

# **Gwydir Valley Irrigators Association Inc.**

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458 Frome St, PO Box 1451, Moree NSW 2400

## **Submission to the Murray Darling Basin Authority**

### ***The Proposed Murray Darling Basin Plan***

**Submission by:  
Gwydir Valley Irrigators Association Inc  
April 2012**

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## **1. Purpose of this Submission**

This document has been developed by the Gwydir Valley Irrigators Association on behalf of its members as a formal submission for consideration by the Murray Darling Basin Authority when finalising the proposed Murray Darling Basin Plan (MDBP) and determining the future of water resource planning in our region.

This document represents the concerns and views of GVIA's members. However, each member reserves the right to express their own opinion and is entitled to make their own submission.

## **2. About the Association**

### ***2.1. Where we are and what we do***

The Gwydir Valley Irrigators Association (GVIA) represents in excess of 250 water entitlement holders in the Gwydir Valley, centred around the town of Moree in North-West New South Wales. Our mission is to build a secure future for its members, the environment and the Gwydir Valley community through irrigated agriculture.

Our members hold entitlements within the Gwydir regulated and un-regulated surface water areas, in addition to groundwater resources. All of which are managed through water sharing plans although the Water Sharing Plan for the Gwydir Unregulated and Lower Gwydir Alluvial Water Sources remains in draft at the time of preparing this submission.

The Gwydir Valley Irrigators Association organisation is voluntary, funded by a cents/megalitre levy on regulated, unregulated and groundwater irrigation entitlement. In 2010/11 the levy was paid on in excess of 87% of the eligible entitlement (excludes entitlement held by the State and Federal Government).

The Association is managed by a committee of 11 irrigators and employs a full-time executive officer and a part-time administrative assistant, as well as hosting a Regional Landcare Co-ordinator.

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Much of the activity the association revolves around negotiating with government at a Federal, State and Local level to ensure the rights of irrigators are maintained and respected.

While the core activities of the Association are funded entirely through a voluntary levy, the Association does from time to time, undertakes special projects, which can be funded by government.

The GVIA and its members are members of both the National Irrigators Council and the NSW Irrigators Council.

## **2.2. Association Contacts**

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## **3. Summary**

The Gwydir Valley Irrigators Association (GVIA) had hoped that following feedback from the Guide to the Basin Plan that the Murray Darling Basin Authority (MDBA) would have the ability and opportunity to deliver a balanced plan based not only on science but also in acceptance of the socio-economic impacts water reform will have on communities.

Unfortunately, it is GVIA's opinion that the current proposed Murray Darling Basin Plan (MDBP) differs only slightly from the Guide to the Basin Plan and

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that there are significant technical issues and risks associated with its implementation that must be addressed in the Basin Plan and throughout implementation.

The GVIA acknowledges the improvement and changes in MDBA thinking from the Guide to the Basin Plan. Of particular note the recognition by the MDBA that there is a lack of hydrological connectivity between the Gwydir Valley and surrounding catchments.

The GVIA is also supportive of the understanding that are hydrological differences between the Darling (Northern Basin) and the Murray (Southern connected Basin) and the acceptance of the NSW Government's Groundwater Water Sharing Plans as sustainable.

However, the GVIA is disappointed that the MDBA cannot accept the performance of Gwydir surface Water Sharing Plans in particular the Water Sharing Plan for the Gwydir Regulated Water Source. This plan has had proven excellent performance throughout both drought and wet sequences and has more than adequately supported the health and resilience of environmental assets in the Gwydir Valley, while sharing water between users.

The GVIA cannot accept that any more water above the current water sharing plan arrangements is required for the environment as justified by the proposed MDBP. Not only is the water sharing plan more than adequate, the methodology to determine water requirements in the Gwydir was flawed and is not considered by the GVIA as utilising the best available science.

The fact that the proposed MDBP remains focused on flow based requirements and water recovery rather than allowing a holistic approach to integrated catchment management, ultimately undermines its effectiveness of the plan in achieving a healthy working basin. Without addressing broader catchment issues including land management issues, any future environmental watering programmes to be developed will be ineffective in achieving their outcome. Water by itself will not build and maintain resilience within the Gwydir Valley.

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The GVIA is committed to a basin plan and accepts that most technical issues and questions about the proposed MDBP will not be rectified or answered in the short-term.

As a result, the GVIA proposes an amendment to the implementation phase that not only allows for technical issues to be resolved but for a number of additional reviews and activities to be completed that would better inform the Basin Plan.

This new timeline would ensure:

- Outcomes and lessons learnt from the mid-term review of the Basin Plan and water sharing plan reviews, are incorporated into an updated version of the Basin Plan;
- Environmental water use would be appropriately planned;
- Environmental water manages could demonstrate capacity to manage and efficiently achieve environmental outcomes; and
- Water recovery would be further staged and via a number of programmes including works and measures.

The GVIA proposes that this new implementation program is not an attempt to stall change but rather ensure that change is informed, well-planned and more thoroughly accepted. The GVIA believes that any changes that move the timeline longer will be more positive than negative to the water reform agenda, allowing more time to adjust.

Throughout the consultation process the GVIA continues to be frustrated by the lack of consistency between the legislative instrument and the subjective interpretation of this document by the MDBA, as presented in their 'plain English guide'. Any concepts or thinking that underpins the effectiveness of the Basin Plan like 'localism' or 'bridging the gap' should therefore be represented in the legislative instrument itself.

Finally, the GVIA cannot support a basin planning process that increases the level of bureaucracy and further complicates water management into the future.

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This submission includes 22 specific recommendations for further work and solutions to issues contained within the proposed MDBP. The GVIA calls on the MDBA to make allowances and amendments for the implementation of future work and these recommendations in the Basin Plan.

The GVIA will continue to work with the MDBA to ensure that together, the Basin Plan is indeed a plan for a healthy working basin.

