



Submission to the Murray-Darling Basin Authority on
Guide to the proposed Basin Plan

By
Victorian Farmers Federation

17 December 2010

Foreword

The Victorian Farmers Federation is Australia's largest state farmer organisation, and the only recognised, consistent voice on issues affecting rural Victoria.

The VFF consists of an elected Board of Directors, a member representative Policy Council to set policy and eight commodity groups representing dairy, grains, livestock, horticulture, chicken meat, pigs, flowers and egg industries.

Farmers are elected by their peers to direct each of the commodity groups and are supported by Melbourne-based staff.

Each VFF member is represented locally by one of the 230 VFF branches across the state and through their commodity representatives at local, district, state and national levels. The VFF also represents farmers' views on hundreds of industry and government forums.

Andrew Broad

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1. Executive Summary

The Murray Darling Basin Authority (MDBA)'s Guide to the proposed Basin Plan (the Guide) for the Murray-Darling Basin (MDB) starts the most significant component of water reform agreed by all jurisdictions in the MDB, namely the development of the SDLs and ultimately the Basin Plan. The VFF has always been supportive of an effective, collaborative, efficient and whole-of-basin water management approach for the MDB's water and other natural resources, which will enable the social, environmental and economic values of the MDB to be protected into the future. However, VFF concerns have always been focussed on ensuring the nation's food security and that issues surrounding reliability of water and the property rights of farmers were protected. Demand for food is not negotiable. The MDB is Australia's most important agricultural region. The Basin contains more than two thirds of Australia's total area of irrigated crops and pastures; producing over one-third of Australia's food supply, and is home to more than 2 million residents.

The VFF believe the primary goal of the Basin plan is to balance water for consumptive use and water to the environment. Unfortunately, the Guide takes an extreme environment first approach. The VFF has long opposed governments taking such an approach to provide water to the environment. Our opposition has always been based on ensuring food security, social stability and the dependence of rural communities on the economic activity and food production that is generated by irrigation. Such an unbalanced approach does not provide sensible trade-offs between water for consumptive use and the environment.

The VFF view is that as a pre-requisite to developing the SDLs, the MDBA must first investigate the ecological evidence based on which decisions on environmental water requirements (EWR) are calculated. There are significant issues about the way in which environmental objectives and targets have been developed for each of these sites, given that these are the basis for the determination of the EWR. The environmental objectives are very general in nature and would only result in very generous environmental targets that not only do they 'not compromise' an asset, they provide a high level of environmental protection with a significant non-justified safety buffer. Furthermore, the engineering works' potential to optimise such benefits has been ignored and considered as beyond the scope of the Guide.

A factor that does not appear to have been considered in sufficient detail is the potential for third party impacts from floods. The feasibility of delivering the environmental flows that have been

flagged by the MDBA require further scrutiny. The VFF is concerned that peak flow volumes suggested by the MDBA to achieve overbank flows will impact considerably on private landholders.

The VFF believes that the EWR targets have been more influenced by value judgements than by scientific fact. There is no scientific rationale provided as to why such a high level of environmental protection is required (e.g. whether there are minimum areas for various ecosystem types that need to be maintained to maintain the structural integrity of the site or viable populations of key species). Nor what the impact of a lower level of protection on the site would be.

The VFF is highly concerned that such a precautionary approach may be appropriate in a pristine system or as a highly conservative starting point in a multi-criteria decision analysis process where the environmental targets will be reduced after consideration of feasibility or socio-economic impacts. However, if these are the genuine environmental targets believed to necessary to fulfil the requirements of the Commonwealth Water Act, then the rationale for this approach is flawed, given that the water act requests a balanced approach.

The Commonwealth Water Act 2007 aims at promoting the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes. However, the VFF believes the Guide grossly underestimates the socio-economic and financial impacts on rural communities and the public policy importance of maintaining the agricultural production base in the Basin. The SDLs and the Basin Plan should clearly recognize the need for rural communities to utilize water. The VFF strongly recommends comprehensive and full impact statements where change in policy is proposed including the socio-economic impact, financial impact and regional development effects of all the methodology presented in the Guide.

2. Introduction

The VFF welcomes the opportunity to comment on the Murray-Darling Basin Authority (MDBA)' Guide to the proposed Basin Plan (the Guide) for the Murray-Darling Basin (MDB).

The VFF believe the primary goal of the Basin plan is to balance water for consumptive use and water to the environment. Unfortunately, the Guide takes an extreme environment first approach. The VFF has long opposed governments taking such an approach to provide water to the environment. Our opposition has always been based on ensuring food security, social stability and the dependence of rural communities on the economic activity and food production that is generated by irrigation. Such an unbalanced approach does not provide sensible trade-offs between water for consumptive use and the environment. Furthermore, the MDBA itself conceded that two of the most important evidence bases for developing the proposed Basin Plan, namely the social and economic evidence as well as the ecological evidence are the weakest. This will certainly not provide sufficient or reliable information on the process of identifying key environmental assets, nor does it for the non-key ones.

The MDBA has consistently stated that the Act requires a focus on environmental issues first, with limited attention to social and economic factors. However, legal advice sought by Federal Water Minister from the Australian Government Solicitor to determine whether the interpretations referred to publicly by the MDBA matched the requirements of the Act, clearly clarified that the Act specifically states that in giving effect to international agreements, the plan should promote the use and management of the basin water resources in a way that optimises economic, social and environmental outcomes. It is clear from this advice that environmental, economic and social considerations are central to the Water Act and that the Basin Plan can appropriately take these into account. This has not yet been addressed within the context of the Guide.

