Gwydir Valley Irrigators Association Inc.

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Submission into the Australian Senate's Rural Affairs and Transport Committee's Inquiry into the Management of the Murray-Darling Basin

December 2010

Introduction

The Gwydir Valley Irrigators Association (GVIA) represents in excess of 250 irrigators in the Gwydir Valley of NSW, centred on the town of Moree.

The organisation is voluntary, funded by a cents/megalitre levy on regulated unregulated and groundwater irrigation entitlement. In 2009/10 the levy was paid on in excess of 90% 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. .

GVIA is a member of the National Irrigators Council and the NSW Irrigators Council, and as well as providing this submission, the Association endorses the submissions made by those two organisations.

GVIA welcomes the opportunity to make this submission to the Australian Senate's Rural Affairs and Transport Committee's Inquiry into the Management of the Murray-Darling Basin, and looks forward to providing the Inquiry with additional information, if requested.

GVIA believes that it is absolutely critical that the Inquiry tours the Basin and takes evidence at a large number of communities.

GVIA respectfully requests the Inquiry to convene in Moree, and it would be delighted to assist in preparing and hosting a valley tour, that would allow the Inquiry members to see first hand the many issues and impacts that will result from a poorly designed and poorly implemented Basin Plan. GVIA also requests, that in addition to providing this submission, it be given the opportunity to provide verbal evidence to this Inquiry.

GVIA Contact Details

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The management of the Murray-Darling Basin

Terms of Reference

The management of the Murray-Darling Basin, and the development and implementation of the Basin Plan, with particular reference to:

(a) the implications for agriculture and food production and the environment;

(b) the social and economic impacts of changes proposed in the Basin;

(c) the impact on sustainable productivity and on the viability of the Basin;

(d) the opportunities for a national reconfiguration of rural and regional Australia and its agricultural resources against the background of the Basin Plan and the science of the future;

(e) the extent to which options for more efficient water use can be found and the implications of more efficient water use, mining and gas extraction on the aquifer and its contribution to run off and water flow;

(f) the opportunities for producing more food by using less water with smarter farming and plant technology;

(g) the national implications of foreign ownership, including:
- (i) corporate and sovereign takeover of agriculture land and water, and
- (ii) water speculators;

(h) means to achieve sustainable diversion limits in a way that recognises production efficiency;

(i) options for all water savings including use of alternative basins; and

(j) any other related matters.

General Comments:

It is the intention of the Gwydir Valley Irrigators Association to address a number of the specific Terms of References that have been developed for this inquiry.

However, prior to doing so, GVIA believes it is absolutely paramount that the Inquiry appreciates the flawed nature of the basin planning process to date.

Firstly, GVIA is very disappointed that the first iteration of the NSW Water Sharing Plans, in particular the Gwydir Valley Regulated River Water Sharing Plan, have not been allowed to run their first full cycle, prior to the Basin Planning process trying to overlay yet another layer of cutbacks on the system.

GVIA strongly believes that these plans were designed to provide environmental sustainability in wet times and dry, yet they have only had a chance to operate during a dry cycle.

There is no doubt that during a drought everyone, both extractors and the environment, would like more water, but there can also be no doubt that during a drought more water is not only unrealistic, it would be also unnatural.

Now that we appear to be moving back into a wetter cycle it would only be reasonable to expect that the performance of our water sharing plans would be assessed in their entirety prior to having another level of water plan thrust upon us.

GVIA recommends to this inquiry that the Basin Plan development process be put on hold until the performances of the NSW Water Sharing Plans are assessed over their first full 10 years of operation.

There should be no need to implement this next level of planning until, and unless, it is clearly demonstrated that the current Water Sharing Plans are not delivering environmental sustainability.

States and individual valleys must also have recognised in the basin planning process any water management policies or initiatives that have them operating below the levels set by the 1993/94 Interim Murray-Darling Basin Cap.

It is patently unfair that States like NSW, which have put in place policies to operate significantly below Cap, will be treated no differently than those States whose policies are aimed at achieving a performance equal to Cap. This is a serious inequity in the Basin Plan, as espoused in the “Guide”.

While GVIA is very strongly of the above view, it also recognises that the current government appears committed to delivering a Basin Plan prior to the expiration of the current water sharing plans, and therefore GVIA makes the following points about the foundation of the Basin Planning process.

Despite attempts by some to argue to the contrary the Water Act is a very poor foundation to try to build a sound Basin Plan.

The Water Act has two main flaws:

1. Its inability to take into equal consideration the social, economic and environmental consequences of actions proposed under the Basin Plan; and

2. It's sole focus on delivering volumes of water to repair perceived environmental problems, rather than being able to take a holistic management approach.

With regards to the first point GVIA is well aware that there is a view within Government that the Act does allow equal consideration of the environmental, social and economic outcomes, however this is precluded by Section 21 of the Act which clearly makes the social and economic consequences subservient to the environmental outcomes.