#### **4. Recommendations**

1. *Recommendation: Allow all Gwydir NSW Water Sharing Plans to run their full term before reviewing and establishing another plan of use.*
2. *Recommendation: MDBA to undertake sensitivity scenario modelling on the implementation of the MDBA plan using the current water sharing plan arrangements to assess impacts to water reliability of general security and supplementary water entitlements.*
3. *Recommendation: Review current NSW Water Sharing Plans before implementing another plan of use.*
4. *Recommendation: The MDBA accept that the Gwydir Water Sharing Plans are more than adequate to provide water for the Gwydir Wetlands and surrounding environment.*
5. *Recommendation: Update the climate sequence with most current data by including 2010 and 2011 water years.*
6. *Recommendation: Remove the historical climate record and use the most current climatic sequence information and provide an appropriate review timeframe for updates.*
7. *Recommendation: MDBA to produce detailed, local level technical summaries of methodology and hydrological modelling utilised in the planning process.*
8. *Recommendation: MDBA and NSW Office of Water update modelling in the Gwydir to improve baseline numbers.*
9. *Recommendation: MDBA to review hydrological indicator sites in the Gwydir.*

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10. *Recommendation: That the timeline in Figure 1 be considered as an alternative for implementation of the basin plan.*
11. *Recommendation: Mid-term review to be undertaken following the completion of:*
  - *Review of current water resource plans; and*
  - *Development and implementation of environmental watering plans.*
12. *Recommendation: Legislation should reflect that outcomes from the mid-term review are to be incorporated into future versions of the basin plan.*
13. *Recommendation: Environmental Water Plans should be developed using integrated catchment management.*
14. *Recommendation: Environmental watering plans and actions should be developed with a principle of effectiveness in mind.*
15. *Recommendation: Additional levels of bureaucracy to be avoided and streamlined.*
16. *Recommendation: MDBA to consult with Northern Basin Communities the terms of reference of the Northern Basin Advisory Council.*
17. *Recommendation: Government's to delegate responsibility to localised groups to enact localism.*
18. *Recommendation: NSW Valley cap credits and debits to be carried over into basin plan.*
19. *Recommendation: Sensitivity analysis of the 20% variation on the long-term annual diversion limit is assessed for valleys that utilised continuous accounting.*
20. *Recommendation: Conversion factors better defined and are determined by the modelled long term reliability factor.*
21. *Recommendation: The MDBA undertake a regulatory impact statement in a transparent and open manner with community consultation.*



22. *Recommendation: MDBA to undertake an analysis of community resilience following changes in water availability as proposed in the Basin Plan.*

## **5. Gwydir Valley Water Sharing Plans**

The Gwydir is characterised as having eight water sharing plans that are current currently in place, these include:

- Rocky Creek, Cobbadah, Upper Horton and Lower Horton Water Source (2004);
- Gwydir River Regulated Water Source (2004);
- Gwydir Unregulated Water Source and Lower Gwydir Alluvial Water Sources (in draft) (2011);
- Lower Gwydir Groundwater Source (2006);
- NSW Great Artesian Basin Shallow Groundwater water sharing plan (2012);
- NSW Murray-Darling Basin Fractured Rock Groundwater water sharing plan (2012);
- NSW Murray-Darling Basin Porous Rock Groundwater water sharing plan (2012); and
- NSW Great Artesian Basin Groundwater Sources (not within the MDB plan scope).

Three of the above mentioned water sharing plans are due for review prior to the implementation of the MDBP in 2019. These plans should be allowed to complete their term prior to implementing another plan of use. Furthermore, the calculation of any baseline diversion limits for the Gwydir should include a combination of the data-sets of each of the surface and groundwater sources rather than focus on only the regulated systems.

The Gwydir Valley Water Sharing Plans are conservative in their design and are either limited at a level below the desired cap or below the sustainable

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recharge rate for groundwater aquifers. For example, the Water Sharing Plan for the Gwydir Regulated Water Source has a long-term average annual plan limit of 392,000 ML/year where as the Murray Darling Basin Cap is 415,000ML/year, allowing at least 23,000 ML/year being restricted from productive use and being made to available to the environment on a long-term average flow.

The MDBA should provide greater recognition of the work undertaken by the NSW Government to manage water, their conservative approach and the performance of these plans during the drought. The following section provides an overview of the Gwydir Water Sharing Plans.

### **5.1. Performance**

The Gwydir Water Sharing plans were designed to ensure sustainability and to operate across the full range of climate cycles and not just the climatic sequence considered by the MDBA<sup>1</sup>. However, until 2009-2010 these plans have only had the opportunity to operate during the extended dry period which has been consistently described as a 1-in-100 year drought or the millennia drought.

However, it was during this extended drought period that all water sharing plans operating in the Gwydir Valley clearly demonstrated their ability to share water resources and manage water requirements during prolonged dry sequences. During the drought the Gwydir Regulated Water Sharing Plan was never suspended; critical water supplies were never threatened, and the Gwydir Wetlands were maintained at a healthy level, allowing them to fully respond to the increase water availability that has occurred since. When the drought broke there was still some 17,000 ML of water in the Environmental Contingency Allowance (ECA) account which demonstrates that environmental managers had adequate resources to manage through this record dry time. This water was in addition to reserves held by the Commonwealth Environmental Water Holder at the time.

Since then, environmental water use by the Commonwealth has been at a minimum with the Water Sharing Plan Gwydir Regulated Water Source more than sufficient in delivering the environmental water requirements for the

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<sup>1</sup> Historical Climatic Cycle defined in MDBP as 1895-2009

Gwydir wetlands. In fact in 2009/2010<sup>2</sup> and so far in 2011/2012 no Commonwealth-held environmental water was used in the Gwydir with only 13,056ML in 2010/2011<sup>3</sup>.

When Commonwealth water was used in 2010/2011, more than 148,000ML of shared supplementary water alone was made available under the sharing rules providing the largest extent of inundation of wetland areas since 2004/2005 water year<sup>4</sup>. The GVIA predicts that this inundation outcome will be superseded during this water year, in addition to the successful bird breeding event in the Gwydir wetlands without the use of any Commonwealth-held water.

Commonwealth held-water would not be able to replicate the outcomes achieved in either 2010/2011 or 2011/2012. And hence, environmental outcomes can only be achieved through implementing and managing a successful water sharing plan. With the Gwydir Regulated Water Sharing more than adequate at utilising natural variability in flows, supporting ecological resilience and sharing available water between all users.

By any measure, the Gwydir Water Sharing Plans have achieved their purpose of maintaining the environment at a level that allows full response to varying and extreme climatic conditions whilst more than adequately sharing water between all users.