This matter has been further complicated with the statement made by outgoing Chairman of the MDBA, Mike Taylor, where the claim was made that the original advice obtained by the MDBA is the correct interpretation. The dispute between the Minister and the MDBA on whether the Water Act allows for a balanced outcome to be achieved must be resolved and preferably the legal advice on which both parties are basing their position made available for public scrutiny.

The Federal Minister has stated on numerous occasions that the Government wants an outcome that balances the socio-economic with the environment. The MDBA claim that the Act compels the

consideration of environmental needs as the first objective. This dichotomy of views is confusing to stakeholders and damaging to any confidence held in the process, particularly when the views are based on the same source of legal advice on the Act.

If the intent of the Government is to achieve a balanced outcome but the MDBA continues to prepare a draft plan based on an interpretation of the Act that prevents the balanced outcome being achieved then one of two things must occur.

1. If the MDBA view of the Act is correct, and the Act is forcing an outcome that is contrary to Government Policy then the Act must be changed or
2. If the Minister's view of the Act is correct and the MDBA refuses to prepare a plan based on a balanced outcome the MDBA must be directed to change its approach.

3. The MDBA Approach

The VFF has always been supportive of an effective, collaborative, efficient and whole-of-basin water management approach for the MDB's water and other natural resources, which will enable the social, environmental and economic values of the MDB to be protected into the future. However the MDBA in preparing the Guide have failed to consider this balance.

The VFF believes that not only the MDBA's approach lacks proper consideration of the role of economic and social assessments in setting Sustainable Diversion Limits (SDLs), but also the order of such a consideration does not reflect a balanced approach. It does not run concurrently with setting the Environmental Water Requirements (EWR) of environmental assets. Indeed it comes only at a later stage after the EWR has been decided merely on environment-first approach, in other words, it seems like the MDBA's flawed approach seeks to use the socio-economy only as "sharing the pain" tool. The current planning methodology involves determining how much water is required for the environment and then allocating what remains between the other water users in the Basin. This process bypasses any logical cost benefit and/or multi criteria decision analysis needed to optimise triple bottom line outcomes; ie. only half the picture is visible. No one can make an informed decision about how much water should be allocated to different environmental needs in the Basin without a clear understanding of the social and economic consequences of removing this water from its current uses.

The VFF notes that the current planning process is occurring at the end of the worst drought in recorded history and on the basis of scientific modeling regarding future water inflows that is subject to low statistical confidence levels. All parties acknowledge that the predictive science is uncertain, and whilst a precautionary approach is being taken with regard to the environmental values in the Basin the same cannot be said for social and economic values.

The VFF reiterates that our regional communities highly value the environmental assets of the system and wish to be closely involved in locally driven approaches to environmental water allocation. However, we do not want to see a legislated-imposed drought that overregulates environmental water to produce outcomes that do not reflect the natural environmental characteristics of the Basin.

i. The Real Cut in Water

VFF's Analysis on the proposed cuts of 3000 to 4000 GL shows a much larger impact once the 'unavailable' pool is factored into the equation. If conveyance water and urban supplies are excluded from the water course diversions from which water can be recovered, the percentile impacts increase dramatically, particularly on the valleys with smaller diversions. The MDBA's quoted per centile SDL cuts of 27-45% in Victoria's catchments are in fact 37-79% SDL cuts. This means that the 982-1302 GL proposed SDL cuts in Victoria will be borne solely by the irrigation sector. (Table 4 provides the detailed assessment of the cuts to be borne by irrigators)

In addition on some of the smaller use systems entitlement does not equal usage as there are a number of sleeper licenses. If usage is used as the benchmark from which to reduce SDLs in these valleys the impact on active irrigation will be even higher.

ii. Impacts on Food Production

Australian ecosystems are well adapted to long periods of dryness. The same cannot be said for irrigation businesses that have been founded on the basis of a secure share of regulated water supply. If we are not careful, the decisions made now will have devastating and permanent impacts on the social and economic fabric of rural and regional communities throughout the Basin. Sustaining the capacity of the Basin to produce the food needed by Australians and for our increasingly valuable food export markets must surely be a national priority.

The VFF is extremely concerned in relation to the water needs for agriculture to produce food and fibre for Basin's communities, Australians and for the rest of the world. The importance of food security and the socio-economic impacts on farming community should be paramount in the Basin plan. The VFF is concerned that all other needs will be met and we have what is left for food and fibre production. The world will need to produce as much food in the next 50 years as it has consumed through history to meet the demands of increasing population.

Demand for food is not negotiable. Australian farmers produce almost 93% of Australia's domestic food supply and export a massive 60% (in volume) of total agricultural production. In terms of value, this represents around 67% of the total gross value of Australian agricultural production. According to the latest UN projections, world population will rise from 6.8 billion today to 9.1 billion in 2050 - a third more mouths to feed than there are today. The demand for food is expected to continue to grow as a result both of population growth and rising incomes. Demand for cereals (for food and animal feed) is projected to reach some 3 billion tonnes by 2050. As such, annual cereal production will have to grow by almost a billion tonnes (2.1 billion tonnes today), and meat production by over 200 million tonnes to reach a total of 470 million tonnes in 2050 - 72 per cent of which will be consumed in developing countries, up from the 58 per cent today.

