4 looks at the implementation of this draft policy. Point # 2 requires more clearly defined and detailed policy including examples where relevant.

Section 4.1 refers to the Minister for Water. This policy needs to state who that minister was and also clarify what ‘new works policy’ this sentence refers to and explain its relevance to this draft policy. Throughout the explanation of 4.2 and 4.3 - Implementation policy is the matter of works policy compliance, system assessment, monitoring and measurement is overlooked and need more detailed requirements within a 2nd draft of this policy for consultation.

The concept to implement the cancellation of allocations against the historical order of their implementation, should be revisited. Water diversionary infrastructure inputted throughout the nations extreme drought years should not be rewarded and should be treated as grabs for water while the nation was on its knees. The option for water purchase for reconciliation and water balancing should be detailed within the extraction for the relevant catchments. Penalties for dishonest conduct should be detailed in this policy.

Section 4.2 - Implementation Stage 2 Works Assessment doesn’t go into enough detail and accountability for the care and responsible management of National Water Assets.

Section 4.2.1 on page 5 does not make any reference to a minimum or a maximum entitlement figure, witch it should. Nor does it make any reference to downstream catchments and their reliance on inflows from these Basin catchments. In particular

are the High Security allocations of New South Wales, Victoria and South Australia. It also overlooks the flooding frequency and overbank flow height variability needed to sustain a healthy whole of river environment. More detail is required in 4.2.1 outlining the requirements of a water infrastructure plan and the justifications for its provisions. An irrigation behaviour questionnaire will document current practices but will not assess the regions ecological capability to supply downstream flows.

The removal on non-compliant works should be detailed in this section and there is a need for examples to be included to make clear what works are and are not considered legal for licensing under the provisions of this new policy consistent with state and federal legislation.

Section 4.2.2, details methods that may include a combination of the four dot points outlined. This is too ambiguous and the directive outlined under this section of the policy should be stronger outlining what monitoring, evaluation and metering techniques will be required of the applicant. Best science, Active Adaptive Management and accuracy is paramount. The water resources must be monitored in order to facilitate effective and efficient management.

Section 4.2.3 omits reference to the assistance that is available through local landcare and environmental groups, or other equivalent and organisations in the region with local system knowledge. These groups would be able to assist the applicant with the preparation of information required regarding the environmental impacts of proposed or existing works.

The 4.3 - Implementation Stage 3, needs further more thorough and holistic thought to better determine a concept of extraction limitations. The concept of Long-term Average Annual Extraction Limits is flawed. SAMI suggests extraction pools determined using a more ecologically conservative and historically honourable methodology. LTAAELs do not respect the regions water resource variability and characteristic. The compounding effect within the LTAAEL by the addition of regulated resources with plans, regulated resources without plans, and the non-applications of this policy within unregulated river water sources, should be further assessed and detailed to ensure that Cap volumes are not exceeded.

Unregulated water resources within the Murray Darling Basin need to set the scene for regulation to occur and this policy should address any knowledge gaps and unknown water use within these areas so as to monitor and efficiently manage water use.

Regulation processes for unregulated water resources need to be put in place and regulate through a specified form of minimum standard take including how this infrastructure can accurately meter water take from the water source including the Rivers and their floodplains, on-farm water diversions, evaporation profile drainage and crop water usage. The on-farm component especially should be implemented using existing technologies. Unregulated areas that are identified as at the limits of their extractions should be prescribed as a matter of urgency and the water resources managed in a sustainable manner.

Section 4.3.1. fails to acknowledge the average Murray Darling Basin flows out of the Murray Mouth and the portion of those flows that these sub-catchments policy should contribute to the whole of system flows.

The determination of LTAAELs as outlined in 4.3.1.1needs to specify what the given rules and conditions are for that catchment under the commenced plans and assess their intentions against current day best practice science. A review of these commenced plans should be initiated. If they are assessed and prove to be against best practice management using the most accurate and up to date catchment system knowledge, then policy should be outlined and actions implemented to rectify the situation.