In particular the Gwydir Regulated River Water Sharing Plan is openly acknowledged, by the Authority<sup>5</sup> and others, to fairly share the water resources of the valley in both wet times and dry. Furthermore, the Groundwater Water Sharing Plans for the region must also be considered appropriate as each plan limit was adopted by the MDBA as the current Sustainable Diversion Limit within the proposed MDBP.

Considering the above performance and acceptance by the MDBA on the effectiveness of the Gwydir Water Sharing Plans, the GVIA is perplexed at why the MDBA continues to disregard this past effort in establishing these

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<sup>2</sup> Commonwealth Environmental Water 2009-2010 Outcomes report

<sup>3</sup> Commonwealth Environmental Water 2010-2011 Outcomes report

<sup>4</sup> Gwydir ECAOAC Annual Report, 2010-2011 OEH

<sup>5</sup> Meeting MDBA and GVIA, 11 January 2011, Moree

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plans and the complex detail contained within, by not allowing them to run to their full term before reviewing and establishing another plan of use.

*Recommendation: Allow all Gwydir NSW Water Sharing Plans to run their full term before reviewing and establishing another plan of use.*

Furthermore, the MDBA continue not to recognise the ability of these plans to provide more than adequate environmental water and deliver on environmental outcomes by justifying the volume of water recovered so far in the Gwydir valley. Water over and above what the water sharing plans deliver is clearly unnecessary, given their performance both during the drought and since.

The GVIA strongly believe there is no justification to alter these plans nor is there justification for the water that has already been recovered. The GVIA believes that the proposed MDBP will create undue uncertainty within a region that has already significantly suffered water cut-backs in the past. The GVIA fears through implementing the proposed MDBP and in particular by adopting an inaccurate baseline diversion limit for the Gwydir, there is significant risk that there will be changes made to our current water sharing arrangements to accommodate environmental water use.

The GVIA have requested on occasion for the MDBA to undertaken sensitivity scenario modelling to determine the impact that storage and utilisation of Commonwealth held environmental water will have on other users. To GVIA's knowledge there has been no attempt at this although the MDBA state that there will be no impact to reliability of water under the proposed plan<sup>6</sup> there has been no evidence to support this claim.

Basic calculations by the GVIA would indicate that there would be significant reliability impacts to irrigator's access of supplementary water under the implementation of the proposed Basin Plan. This is considered unacceptable and must be considered by the MDBA prior to finalising the MDBP.

*Recommendation: MDBA to undertake sensitivity scenario modelling on the implementation of the MDBA plan using the current water sharing plan*

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<sup>6</sup> MDBA reliability statement

*arrangements to assess impacts to water reliability of general security and supplementary water entitlements.*

## **5.2. Environmental Water**

The main strength of the Gwydir Water Sharing Plans is that they clearly detail environmental water requirements. For the Water Sharing Plan for the Gwydir Regulated Water Source, under long-term average conditions the water sharing and account management rules within this plan allows for at least 66% of flows to be provided for the environment<sup>7</sup>. However, due to the fact that the Commonwealth has purchased 10% of supplementary water entitlements, which they do not utilise and all irrigators are constrained by their pump capacity, this baseline number within the water sharing plan in many years would actually be much higher.

The GVIA believes this water sharing plan water alone, should provide significant water resources to the wetland areas as they currently exist and that the water sharing plan should be reviewed before implementing another plan of use.

*Recommendation: Review current water sharing plans before implementing another plan of use.*

Environmental water for the Gwydir Regulated Water Source is provided for the Gwydir Wetlands and aims to ensure the core wetland areas are maintained and/or improved if possible. Importantly in the Gwydir, supplementary water, which is the flow that most clearly mimics the natural flow sequence, is shared between the environment and water users, with the environment having priority.

Over the long term, due to the Water Sharing Plan conditions and the limited extraction capacity of water users, approximately 74%<sup>8</sup> of long-term average river flows have remained in river for environmental benefit. In addition to this, a 45,000ML Environmental Contingency Allowance with the ability to store up to 200% of this allowance is provided for wetland purposes. The

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<sup>7</sup> Water Sharing Plan for the Gwydir Regulated Water Source, DLWC, 2004

<sup>8</sup> Calculation based on Water Sharing Plan long-term annual average river flows for the environment in addition to percentage of water recovered for the environment by the Commonwealth and NSW Government.

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proposed MDBP doesn't appear to fully incorporate this water in their calculations for water use nor has the Authority considered what this water is already achieving. The GVIA believe that if the MDBA better accounted for environmental water use it will be evident that environmental outcomes are already being achieved and where they might not be fully recognised, that improved implementation and coordination would likely solve most issues.

The management of the Gwydir Wetlands is outlined as an agreed framework within the Gwydir Wetlands Adaptive Environmental Management Plan<sup>9</sup> (AEMP) and details the understanding and restoring ecological balance within the wetlands but also how to best utilise the ECA.

It is clearly articulated within the Gwydir AEMP the fact that the Gwydir wetlands have reduced in size however, there appears to be little acknowledgement of this fact at government levels. The wetlands have reduced in size by almost 76,216 Ha<sup>9</sup>. The Semi-permanent wetland is approximately 6,829 Ha and the floodplain wetland 77,949 Ha<sup>9</sup>. The majority of these areas are on private property and hence, there is little capacity for the wetland areas to increase, yet water recovery by the Commonwealth will essentially deliver more than 74% of the long-term average river flows to this reduced environment<sup>8</sup>.

Table 1 below represents the historical and current estimated wetland areas and their water use, based on the rate provided in the listed sources. The GVIA estimates a total water use of approximately 644 GL/year, which is greater the Murray Darling Basin Committees State of the Hydrology report which states that the natural water inflows of the Gwydir wetlands is 464GL/year<sup>10</sup>.

**Table 1: Wetland Water Use**

Source:	Rate (ML/Ha/Yr)	Wetland Water Use (GL/Year)		Difference (GL/Yr)
		Historical area 160,994 Ha	Current area 84,778 Ha	
GVIA	4	644	339	305
State of the Hydrology Report	2.9	464	354*	107
Gwydir AEMP wet season (low)	4	644	339	305
Gwydir AEMP wet season (high)	5	805	424	381
Gwydir AEMP dry season (low)	8	1288	678	610
Gwydir AEMP dry season (high)	17.4	2801	1475	1326
* Either a new rate has been applied of 4.2 ML/Ha/Yr, which is inconsistent with the rate proposed for historical water use or the estimate wetland area is 186,000Ha (which is not correct).				