The MDB is Australia's most important agricultural region; it accounts for nearly 40% the nation's gross value of agricultural production (GVAP)¹, or approximately \$15 billion. The Basin contains more than two thirds of Australia's total area of irrigated crops and pastures; producing over one-third of Australia's food supply, and is home to more than 2 million residents. It produces 53% of Australian cereals grown for grain (including 100% of rice), 95% of oranges, and 54% of apples. The MDB supports 28% of the nation's cattle herd, 45% of sheep, and 62% of pigs.² In 2005–06, the gross value of irrigated agricultural production (GVIAP) from the Basin was worth approximately \$5.5 billion (or 37%) of total GVAP in the Basin³, with an estimated fourfold multiplier in value through processing. Beyond the farm gate the Basin's economic value is in excess of \$20 billion.

Because of this it is important for the Basin's water reform to balance the needs of urban and rural customers, as well as environmental water needs, and to reflect the large contribution agriculture makes to Basin's and the nation's economic prosperity. As an example, an important impact to be

¹ ABS/ABARE/BRS 2009, Socio-economic context for the Murray– Darling Basin – Descriptive report, ABS/ABARE/BRS Report to the Murray–Darling Basin Authority, Canberra, September.

² Murray-Darling Basin Authority, www.mdba.gov.au

³ ABS/ABARE/BRS 2009, Socio-economic context for the Murray– Darling Basin – Descriptive report, ABS/ABARE/BRS Report to the Murray–Darling Basin Authority, Canberra, September.

considered is the ability of water used in agricultural production to provide high quality food at affordable prices to the whole community. Failure to consider such an impact will effectively cut agricultural production and place upward pressures on food prices.

The assessment by the MDBA that value of irrigated agricultural will only decline by between 13 to 17 per cent grossly understates the impact that will occur. As highlighted above the cuts in the SDL of 3000 or 4000 GI, will be equivalent on the valley by valley breakdown of up to a 79 per cent reduction in irrigation water, and applied across Victoria equates to an average reduction of irrigation water of between 39 and 51 per cent. Even at the low end, 3000 GI reduction, it is difficult to understand the rationale that would lead to a conclusion of the removal of almost 40 per cent of water for irrigation would only result in a 13 per cent reduction in the value of production.

While there will be some offsetting of the percentile cut by more water being diverted from low value uses than high value uses, this will not provide a balance to the extent predicted by the MDBA. The VFF is concerned that that in some areas it will be the more entrepreneurial farmers driving production hardest that are most exposed to the impact of the basin plan. These types of farmers tend to have more risk exposure and are more highly geared than others and are more sensitive to any loss of confidence or shift in costs. There is no evidence put forward by the MDBA that would justify their conclusions that water trade would soften the impact of the reductions in SDLs and result in only a 13 to 17 per cent drop in irrigated agriculture production.

Conversely the MDBA has included figures in the Guide that demonstrate that a shrinking of consumptive water will have a large impact. In simplistic terms the less water available the less land will be irrigated. The per hectare return comparison of dry land and irrigated land shows this stark drop in production (Table 1).

Table 1. Dryland and Irrigated Average Value of Production

Region	Average gross value non-irrigated production (\$/Ha)	Average gross value irrigated production (\$/Ha)	Dry Land average value as a percentage of irrigated average value (%)
Ovens	488	7025	7%
Goulburn Broken	461	4496	10%
Murray	79	4261	2%

Campaspe	546	4142	13%
Wimmera	291	4813	6%
Loddon	366	2236	16%
Average	372	4495	8%

Adapted from Guide to the proposed Basin Plan p 87

Using an average application of irrigation water of 4.1 ML/Ha⁴ the Victorian cut in SDL of 982 to 1302 GL would result in 240 000 to 317 000 Ha of irrigated land being dried off and converted to dry land production systems which provide a considerably lower per Ha return.

Applying the average per Ha gross value of production difference between dry land and irrigation of \$4123/Ha gives an estimated loss of gross value of agricultural production of between \$987 million to \$1.3 billion per annum for Victoria alone. While this is a broad estimate of the likely outcome it does demonstrate the inadequacies of the MDBA assessment.

A key failure of the MDBA analysis may have been a failure to consider the adaptive response of farmer to low water allocations due to drought. Farmers draw down on equity to maintain production during drought because a drought is temporary and there is a need to retain productive capacity to allow a recovery. The analysis showing that the low allocation year of 2006-07 only led to a 1% decline in production can be attributed to dedicated and innovative nature of farmers. However, a permanent reduction in SDLs will lead to less water across regions on a permanent basis leading to a permanent reduction in productive capacity.

iii. Socio Economic Impacts

Research commissioned by the VFF has found that irrigated agriculture employs one person for every 95 ML of water used. To put this into the context of the Basin plan, draining 902,000-1,302,000 ML out of Victoria's irrigation water course diversions will result in 10500-13600 job losses in rural Victoria. This research also indicated that the community would need to receive benefits of up to \$31,000 today for every megalitre of water removed to offset the loss they would likely suffer over the next 20 years. This is an equivalent of \$31-40 billion for the water that MDBA is proposing to be taken from Victorian rural communities.⁵

⁴ ABS (2005) Farm Water Use cat. No. 46180

The accounts for 2003-04 were used as the allocations on the major systems were at 100% of High Reliability Entitlement.