South Australian Murray Irrigators is in complete disagreeance with the statements laid out in paragraph 3 of 4.3.1.1 Firstly in regards to the date works are allowable to apply for Floodplain Harvesting extraction licences, SAMI suggests that 1994 Cap volumes be used to restrict the over allocation of Catchment water resources except where the historical movement of water entitlements has been facilitated in line with Cap volumes and this can be proven. Extraction volumes that further extended the over allocation of water resources in this region particularly through the 2003 – 2009 drought years Should not be assigned within the LTAAEL as they were taken with disregard for the perilous situation that all down stream communities and industries faced during the harsh drought times. Whilst it makes sense to utilise the infrastructure built according to sustainable management practices volumes attributed to drought year takes should be disregarded in the cumulative calculation of LTAAEL as you could argue that these take volumes should not have been implemented at all. With Caps being exceeded during the drought years water grabs landholders and revenue grabs by state governments should not be rewarded. The National resources of this country should not be allowed to be held-to-ransom through large scale naturally damaging storage systems that go against the ecological characteristic of a basin tributary.

The existing water sharing plans referred to in 4.3.1.4 needs to be listed and dated for their assessment and accountability towards the historic management of 1994 Cap volumes and its breech during the past two decades.

In Section 4.3.1.4 SAMI again questions if the LTAAEL is the most sustainable measure of water extractions and if it should be used to define the extraction volume on licences and if it should be used as the defining volume of licences given that potential extraction infrastructure has been implemented past the 1994 Cap date. Diversions need to be within the carrying capacity of the land and unsustainable floodplain storage systems do not achieve this.

Section 4.3.2 again lacks an adequate level of detail required for a well-rounded policy document. This section needs to include detailed descriptive set criteria for works and their inclusion or exclusion in extraction share components. Real time examples should be included here to facilitate a better understanding of this draft policies intention. And allow for licence applicants and others to fully understand the scientific and policy basis for the success or failure of their application.

Section 4.4.1 tries to detail the policy for issuing works approvals. This section is too narrow in its scope and allows for no policy detail other than stating that works approvals will be issued as appropriate. This terminology is far too wishy washy for a policy document and is nowhere near good enough. Management of water resources in the Murray Darling Basin has been paramount over the past decade, 'as appropriate' stops well short of describing sound policy. More realistic volume assessment method based on minimum inflows needs to be detailed. Storage should not be damaging to terrestrial ecosystems in the pursuant of irrigation development in areas unsuitable for such activities.

SAMI suggests that this policy await the release of the Murray Darling Basin Authorities Sustainable Diversions Limits and Basin Plan announcement to incorporate the best scientific and management knowledge available to provide a reliable resource for sustainable irrigation in the Murray Darling Basin.

Compliance and metering at the farm and water supply source off-take is essential. Storage methodologies should be more sustainable fixed and permanent utilising best practice technologies. This would enable straightforward, accurate metering and tailoring to the regions scenarios. This detail should be outlined in this draft policy. With the issue of water access licenses this draft policy would benefit from a step by step detailed diagram and timeline to make it clear and easy for the licence applicant and others to understand the processes, costs and timelines required to gain a floodplain harvesting water access licence.

Section 4.4.3 is again too lean with unclear intention and no policy detail.

QUESTION is this section describing a rolling average scenario or is there some other intention?

Further clarity is required. Either way conceptual detail and timing is required for adequate consultation to occur on this policy in its current draft from.

The addition or compounding of a proposed license holders share-components does not reflect the variable nature and characteristic of the water resources in the top of catchment areas. Inefficient and environmentally damaging storage methods should not be used beyond a specified ecological and practical limit.

Section 4.5 dot point 2 details that some works are exempt from requiring approval. If this was the case in the past then it should not be the case in the future. If works are identified as a current take then they should be assessed and licenced like any other water resource take irrespective of past exemptions. They are not exempt now, however the processing fees might be. The future of water resource management in the Murray Darling Basin should be monitored, metered and accounted for in it's entirety.

SECTION 5

Section 5.3 refers to trading arrangements and it is important here to stress the importance of accurate monitoring and metering of the resources and strict compliance policy to assist the landholder through the transitional stages of this water policy implementation.

As a closing comment SAMI would like to stress the preliminary standard that this Draft policy document and highlight the need for a second draft re-write of this policy to include more explanatory and detailed policy documentation than is currently not offered in this first draft format. This consultive document does not constitute policy due to its unpolished nature and lack of detail.

SAMI would like to reiterate its support for and the need for the New South Wales government Office of Water to licence Floodplain Harvested forms of water take and efficiently and effectively manage the Murray Darling Basins water resources free from system stress.