<sup>9</sup> Gwydir Adaptive Environmental Management Plan, DECCW, 2011

<sup>10</sup> Reference MDBC state of hydrology report

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Table 1 also highlights the difference in water use or water requirements of the wetlands, due to their reduction in core wetland area over time. Consequently, less water is now required to maintain the wetland area, which is estimated by GVIA to be 339 GL/year. This is a reduction of 305 GL/year, almost equates to current total watercourse diversions prior to any programs to obtain environmental water, as presented in the Guide to the Proposed Basing Plan<sup>11</sup>.

Table 2 below, outlines the water recovered for environmental purposes in the Gwydir in megalitres (ML) over and above the Gwydir Regulated water sharing plan, remembering that it was inherently designed to allow for 66% of an estimated 1,141,000 ML/year to flow to the environment<sup>7</sup>. The wetland water use requirement in Table 1, suggests 339GL/year which is less than the total volume of water provided through the Water Sharing Plan for the Gwydir Regulated Water Source. That is prior to any additional water recovered for the environment by the Commonwealth in Table 2 is taken into account.

**Table 2 Environmental Water Recovery in the Gwydir**

<b>Year</b>	<b>Program</b>	<b>Volume of entitlement</b>
1995	Murray-Darling Basin 1993/95 Interim Cap	
1996	Voluntarily reduced their general security reliability by 5%, by establishing the original Gwydir Valley Environmental Contingency Allowance (ECA) of general security equivalent water.	25,000ML General Security
2004	Gwydir Regulated River Water Sharing Plan further reduced reliability by 4%, primarily through increasing the ECA and enhancing its use and storage provision.	20,000ML General Security
2006	Lower Gwydir Groundwater Source Water Sharing Plan reduced groundwater entitlements from 68,000 mega litres to 28,700ML.	39,300 ML Groundwater
2008 +	NSW State Government has purchased approximately 17,092ML of general security entitlement and 441 ML of supplementary entitlement.  Commonwealth 89,525ML <sup>12</sup> of General Security Water with 375ML <sup>12</sup> of High Security Water. The majority of which was through buy-back and a	375 ML High Security  106,617 ML General  19,541 ML Supplementary

<sup>11</sup> Guide to the Proposed Basin Plan (2010), Murray Darling Basin Authority

<sup>12</sup> Commonwealth Environmental Water Office website:

<http://www.environment.gov.au/ewater/about/holdings.html>

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	<p>minor proportion through Irrigation Efficiency Programs.</p> <p>Commonwealth also purchased in excess of 10% of the valley's supplementary entitlement equalling 19,100ML<sup>12</sup>.</p>	
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With this in mind some might suggest that the environment has sufficient water available to survive without the requirement for productive water to be recovered and that the Gwydir Water Sharing Plans are more than adequate at meeting environmental requirements, while sharing water.

*Recommendation: The MDBA accept that the Gwydir Water Sharing Plans are more than adequate to provide water for the Gwydir Wetlands and surrounding environment.*

Furthermore, there are a myriad of risks to the condition of the Gwydir wetlands not just water availability or flow frequency and duration. The Gwydir wetlands and surrounding areas are under threat from invasive species, such as lippia and water hyacinth and feral animals such as European carp and pigs<sup>9</sup>. Without addressing broader catchment issues including land management issues, any future environmental watering programmes will be ineffective in achieving their outcome.

Many of the proposed watering options within the Commonwealth Environmental Water Office's draft Integrated Water Delivery Document for the Gwydir River<sup>13</sup> are constrained by these ecological and land management issues within the region. This cannot be more clearly highlighted than by the proposed use of environmental water to maintain baseflow requirements in the wetlands, which was described as a means to limit lippia. This one action will only be effective if grazing is also managed in the area. Furthermore the provision of additional peaks for fish breeding purposes will also be ineffective if cold water pollution issues are also not addressed.

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<sup>13</sup> Commonwealth Environmental Water Office, Draft Integrated Water Delivery Document for the Gwydir River, 2011.

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### **5.3. Climatic sequence**

A key feature of the hydrology and climatology of the Gwydir Valley is its extreme variability. Significant dry periods and significant wet periods are integral parts of the natural flow pattern of the Gwydir Valley.

The environment and irrigators are now adapted to these patterns. The Gwydir wetlands require drying down periods<sup>9</sup>, which should naturally occur through droughts and the majority of irrigators, grow crops opportunistically utilising what water they have available for the best economic return.

The Gwydir Water Sharing Plans are uniquely designed to account for this variability and more importantly, designed to incorporate new data as it becomes available. They are based on a rigid framework that provides certainty for 10 years of operation (the review timeframe) but are updated annually to allow for changes in climatic conditions, water availability and water use. Water allocations to users are provided regularly to account for these changes.

For example, although the Water Sharing Plan for the Gwydir Regulated Water Source uses a climatic period from 1882-2004<sup>14</sup> the model dataset is updated following the completion of each proceeding water year. The climatic period is then updated following the plans review, which for the he Water Sharing Plan for the Gwydir Regulated Water Source is due before 2014.

Under the proposed MDBP this climatic sequence is legislated as 1895-2009<sup>1</sup> and does not provide for updated information or reviews. This period is updated from previous planning but ceases during a drought period and does not include the most current data-set which would be up to 2010/2011 water year. This approach is contrary to the principle of using “best available scientific knowledge” which has been thrown at us so often during this planning process.

*Recommendation: Update the climate sequence with most current data by including 2010 and 2011 water years.*

The fact that the climate sequence is legislated for a fixed period as described within the definition for historical climate conditions is neither best science nor

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<sup>14</sup> Water sharing plan reference for climatic sequence

logical. With unknown climatic variation to occur in the future, how can the period from 1882-2009 be representative of what climatic conditions are yet to come and how can this period take into account climate change or changes in water use in response to policy?