⁵ Farmanco Pty Ltd (2006) Campaspe Water Sale Investigation; Victorian Farmers Federation

Table 2 shows that under the proposed cuts in Victorian diversions the job losses would equate to 10337 to 13075.

Table 2. Impact on employment

	MDBA Reduction scenario	SDL reduction GL	Potential Job Losses
Victoria	Low	982	10337
	High	1302	13705

These losses do include the flow on effect which the VFF believe will be substantial. As farm production drops, farm employment drops and the number of farm families also falls. This leads to reduced demand on the agricultural supply chain, both upstream and downstream, and reduced demand on service industries in local communities. The VFF is collating additional information which will be provided on completion of a submission to the House of Representatives Inquiry.

iv. Engineering Works

Notwithstanding the environmental objectives and targets the MDBA is using to calculate the environmental water requirements of the Basin, MDBA has not addressed properly the efficient use of water through structural and engineering works to assist in watering wetlands and floodplains. The construction of environmental asset works should be a tool implemented to increase the efficacy of environmental water delivery. Investing in infrastructure to deliver environmental water, just as in the case of water for other uses minimises losses thereby reducing the volume of water needed to achieve any particular outcome. This could involve upgrading channels and piping water to supply wet lands, and we already have several examples on such savings.

There are potential savings of significant magnitude to be achieved through more efficient delivery and use of environmental water. A number of projects have been assessed in Victoria that provides substantial savings without compromising environmental outcomes. The VFF has calculated the annualised savings potential from three key projects that have been developed by the Victorian Department of Sustainability and Environment (DSE). Table 1 gives a summary of the estimated savings for these projects.

Table 3. Estimated annualised savings

Project	Potential savings (annualised GL)
Lindsay Island	277.5
Gunbower Forest	185
Hattah	371.3
Total	833.8

These savings are based on the discrete gains for each site with a frequency of watering for each site as below.

- Lindsay Island: every 4 years
- Gunbower Forest: every 4 years
- Hattah Lakes every 10 years

The exact savings are difficult to calculate as there are many variables that will affect the final outcome. However, the potential to achieve environmental outcomes with less water is clearly demonstrated and should be explored by the MDBA prior to establishing a reduction in the Sustainable Diversion Limit. The process to more accurately assess the efficiency gains to be made must include close liaison with the State Department and involve the development of a complete and comprehensive watering plan that factors in the efficiency gains to be made.

v. Offsetting Sources of Environmental Water

The volumes of environmental water that are held by States, water authorities and environmental groups should all be included as an offset to the EWR. There has been acknowledgement that water from buybacks and from infrastructure works will be used to offset a reduction in the SDL.

In addition to the volumes that have already been obtained through these processes and those planned for the future, further investment in system and on farm efficiencies to achieve additional offsets is needed.

vi. Lower lakes

The exploration of engineering solutions must also extend to the lower lakes, particularly to address the evaporation losses and to question the validity of modelling a pre-development system that includes the barrages. It is difficult to understand why the MDBA has used pre development as a

benchmark for environmental conditions that selectively ignored exclusion of one man made development.

The Murray Darling Basin is a modified system from the mouth to top of the catchments. Dams, weirs, channels, levees, diversions, etc. are now permanent parts of the system that have been in place for many years. It would be very difficult and cause enormous dislocation to remove a century's worth of modifications to a system that has become a working river network; it cannot be returned to a pre-development state.

The search for engineering solutions should not be restricted to upstream section. Finding ways to maintain an acceptable level of environmental health in the lower lakes without the associated water losses should be explored.

vii. Flooding

The feasibility of delivering the environmental flows that have been flagged by the MDBA needs considerable scrutiny. The VFF is concerned that peak flow volumes suggested by the MDBA to achieve overbank flows will impact considerably on private landholders.

Overbank events are proposed by the MDBA from intervals as low as 1 in 5 years to address ecosystem functions to 1 in 8 years for indicator sites. The proposals for key indicator sites in a number of cases suggest significant flow events to achieve overbank flows of considerable magnitude.

There is concern with the third party impacts caused by flooding of private land that would occur under these scenarios. Damage caused by a flood event caused by the artificial management of water flows will be viewed in a different light by affected land holders to one that was caused by a rainfall event. This may lead to disputes over liability for damage.

Another problem may be the constraints of the system to deliver the proposed flows. The Barmah choke, downstream of the Goulburn weir, head-works at Lake Eppalock are just some examples where there are significant limitations on achieving high flow rates. In addition private development has altered the flood plain significantly for example numerous levee banks have been constructed to protect settlements and private assets and will have altered the natural flows across a floodplain.

Modelling of delivery capacity of discrete areas of the system, and flood behaviour across the flood plain is needed prior to the finalisation of a watering plan which provides the basis of a EWR.

viii. Reliability

The reliability of water supplies is as an important attribute of a water product as the volumetric status of the entitlement. Victoria has seen a growth in high value irrigated agriculture due to the high reliability of its water entitlements underpinned by a certain and conservative allocation methodology. High value agriculture leads to a greater level of sunk costs and higher risk exposure to low delivery. Retaining the reliability of Victorian water shares is as important as retaining water entitlements.