The MDBA should remove this legislative barrier within the proposed MDBP allowing for a fully flexible climatic period that utilises the most current data-set at the time of preparation and provide a review timeframe by which it can be updated. This is critical for the MDBA to meet its obligations under the *Water Act*<sup>15</sup> to utilise best available scientific knowledge<sup>16</sup> and not select periods for simplification.

*Recommendation: Remove the historical climate record and use the most current climatic sequence information and provide an appropriate review timeframe for updates.*

The GVIA proposed that in updating the climatic sequence the MDBA should also consequently update the reliability conversion factors and sustainable diversion limits that are known functions of climate.

## **6. Setting of Sustainable Diversion Limit**

The GVIA have continuously raised concerns regarding the technical aspects of the proposed MDBP and the basis in-which baseline and future sustainable diversion limits have been developed. Although the GVIA acknowledges the improvements in the conceptual understanding and hydrologic modelling of the Gwydir Valley since the Guide to the Basin plan, notably the acceptance that the Gwydir is a terminal closed system with limited connectivity to the Barwon River.

The difficulty with the technical debate associated with the basin plan, is the sheer volume of technical supporting documents released by the MDBA and the timeframe in which these were made available. Many of these documents were not released simultaneously with the proposed MDBP and most have only been provided more than half-way through the consultation period. Not

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<sup>15</sup> Water Act (Commonwealth) 2007

<sup>16</sup> Section 21(4)(b) *Water Act* (Cth) 2007

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to mention that most are high level, overarching documents and there is not one, compendium of technical information at a local level.

The GVIA has already recommended<sup>17</sup> and requests for a second time that the MDBA should prepare local valley level technical summaries which would help to address miss-communication regarding technical components of the plan.

*Recommendation: The MDBA to produce detailed, local level technical summaries of methodology and hydrological modelling utilised in the planning process.*

The GVIA accepts that in the current timeframe there is limited opportunity to rectify the technical issues. Nonetheless it would be remiss of the GVIA to not clearly outline these issues within this submission and hence, this section includes a brief highlight of the main technical issues encountered thus far.

The GVIA is committed to working with the MDBA (and the NSW Government) to resolve technical issues with the proposed MDBP.

### **6.1. Process for determining ESLT**

The Gwydir Valley is unique catchment, it is a terminal delta system that's end of system flow is now greater due to development rather than without development<sup>18</sup>. However, should this uniqueness be replicated in the refusal to adopt methodology consistently under the proposed MDBP?

The methodology employed to determine the ecological sustainable level of take (ESLT) for the Gwydir valley like the Macquarie and Lachlan was altered to model the volume of water recovered, not what could be required under a basin plan. The GVIA seek further clarification on how and why this adopted methodology was different and the implications locally if consistent methodology was applied.

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<sup>17</sup> Meeting with NOW, MDBA and Northern Valley Representatives, Sydney, 28 February 2012

<sup>18</sup> Gwydir Valley System Considerations, GVIA, 2011

The MDBA provide two scenarios for determining the ESLT<sup>19</sup> both of which are different to the agreed ESLT methodology, modelling either 52 GL/year or 42 GL/year. With the latter apparently based on updated estimate of the long term average usage of entitlements already recovered<sup>19</sup>. Neither volume has been determined as the required volume for the environment but rather a volume that meets a larger number of hydrologic indicator flow rates compared to either the without development or baseline conditions.

The GVIA submits that both volumes proposed in ESLT scenarios are a function of what has been recovered and vary only due to the November 2011, conversion factor debacle to be discussed later in Section 7.4 Compliance. As there is a lack of history of use of Commonwealth held water and the updated estimate is the change of general security conversion rate from 0.55 to 0.38.

Furthermore, the GVIA is disappointed that there is a continued focus on hydrologic indicator flow rates within the ESLT mythology. There is little evidence in supporting documentation that indicates a significant change in thinking from the Guide to the Basin Plan regarding these indicator sites, especially considering the focus remains on comparing current or proposed conditions to without development scenarios.

The GVIA has long protested the inaccuracy of the without development scenario for the Gwydir Valley and has serious concerns regarding the MDBA's baseline scenario as well. Using inaccurate data as a control or measuring tool in which decisions are derived from, can only result in the decisions being inherently inaccurate as well.

The GVIA have concerns with regard to the modelling assumptions used by the MDBA when updating the state-based model for the valley. In particular the assumptions around the environmental demand time series; the types of entitlement included in the series and the proposed utilisation methodology. The GVIA are concerned that the time series does not accurately reflect the current environmental entitlements recovered in the Gwydir Valley or their history of use.

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<sup>19</sup> Hydrologic modelling to inform the proposed Basin Plan: Methods and Results, MDBA, 2012

The GVIA have doubts regarding the accuracy of the baseline diversion limit (BDL) for the Gwydir and the significant changes in diversions from all previous literature. The GVIA does not accept the current diversion limit of 450GL/year and that the volume for floodplain harvesting, unregulated flows and regulated flows is under-estimated. The GVIA recommends that further work be undertaken on the modelling of the Gwydir with the assistance of the NSW Government to improve this number and as a major stakeholder, the GVIA would be more than willing to assist.

*Recommendation: MDBA and NSW Office of Water update modelling in the Gwydir to improve baseline numbers.*

The GVIA believe that without a clear and transparent process to determine the ESLT and confidence that the MDBA have used best available science there will continue to be doubt around any numbers proposed in the basin plan.

## **6.2. Objectives of ESLT**

The GVIA also have raised concerns over the hydrologic indicator sites as justification for the ESLT. The GVIA advocates for holistic integrated catchment management and does not accept the determination of flow rates, duration and frequency as surrogated for a health working basin.

The GVIA request that a review of the Gwydir's hydrological indicator sites be completed, with particular interest in the Mallowa sites where the proposal is to develop that system beyond its current baseline or without development condition.

*Recommendation: MDBA to review hydrological indicator sites in the Gwydir.*

An assessment of the baseline conditions should also be included in any modelling results so that a comparison of what is already being achieved can be easily determined. This is essential considering that the Gwydir Water Sharing Plans are more than adequate at providing the environmental requirements in the Gwydir Valley.

The GVIA supports the recognition by the MDBA that environmental water cannot be used to achieve all the desired environmental outcomes in the

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Gwydir, in particular over bank flows and that these naturally occur as evident by the most recent flooding in November 2011 and January 2012.

## **7. Implementation**

The GVIA has accepted that water recovery has already occurred within the Gwydir and that the water recovery target outlined in the proposed MDBP has been met, despite our refusal to accept the requirement for additional water. As a result the GVIA has taken considerable interest in the proposed implementation programme for the Basin Plan.

The following section outlines a number of areas of the implementation phase where the GVIA has made recommendations for improvement. In submitting this section, the GVIA acknowledges that the MDBA have proposed a number of positive processes within the implementation phase of the Basin Plan.

However, most of these are presented only in communication with the MDBA or in the 'plain English summary' and are not reflected in their entirety within the legislative instrument. For instance the acceptance to purchase the gap between current entitlements and the sustainable diversion limits does not appear as a commitment within the proposed MDBP.

Essentially for there to be acceptance of a Basin Plan, the GVIA believe that the MDBA need to more clearly align their 'thinking' and 'interpretations' within the 'plain English guide' with the legislative instrument. This is especially significant when such thinking has the ability to undermine the effectiveness and acceptance of the Plan like with "localism" or "bridging the gap".

Overall the GVIA believes there remains too much uncertainty around the roles and responsibilities of governments and communities in a future with the basin plan. There appears to be little understanding or communication between the MDBA and basin states on how water resource plans will be developed and managed. A clearer understanding of the future with a Basin Plan is also essential for communities and governments to support a Basin Plan.

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## **7.1. Timeline and review**

GVIA believes that the timeline for review and implementation of the proposed Basin Plan is inadequate to collect, inform and update water resource plans in the basin. The proposed MDBP was developed reactively during the drought and now with the short-term return to wetter climatic conditions and the significant volume of Commonwealth environmental water holdings, it appears socially irresponsible to rush the finalisation of such a pivotal piece of the reform to meet such an inadequate timeline. An attitude shared by others including the NSW Primary Industries Minister, Katrina Hodgkinson<sup>20</sup>.

GVIA proposes the following timeline outlined in Figure 1, which utilises additional scope for implementation of the basin plan as outlined within the temporary diversion limits<sup>21</sup> allowable under the *Water Act*. This timeline assumes that the Basin Plan is accepted by parliament in 2012.

Following this timeline, water recovery is staged, the outcomes of the review are incorporated into future versions of the basin plan and all States will have recovered and planned for their environmental water use before the consistent implementation date of 2024.

*Recommendation: That the timeline in Figure 1 be considered as an alternative for implementation of the basin plan.*

The GVIA agree with the principle of the mid-term review in 2015<sup>22</sup>, although we believe its completion date is premature. At a minimum the review should occur only after current water resource plans have been reviewed by Basin States and environmental watering plans have been developed and preferably implemented for a number of years. The review would also benefit from the completion of a number of works and measures projects and regionally specific socio-economic impact assessments. All of which will be unachievable by Basin States in the current timeframe.

*Recommendation: Mid-term review to be undertaken following the completion of:*

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<sup>20</sup> "Call for deluge to delay federal Murray-Darling takeover plans" Sarah Martin and Rebecca Puddy, *The Australian*, 07/03/2012

<sup>21</sup> Section 24(1) and (5) *Water Act* (Cth) 2007

<sup>22</sup> Section 6.07 Proposed Basin Plan (2011)

- *Review of current water resource plans; and*
- *Development and implementation of environmental watering plans.*

By holding the review in 2017 as proposed in our recommended timeline in Figure 1, there will also be time for the MDBA and the Basin States to properly work through any technical issues contained within the supporting documentation of the proposed MDBP.

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Reference	Activity	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1.1	Proposed basin plan for consultation.													
1.2	Ministerial approval of Basin Plan.													
2.1	Water sharing plan reviews.													
2.2	Environmental watering plans developed (long-term and short-term), prioritised by valleys where the volume of water held for the environment is the largest.													
2.3	Works and measures implemented.													
2.4	Acquisition of water required for the environment through a variety of programmes (volume capped at 50% of the volume believed to be required)													
2.5	Gwydir regulated water source and Rocky Creek, Cobbadah, Upper and Lower Horton River water source water sharing plans reviewed													
2.6	Review of Water Act (Cth) 2007													
2.7	Implementation of National Metering Standards													
3.1	Possible mid-term review date - cannot occur without 2.1 & 2.2 being completed													
3.2	Update of basin plan													
4.1	Acquisition of water required for the environment through a variety of programmes (volume capped at the gap between recovered and reviewed ESLT)													
4.2	Development of new water resource plans													
5.1	Implementation complete													

**Figure 1 Timeline for MDBP Implementation**

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The GVIA accepts that any technical issues surrounding BDLs and the calculated ESLT as described in earlier sections will not be rectified before the MDBP is accepted by parliament. However, these technical issues need addressing and should be considered as a core aspect of the mid-term review.

Furthermore, the objectives and terms of reference of the mid-term review should be clearly outlined within the Basin Plan. Not to mention that the outcomes for the review should be considered as drivers for change to any future versions of the basin plan and therefore, the legislative instrument should be updated to incorporate changes following reviews.

*Recommendation: Legislation should reflect that outcomes from the mid-term review are to be incorporated into future versions of the basin plan.*

Overall, the GVIA believes that the later implementation date will be more beneficial than detrimental. It corresponds to the MDBA's theory that a slower implementation will help to alleviate socio-economic impacts but also allows for there to be more time to get the basin plan right; reduce technical issues, incorporate lessons learnt and better inform communities and Basin Governments on their responsibilities.

## **7.2. Principles of environmental water management**

The Gwydir region has met its requirement for water recovery under the proposed MDBP. Approximately 74% of long-term average annual river flows<sup>8</sup> are now provided to the environment and the GVIA continues to be concerned how this water will be accounted for, managed and utilised into the future.

The GVIA believes that any environmental plan developed as required under the proposed MDBP should be done so using theories of integrated catchment management to achieve multiple outcomes rather than water based objectives and not in isolation as proposed. As explained in Section 5.2 Environmental Water; water availability and frequency are not the main environmental threats to environmental assets in the Gwydir but there are a myriad of threats and land management issues that also need to be addressed. Water by itself will not build and maintain resilience within the Gwydir Valley.