It would seem that the draft accreditation tests of Volume 2 Appendix E would require the Victorian Government to alter the allocation system that underpins Victorian water entitlement reliability in order to have their Water Resource Plan accredited by the MDBA. In the VFF estimation the “equitable sharing test” of the accreditation rules will result in a reduction in the reliability of high reliability water shares.

Reducing reliability is no different to acquiring a portion of the water share. A farmer will hold a level of entitlement that assures a volume of water for a proportion of the time; ie the reliability factor. If the proportion of time the volume will be delivered is reduced, additional entitlement is necessary to rebuild the level of delivery reliability for a given volume of water. Therefore reducing reliability is akin to taking water entitlement without payment, or in other words a compulsory acquisition of entitlement.

ix. Groundwater

The VFF does not support the capping groundwater at current usage. While reductions in groundwater use has been recommended in some areas, the MDBA has not suggested and reductions in Victorian groundwater. This highlights the generally conservative management of aquifers in Victoria.

There are aquifers in Victoria that do have some capacity to have an increased usage level. These decisions are best made at the State or local level based on the detailed understanding of the recharge and use.

4. The Preferred Way

As a pre-requisite to developing the SDLs, the MDBA must first investigate the ecological evidence based on which the decisions on environmental water requirements (EWR) are calculated. There are significant issues about the way in which environmental objectives and targets have been developed for each of these sites, given that these are the basis for the determination of the EWR. An assessment must be made of the current environmental status of rivers to provide base data and a procedure put in place to monitor and publicly report environmental benefits arising from additional flows. The VFF also maintains that rivers are no longer natural; re-instating natural environmental flow patterns will unnecessarily erode the property rights of water entitlement holders both in terms of volumes and reliability. The security of farmers' rural water supply can determine the future of their farming business. Higher capital investment and higher value industry has been built on a high level of reliability. Therefore it is essential that the SDL and Basin Plan provides sensible mechanisms and tools to secure a reliable water supply that provides farmers with the essential level of reliability.

The Commonwealth Water Act 2007 aims at promoting the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes. However, the VFF believes the Guide is largely silent about the socio-economic and financial impacts on rural communities and the public policy importance of maintaining the farm produce base in the Basin. The SDLs and the Basin Plan should clearly recognize the rights of rural communities to utilize water. The VFF strongly recommends comprehensive and full impact statements where change in policy is proposed including the socio-economic impact, financial impact and regional development effects of all the methodology presented in the paper.

New environmental water should be introduced through a phased process with community involvement and continual independent monitoring of outcomes. Recent experiences of fish kills highlights the need for environmental water use needs to be guided by local knowledge. Whilst the Commonwealth Environmental Water Holder may set the broad strategic parameters, coordinated usage and desired outcomes, delivery of the water itself should be undertaken by the managers that have a working understanding of the particular environmental site.

There is no information regarding the socio-economic impact of diverting additional water to environmental flows. As national water reforms are rolled out, the socio-economic impact on communities must be measured and publicly reported. With good information on the

environmental benefits gained from additional water for environmental flows and the socio-economic impact, governments and the community will be in a better position to make sound policy decisions in relation to any further commitments to return water to the environment. The construction of environmental asset works should be a tool implemented to increase the efficacy of environmental water delivery. Investing in infrastructure to deliver environmental water, just as in the case of water for other uses, minimises losses thereby reducing the volume of water needed to achieve any particular outcome. This could involve upgrading channels and piping water to supply wet lands and other environmental assets.

Of most important to note in regards to SDL is that the Australian Government water purchase program reducing the gap between current diversions and the SDL, and helping water users with the transition to sustainable water use. In addition the Australian Government, working with the Basin states and industry, is also investing significant funding to improve the water-use efficiency of irrigation infrastructure in the Basin. A portion of the water savings generated by this work will also be used to reduce any gap between current diversions and the SDLs.

As a sensible way forward, the VFF believes that the MDBA should revisit its approach on calculating the EWR followed by a proper multi criteria decision analysis to address the socio-economic impacts on the communities and the trade-offs needed together with a due consideration of the positive impacts of environmental works to reduce the EWR.

The VFF believe that the current planning process is fundamentally flawed. A sustainable outcome for the Basin demands:

- A collaborative planning process that engages local expertise and the farm sector at valley scale in a process of optimising water use;
- A coordinated and consolidated use of all sources of water held for environmental use.
- Explicit management of the social and economic impacts of any reductions of water available for agricultural production.
- Integration of engineering works in setting the Basin's environmental water requirements to ensure efficient and effective use of environmental water
- Consideration of trade-offs between different environmental outcomes, and between environmental and communities' needs. Rivers are no longer pristine or natural.

If the current legislation does not require the MDBA to plan in this way, then the legislation must be changed. The VFF agrees that water planning within the Basin must be improved. However, the new Basin Plan must be developed collaboratively with the farming communities that depend on this water for their livelihoods. This process must include careful consideration of the socio-economic consequences to Australia of crippling the production capacity of our most important and productive agricultural system.