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*Recommendation: Environmental Water Plans should be developed using integrated catchment management.*

Catchment Management Authorities (CMA) in NSW and their equivalents in other Basin States are the organisations that the GVIA believe are best positioned to provide a holistic approach to water management. It is essential that these organisations are included in the environmental planning process. The GVIA also believe that environmental watering plans could indeed form part of the Catchment Action Plans that CMAs already prepare and manage.

Further to that GVIA believes that principles in prioritising and managing environmental water as described within the proposed MDBP<sup>23</sup> should be developed with consideration to the 'effectiveness' that the action has on achieving outcomes holistically.

All plans and watering actions should outline the environmental, physical and policy-based constraints that could impact the effectiveness of utilising water i.e. what inhibitors are there in any watering event in achieving the desired outcome. There should also be measures and processes to encourage efficiency in water use that could include a cost-benefit analysis of the use of environmental water to achieve said outcomes.

*Recommendation: Environmental watering plans and actions should be developed with a principle of effectiveness in mind.*

The current principles and the proposed MDBP itself does not encourage environmental water managers to improve their practices and be efficient with the use of public funded water but rather provides them with a fixed amount of water for unlimited purposes without holistic outcomes.

### **7.3. Bureaucratic Linkages and the Northern Basin Advisory Committee**

The GVIA has always been supportive of the Basin Plan as a deliverable of the National Water Initiative. However, we continue to hold reservations about the levels of bureaucracy now being involved in water planning with particular reference to our own situation in NSW.

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<sup>23</sup> Chapter 7, Part 6 and Part 7, Proposed Basin Plan (2010), MDBA

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For example, the environmental planning process as described in the proposed MDBP<sup>23</sup> suggests that for any particular valley, there could be at least four environmental watering plans in place that need to be adhered to, and the possibility that other holders of water may also have a plan.

Using the Gwydir as an example, this would bring the total number of plans for environmental watering to nine, with those above the line outlined within the proposed MDBP and those below the line, already in existence:

1. Murray Darling Basin Plan;
  2. Basin annual environmental watering priorities;
  3. Water resource area long-term environmental watering plan;
  4. Water resource area annual environmental watering plan;
- 
5. State-based water watering plan;
  6. Commonwealth-held water strategic plan;
  7. Commonwealth-held business plan;
  8. Gwydir Wetlands Adaptive Environmental Management Plan; and
  9. Border Rivers-Gwydir Catchment Action Plan.

Not only will there be considerable duplication of water planning, there is potential for conflicting priorities and negative environmental outcomes. Clearly, basin planning cannot result in additional layers of bureaucracy to develop and implement water sharing plans and environmental watering plans in the future. The GVIA believes that the MDBA should show leadership on this issue, as the best placed organisation to insight change albeit legislatively or through advice to Government.

*Recommendation: Additional levels of bureaucracy to be avoided and streamlined.*

Furthermore, the GVIA strongly believe that any future planning should have an improved level of local input not just government rhetoric of such a concept like “localism” and that there is delegated responsibility from the appropriate levels of Government to any locally driven group. Localism has been promoted as the mechanism to implement the Basin Plan yet there is no framework and no resources available to actually make this concept a reality.

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This is of particular reference to any future groups like the Northern Basin Advisory Committee.

While the GVIA supports the concept of establishing a Northern Basin Advisory Committee to assist with the implementation of the basin plan, the GVIA are still not aware of the terms of reference for this group and what their role and responsibilities will be. Again GVIA holds reservations that without this information and the appropriate delegation of responsibility to committee or any such group, they may exist as just another layer of bureaucracy without any tangible role in water reform.

*Recommendation: MDBA to consult with Northern Basin Communities the terms of reference of the Northern Basin Advisory Council.*

*Recommendation: Government's to delegate responsibility to localised groups to enact localism.*

#### **7.4. Compliance**

Not only are the GVIA concerned by an equivocal future under the basin plan, we are also extremely concerned with the proposed compliance and monitoring program outlined within the proposed MDBP<sup>24</sup>.

As explained in Section 5 Gwydir Valley Water Sharing Plans, these water sharing plans are not only conservative in their design but have also excelled at their environmental performance. One of the many outcomes of this process is that the Gwydir Valley remains well below the Murray Darling Basin Cap and is considered to be in credit.

NSW Water Commissioner David Harriss said that the water sharing plans were devised to allow for the high variability of the system, so that credits can be accumulated during dry years to allow for utilisation of water during wetter years<sup>25</sup>. Whereas in the proposed MDBP, the MDBA intends to overrule 100 years of water management by NSW, eliminate this accumulated credit<sup>26</sup> and install a 20% limit on variability<sup>27</sup>. Variability is the strongest feature of the

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<sup>24</sup> Chapter 6, Proposed Basin Plan, MDBA (2010)

<sup>25</sup> NSW Government MDBP listening tour, Moree Services Club, Tuesday 8 February 2012.

<sup>26</sup> Chapter 7, Part 4, Division 1, S 6.09, Proposed Basin Plan, MDBA (2010)

<sup>27</sup> Chapter 7, Part 4, Division 2 S 6.13

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environment and water flows in this region, and to artificially limit it makes no environmental sense to us.

The accumulation of cap credits is due to the hard-work by the NSW Government and industry during periods of extreme climatic conditions. The GVIA believe that any credits (and debits) should be carried over and included in future versions of the Basin Plan. Any policy that contravenes this will clearly encourage unnecessary utilisation of water and encourage perverse outcomes that would ultimately contradict the aims of the basin plan.

*Recommendation: NSW Valley cap credits and debits to be carried over into basin plan.*

The GVIA also believes that there is scope within the *Water Act*<sup>15</sup> to allow for this under the temporary diversion limits<sup>21</sup> as referred to in Section 7.1 Timeline and review.

Furthermore, the GVIA is concerned that the utilisation of a 20% variation on the long-term annual diversion limit may also result in the loss of the cap credit system (not just the cap credits themselves), which is currently in place in the Gwydir. The GVIA believe that this change in account management rules will be overly restrictive to valley's that utilise continuous accounting, like the Gwydir. Continuous accounting is a separate account management mechanism from carryover and was designed in response to the variable nature of flow regimes.

GVIA suggests that the MDBA undertake sensitivity analysis on the implementation of a 20% variation on valley's like the Gwydir and consider a specific variation limit be determined for areas where continuous accounting is utilised.

*Recommendation: Sensitivity analysis of the 20% variation on the long-term annual diversion limit is assessed for valleys that utilised continuous accounting.*

Notwithstanding the above, if the intent of the proposed basin plan is replace the current cap credit system and install a 20% threshold of variation on long-term average extractions, then the MDBA are proposing to overhaul the current account management principles which will result in adverse changes

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to water user's access and reliability of water. The GVIA does not support any alteration to the current cap credit system for compliance.

However if the intent is not to remove the current cap credit system, then at a minimum the basin plan should be updated to be more explicit in the determination of compliance.

The GVIA is also concerned with the adjustment factors used to convert current water access entitlement to a common unit by different government bodies. This has been further complicated by the fact that the proposed MDBP requires a simplified accounting of a variety of water assets to determine the gap between current diversion limits and proposed SDLs.

There appears to be a lack of understanding of what the conversion factors are and what they are designed to be used for within a multitude of government levels. Conversion factors are an assessment of long-term reliability of water as calculated from state-based water management models like the NSW's Integrated Quantity and Quality Model. They use actual data over the preceding water years to determine the long-term reliability; they cannot be manipulated to make predictions regarding future water availability to account for the onset of climate change or of market behaviour.

Sudden changes in conversion factors have the potential to result in disastrous market implications, as discovered by the Commonwealth in November 2011<sup>28</sup> when they altered conversion factors and undermined their own water portfolio overnight. These new factors, although overhauled by the Ministerial Council shortly after their release would have resulted in Gwydir General Security conversion factor increasing to 0.55 (rather than 0.38<sup>29</sup>) and supplementary decreasing to 0.01 (rather than 0.55<sup>29</sup>), which would have rendered the Commonwealth's investment in 19000 ML of supplementary water entitlement useless albeit on paper, as the rates were not supported by historical reliability or the NSW Government at the time.

The GVIA believes that the definition and utilisation of conversion factors need to be better explained within the basin plan and that changes to these factors cannot occur on such a whim, especially with basin state and industry consultation.

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<sup>28</sup> "Cruel blow to irrigators", Peter Hunt, Weekly Times, 02/11/2011

<sup>29</sup> Water Availability in NSW Murray-Darling basin regulated rivers, DWE (2009)

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The GVIA also believes that this factor should be the modelled long term reliability factors as determined and provided by the basin states for the same climatic sequence period selected for the basin plan that must be used by all market participants. The Commonwealth must accept these as their conversion factors at the time of acquisition of water and calculate their water portfolio accordingly. Change to those factors must therefore only occur via the process set out in the Act for a change to the Plan itself.

*Recommendation: Conversion factors better defined and are determined by the modelled long term reliability factor.*

### **7.5. Risk**

The GVIA supports and acknowledges the adoption by the MDBA of the risk assignment principles although advocates that there is greater clarity between the plain English version of 'risk' as opposed to that presented in the proposed MDBP legislative instrument.

The GVIA is concerned that a regulatory impact statement has not yet been developed for the basin plan. This statement is a requirement of both the Australian Government and the Council of Australian Governments (COAG) prior to the inception on any significant regulatory proposals. GVIA recommends that this is undertaken in a transparent and open manner with community consultation.

*Recommendation: The MDBA undertake a regulatory impact statement in a transparent and open manner with community consultation.*

### **7.6. Opportunity for changes**

The GVIA supports the MDBA proposed framework that presents BDL and SDL for valleys within schedules as attachments to the basin plan, thus allowing them to be altered more easily than the main content of the basin plan<sup>30</sup>. The fact that there is opportunity to update these values pending technical reviews and more information is essential for the GVIA to support any Basin Plan.

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<sup>30</sup> Stakeholder meeting with MDBA, Moree 14 February 2012.



## 8. Socio-economic Considerations

The Gwydir Valley has already met its water recovery targets for proposed new sustainable diversion limits within the proposed MDBP. As such, 42GL/year of entitlement has been recovered for the environment at the detriment of the communities within the Gwydir region.

The majority of this water was recovered quickly and through the Australian Governments buy-back programme and was recovered without consideration to the vulnerability of the region to water availability decline or transitional process. Furthermore, the water within the Gwydir was recovered without any consideration regarding the location of water licences, the types of licences and the volume required.

As a result, the Gwydir Valley like the Macquarie and Lachlan valley's, presents itself as a unique example of what socio-economic impacts other communities may incur following the implementation of the proposed Murray Darling Basin Plan. The GVIA encourages the MDBA to investigate more closely the socio-economic impacts of these regions and focus these studies regionally rather than basin-wide.

The GVIA's main concern regarding water recovery for the environment is the ability for the community and business to response to low water availability into the future. That is how will the community respond following the next drought sequence and has our productive base lost too much to fully recover. The GVIA believes that it is the responsibility of the MDBA to assess these questions of community resilience with reference to the localised impacts.

*Recommendation: MDBA to undertake an analysis of community resilience following changes in water availability as proposed in the Basin Plan.*

Importantly, such a study as recommended above should also form part of the mid-term review as additional knowledge to be gathered prior to implementing the basin plan.

The key lessons learnt by the GVIA from water recovery in the Gwydir include:

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- Proceeds from buy-back sales are not maintained within the community and are used to retire debt and/or retire and even to invest in activities outside this region and overseas;
- Substitution of dry-land farming occurs, however at a significantly reduced productivity level (average irrigated cotton production per ha is 9 bales/ha<sup>31</sup> where as dry land is between 2.5-4 bales/hectare<sup>32</sup>);
- Jobs lost from irrigation areas are not retained within the region as there are no other growth industries to accept the increase labour;
- Satellites towns and surrounding areas are highly sensitive to changes in water as their economy of scale cannot compete with larger centres; and
- Many changes to business, schools or government services are permanent.

Submission ends...

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<sup>31</sup> NSW DPI 2011, Northern Irrigated Transgenic Cotton gross margin

<sup>32</sup> NSW DPI 2011, North-west, North-East Dry land Transgenic Cotton gross margin

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