5. Background and Context

i. The requirements of the Water Act

According to the MDBA, the mandatory decisions required by the Water Act are to:

- determine the amount of water needed for the environment, known as the environmental water requirement, to protect, restore and provide for the ecological values and ecosystem services of the Basin
- establish long-term average sustainable diversion limits (SDLs), which must not compromise key environmental assets (including water dependent ecosystems, ecosystem services and sites with ecological significance), key ecosystem functions, the productive base and key environmental outcomes for the water resource
- provide advice on appropriate transitional arrangements to SDLs and in particular advise on the Australian Government's share of meeting the costs of returning water to the environment as part of the risk allocation provisions of the Water Act.

The MDBA has consistently stated that the Act requires a focus on environmental issues first, with limited attention to social and economic factors. However, legal advice sought by the Federal Water Minister from the Australian Government Solicitor to determine whether the interpretations referred to publicly by the MDBA matched the requirements of the Act, such advice broadly outlines that the Water Act:

- gives effect to relevant international agreements,
- provides for the establishment of environmentally sustainable limits on the quantities of water that may be taken from Basin water resources,
- provides for the use of the Basin water resources in a way that optimises economic, social and environmental outcomes,
- improves water security for all uses, and

- subject to the environmentally sustainable limits, maximizes the net economic returns to the Australian community.

The legal advice to the Minister has clarified that the Act requires the Plan to promote the use and management of the basin water resources in a way that optimises economic, social and environmental outcomes. It is clear from this advice that environmental, economic and social considerations are central to the Water Act and that the Basin Plan can appropriately take these into account and the MDBA should take this approach in preparing the draft plan.

The Guide has not sufficiently addressed the socio-economic and financial impacts on rural communities and the public policy importance of maintaining the farm produce base in the Basin. The VFF strongly recommends comprehensive and full impact statements where change in policy is proposed including the socio-economic impact, financial impact and regional development effects of all the methodology presented in the paper.

ii. The process MDBA has used to develop proposals

The VFF is concerned that the decision-making process the Guide uses as a basis to develop the proposals does not equally address the objects of the Water Act. In particular the following issues need to be considered:

a. Balancing Economic, Social & Environmental Outcomes:

MDBA's approach to calculating the environmental water requirements (EWR) of the Basin remains far from being socio-economically and environmentally balanced. The MDBA uses the environmental water requirements of the Basin's key ecosystem functions and 18 of the Basin's key environmental assets to provide the information for modelling SDLs, without giving consideration to the impacts such an approach would have on the Basin's water users and their communities.

Although the MDBA, in its decision-making process, talks about considering the role of economic and social assessments in setting SDLs, the VFF believes that the order of such a consideration does not reflect a balanced approach. It does not run concurrently with setting the EWR of environmental assets. Indeed it comes only at a later stage after the EWR has been decided merely on environment-first approach.

The VFF also maintains that rivers are no longer natural; re-instating environmental flow patterns influenced largely by value judgements based on science without high confidence levels will erode the property rights of water entitlement holders both in terms of volumes and reliability unnecessarily.

The security of farmers' rural water supply can determine the future of their farming business. Higher capital investment and higher value industry has been built on a high level of reliability. Therefore it is essential that the SDL and Basin Plan provides sensible mechanisms and tools to secure the reliability and volume of water supply that provides farmers with the essential level of certainty to ensure on-going confidence.

b. The Principle of Regional Development:

The VFF has always maintained that as water is removed from rural communities, jobs and wealth creation will also disappear and will result in further urban migration. As an example, Population growth in Melbourne in recent years has occurred at a much higher annual rate than areas in regional Victoria. Growth in Melbourne occurred at an average rate of 1.5% between June 2001 and June 2006, and now accounts for 84% of Victoria's total population growth and 73% of Victoria's population. In the same period, regional Victoria had an annual population growth rate of 0.8%.⁶ The DSE projects that while regional Victoria's population will still grow, it will continue to grow at lower rates than Melbourne.⁷

The VFF states that moving water out of rural users is not a viable solution to meeting environmental needs. The VFF supports an integrated and coordinated approach towards the use of environmental water among all holders of environmental water entitlements to achieve defined environmental objectives in such a way that:

- Makes the most efficient and effective use
- Addresses the social and economic impacts
- Engages the irrigators in the Basin through full consultation processes.

The principle of regional development should be a key priority in the development of the SDLs.

⁶<<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/3218.0Main%20Features41996%20to%202006?opendocument&tabname=Summary&prodno=3218.0&issue=1996%20to%202006&num=&view=#VICTORIA>>

⁷<[http://www.dse.vic.gov.au/CA256F310024B628/0/73FDB11ED7735ACDCA257035000D394F/\\$File/2+Projection+highlights.pdfRegional Victoria](http://www.dse.vic.gov.au/CA256F310024B628/0/73FDB11ED7735ACDCA257035000D394F/$File/2+Projection+highlights.pdfRegional%20Victoria)>

c. SDLs Decision Criteria:

The VFF is also concerned about the chronological sequence of the steps to a sustainable diversion limit outlined on page 104. It seems like the environmental objectives need to be achieved regardless of the socio-economic impacts and the damage it might cause to the Basin's economy and communities. The VFF believes that the SDLs should be determined following a Multi Criteria Decision Analysis (MCDA) approach that is more comprehensive, efficient and effective and considers social, economic and environmental criteria in the decision analysis process.

Multi criteria decision analysis (MCDA) will enable considering different weights for the evaluation criteria by different water users including the environment. The VFF also believes that this analysis should be flexible enough to address any future changing conditions including: food security, engineering and construction works to reduce to the need for environmental water recovery, water buyback program, water savings as a result of modernisation; predictions of future water availability may be improved as a result of improved climate knowledge; and updated modelling assumptions. Integrated catchment management framework links physical, social and economic sciences into planning, policy and decision making. Specifically, prioritizing and evaluating different management alternatives through a multi-criteria decision analysis model is essential to achieve a long-term agricultural and natural resources sustainability in agriculture-dominated catchments.

A more comprehensive, multi-criteria approach to decision-making in determining the final set of SDLs is required. This approach should use comprehensive criteria to inform decisions, rather than environment first approach.

iii. Environmental water requirements

The VFF believes that the only way forward on this plan is to revisit the MDBA's approach on estimating the EWR through a trade-off of the environmental objectives set by the MDBA and the communities' needs determined by the socio-economic analysis, i.e. environment VS community.

a. The Methodology:

MDBA's methodology in estimating the EWR has a number of significant flaws. The major assumption that meeting the environmental requirements of the key hydrological indicator sites for key environmental assets will meet the environmental needs of all other key environmental assets in the Basin has not been tested neither validated.

b. Environmental Objectives and Targets

There are also significant issues about the way in which environmental objectives and targets have been developed for each of these sites, given that these are the basis for the determination of the EWR.

The environmental objectives are very general in nature and would only result in very generous environmental targets that not only do they 'not compromise' an asset, they provide a high level of environmental protection with a significant non-justified safety buffer. For example, setting targets for 80-100% of river red gum in healthy condition is likely to be greater than natural occurrence. Also targets set for the Murray mouth to be open 90-92 per cent of the time is unrealistic with a river flow pattern and structures that have modified the system from the headwaters to the mouth.

These targets do not appear to have been set on a scientific basis but on the basis of judgements. There is no detailed scientific rationale provided as to neither why such a high level of environmental protection is required nor what the impact of a lower level of protection on the site would be.

Such a precautionary approach may be appropriate in a pristine system or as a highly conservative starting point in a multi-criteria decision analysis process where the environmental targets will be reduced after consideration of feasibility or socio-economic impacts. However, if these are the genuine environmental targets believed to necessary to fulfil the requirements of the Commonwealth Water Act, then the rationale for this approach is flawed, given that the Minister has stated that the water act requires a balanced approach.

In addition, at a number of Victorian sites, it is clear that the recommended flow regime would not have been provided over the past 10 years even under pre-development conditions. This finding shows the weakness of the methodology. It shows clearly that flow regimes are unrealistic and will not be able to be provided in many years (even if all water extraction is removed).

The question is why should regional communities suffer significant untenable economic impacts for potentially unrealistic environmental targets?

c. Environmental Works

Currently, the Living Murray program has good community support, the water recovered has been via savings or purchase, environmental outcomes have been achieved, and the program

demonstrates that the environmental managers are using water as efficiently as possible, accepting trade-offs and implementing a management response that is robust under climate change. A similar approach should be followed in determining the EWR.

The VFF has argued consistently from the beginning of this issue that infrastructure works to obtain water savings was the preferred way to return water to the environment. The VFF is pursuing commitments for infrastructure upgrades in the delivery of environmental and irrigation water and on farm water use efficiency. Through these means it is hoped that the Gap will be much reduced. For example one environmental efficiency project to water a wet land in North West Victoria, Lindsay island, could save 1100 GI for an expenditure of \$43 million.

At Gunbower, almost 5000 ha of wetlands and red gums can be flooded using only 165 billion litres per month with works, instead of at least 1000 billion litres per month without. Similar outcomes are possible at Chowilla, Pericoota-Koondrook Forest and Hattah Lakes

iv. Feasibility of Providing MDBA's preferred Environmental Flows

A number of the indicator sites have preferred flow regimes which include some very high river flows-in fact flood flows e.g. Hattah Lakes. The question is what effect these would have on communities and towns and whether they would flood private land and property. Who would be liable for such a disaster? Do the Environmental Water Holder have existing infrastructure that could cope with these flows and whether it is possible to actually manage flows as high as these? What salinity and other water quality impacts would be generated? What effect flows of this scale would have upon MDB Agreement in general and on water sharing arrangements in specific?

It is essential to examine the scale of trade-offs early in the SDLs' debate, before deciding on the environmental water requirements. It is also important to have a transparent and open community engagement process to decide on the practicalities of some of those environmental objectives.

The VFF also questions the reliability of the MDBA approach is the use of flow duration curves as an analytical tool to quantify and assess flow regimes. It is well recognized that such tools:

- have low resolution estimate of environmental flows
- are most appropriate in low controversy situations where they may be used as preliminary estimates-This is not the case within the MDB.

6. Potential impacts and policy implications of SDLs

The VFF's analysis on the proposed cuts of 3000 to 4000 GL shows a much larger impact once the 'unavailable' pool is factored into the equation. If conveyance water and urban supplies are excluded from the water course diversions from which water can be recovered, the per centile impacts increase dramatically, particularly on the valleys with smaller diversions. The MDBA's quoted per centile SDL cuts of 27-45% in Victoria's catchments are in fact 37-79% SDL cuts. This means that the 982-1302 GL proposed SDL cuts in Victoria will be borne solely by the irrigation sector.

The following table shows the impacts on each Victorian SDL system:

Table 4. The Real Cuts In Irrigation Water

System	Vic Course Diversions (GI)	MDBA scenario	Reduction		SDL reduction GL	SDL Reduction %	Water unlikely to be available for purchase			Diversion accessible for reduction (GI)	The real SDL Reduction%
			High =4000 GI reduction	Low = 3000 GI Reduction			Urban Supplies (GI)	Conveyance water (GI)	Total (GI)		
Goulburn	1593	Low	442		442	28%	44	360	404	1189	37%
		High	593		593	37%					50%
Murray	1656	Low	442		442	27%	58	440	498	1158	38%
		High	592		592	36%					51%
Broken	14	Low	5.6		5.6	40%	2		2	12	47%
		High	6.3		6.3	45%					53%
Loddon	95	Low	38		38	40%	2		2	93	41%
		High	43		43	45%					46%
Campaspe	115	Low	40		40	35%	47		47	68	59%
		High	52		52	45%					76%
Ovens	25	Low	10		10	40%	11		11	14	71%
		High	11		11	44%					79%
Kiewa	11	Low	4.4		4.4	40%	1		1	10	44%
		High	5		5	45%					50%

Victoria	3509	Low	982	28%	165	800	965	2544	39%
		High	1302	37%					51%

Research commissioned by the VFF has found that irrigated agriculture employs one person for every 95 ML of water used. To put this into the context of the Basin plan, draining 1,000,000-1,300,000 ML out of Victoria's irrigation water course diversions will result in 10500-13600 job losses in rural Victoria. This research also indicated that the community would need to receive benefits of up to \$31,000 today for every megalitre of water removed to offset the loss they would likely suffer over the next 20 years. This is an equivalent of \$31-40 billion for the water that MDBA is proposing to be taken from Victorian rural communities.⁸

The following table shows the potential socio-economic impacts on each Victorian SDL system:

Table 5. Economic Impacts

System	Vic Water Course Diversions (Gl)	MDBA Reduction scenario	SDL reduction GL	Potential Job Losses	Governments Assistance needed to offset losses million A\$
		High =4000 Gl reduction			
Goulburn	1593	Low = 3000 Gl Reduction	442	4653	13702
		High	593	6242	18383
Murray	1656	Low	442	4653	13702
		High	592	6232	18352
Broken	14	Low	5.6	59	173.6
		High	6.3	66	195.3
Loddon	95	Low	38	400	1178
		High	43	453	1333
Campaspe	115	Low	40	421	1240
		High	52	547	1612
Ovens	25	Low	10	105	310
		High	11	116	341
Kiewa	11	Low	4.4	46	136.4

⁸ Farmanco Pty Ltd (2006) Campaspe Water Sale Investigation; Victorian Farmers Federation

		High	5	53	155
Victoria	3509	Low	982	10337	30442
		High	1302	13705	40362

7. Proposed transitional arrangements

i. Risk allocation

The Water Act outlines risk allocation provisions that are to apply to the residual difference between the current diversion limit and the sustainable diversion limit, when the relevant water resource plan is implemented. In accordance with the methods outlined in the Water Act, the MDBA proposes that the climate change component, for which the water entitlement holder is responsible, is 3% of the reduction in current diversion limits for surface water, and 0% for groundwater. Once that has been taken into consideration, the MDBA proposes that the Australian Government should carry the full (100%) responsibility for the residual. The net result of this provision is that if the government were to buy back the entire gap between the current diversions and the SDLs, there would be no residual to which the proposed risk allocation provisions would apply. The VFF supports the MDBA's policy proposals on these issues.

ii. Temporary diversion provisions

The MDBA proposes that temporary diversion provisions should be available to all transitional or interim water resource plans that cease less than five years after the date of the Basin Plan taking effect, where there are residual SDL reductions (i.e. the effective reduction once the impact of government water recovery efforts and the 3% reduction attributed to climate change have been taken into account). Further, the Authority proposes that these measures should be phased in evenly over five years. The VFF does not support such a policy and believes that temporary diversion provisions should be available to all transitional or interim water resource plans at their expiry for five years.

proposed Basin Plan into effect

The VFF is fully supportive of the MDBA's approach that new Basin state water resource plans will be accredited over the period 2012-2019. The MDBA should not be concerned about the different commencement dates of the water resource plans. Victoria together with all the jurisdictions in the MDB agreed and signed the Inter-Governmental Agreement (IGA) that allowed for amending and passing the Commonwealth Water Act which clearly defines the WRPs lifespans for all jurisdictions including Victoria. This is a sensible way forward and is fully supported by the VFF.

8. Conclusion

To achieve an effective, collaborative, efficient and whole-of-basin water management approach, the Basin plan needs to balance water for consumptive use and water to the environment. Such an approach strikes a sensible and win-win outcome of water reform in the Murray-Darling Basin to deliver the objects of the Water Act. This includes achieving the environmental objectives while at the same time ensuring food security, social stability and the dependence of rural communities on the economic activity and food production that is generated by irrigation.

There is an urgent need to address the socio economic impacts of the proposed SDLs. Engineering works' potential to optimise environmental benefits should also be considered within the approach to estimate environmental water needs.

The VFF strongly recommends comprehensive and full impact statements where change in policy is proposed including the socio-economic impact, financial impact and regional development effects of all the methodology presented in the paper.