GVIA has seen some of the legal advice that has been released by the Government on this matter, but also understands that further, more detailed advice has been provided to the Murray-Darling Basin Authority that has confirmed the position that the Act does not allow equal consideration of the social, economic and environmental. GVIA calls for the public release of all legal advice that has been sought by the Federal Government, the Murray-Darling Basin Authority or any other Federal Government Agency. This legal advice should be closely examined by this inquiry.

GVIA notes that the recent announcement by MDBA Chair Mike Taylor of his impending resignation made it clear that his view, having chaired the Authority for approximately 18 months, was that the Act does not allow equal consideration, and it should.

GVIA is aware that at the end of the day the Basin Plan will be a plan approved by the Parliament and subject to the disallowance provisions of parliament; a pragmatic approach maybe not to worry about the Act, and trust the Minister and the Parliament to ensure a balanced Plan.

However, GVIA sees little point in creating the Murray-Darling Basin Authority, resourcing it to do a job, but limiting its capacity to develop an acceptable Basin Plan due to a poorly constructed Act.

GVIA strongly recommends amending the Water Act to ensure this initial Basin Plan, and all subsequent versions of it are built on the foundation of a Water Act that allows equal consideration of the environmental, social and economic consequences.

In relation to the second point, GVIA is very concerned that the only "weapon" in the Basin Plan's arsenal is the provision of volumes of water, and to a lesser extent, the timing of water releases. This is essentially a hydrological response, and the nonsense

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of this approach is highlighted by a review of the Murray-Darling Basin Commission's (the Authority's predecessor) 2007 Sustainable Rivers Audit.

This audit, in the Gwydir Valley found the hydrology to be in "moderate to good condition" (the same range targeted by the Basin Plan), but found fish and macro-invertebrate conditions were poor. Yet the Basin Plan proposes to fix the health of the catchment by simply adding water!

GVIA strongly argues that the only sensible way to approach a Basin Plan is to adopt a holistic management approach, which addresses specific and defined environmental problems at an individual catchment level, which will then have a positive flow-on effect throughout the whole Basin.

The success of the plan would require full cooperation by all relevant agencies at a catchment, state and federal level, coupled with genuine engagement with the communities of the Basin.

GVIA proposes a sound Basin Plan would:

1. Clearly identify the environmental, social and economic priorities at an individual catchment level, including development and acceptance of measurable targets.
2. Identify a range of actions/management regimes that could be applied, allowing a genuine choice to optimise the social, economic and environmental outcomes.
3. Initiate selected actions/management regimes, utilising a continuos cycle of adaptive management improvement.
4. Have regular and transparent measurement and reporting of performance against the targets.

By way of example, an identified target may be to restore native fish numbers in a particular stretch of river.

The current Basin plan approach would be limited to two responses – additional water flow and release timing.

However, if the water is to be released from the bottom of a deep storage (for example a headwater storage with no multi level off-takes), it is highly likely that no matter how much additional water was released, it would be too cold to allow for successful fish breeding.

Under this scenario, the provision of the additional water would come at a great social and economic cost, but would provide no environmental benefit.

A more holistic approach might involve the addition of a lesser amount of water, the construction of a multi-level off-take allowing temperature control of water release, the construction of fish ladders and the re-snagging of sections of the stream.

This approach is likely not only to significantly increase native fish breeding, but could come at a much lower social and economic cost to the catchment community.

The approach described above would require genuine co-operation between all levels of Government, but offers a much greater chance of ensuring genuine environmental gains, while optimising the social and economic health of the catchment community.

Later in this submission GVIA will highlight a number of specific flaws in the Basin Plan, as it is currently presented in the recently released "Guide".

Specific Response to the Terms of Reference

(a) the implications for agriculture and food production and the environment;

The Guide proposes an 89Gl to 121Gl cut in average diversions for the Gwydir Valley. This accounts for a reduction in irrigated agricultural production of between 15,000ha to 20,000ha, around 25% to 33% of the current average annual production area of 60,000ha.

There is no doubt that a Basin Plan that focuses on specific social, economic and environmental outcomes, rather than the very blunt instrument of volumes of water could deliver enhanced environmental outcomes while protecting social and economic values.

An 89Gl cut in annual diversion will cost the Moree farming production sector approximately $70 million in on-farm returns.

It must be noted that this money cannot be replaced by simply expecting farmers to change their water use to higher value crops.

The primary irrigated crop grown in the Gwydir Valley is cotton. It is not grown because the irrigators of the Gwydir Valley are wedded to growing cotton, it is grown because as a broad-acre annual crop it consistently returns the highest returns per megalitre, a provides the production flexibility to cope with a highly irregular water supply.

Large scale expansion of permanent horticulture is not an option for a whole range of reasons including production problems and the very real risk of over-supply. However, the single biggest impediment to horticulture diversification is the lack of a highly reliable, consistent supply of irrigation water.

Large scale irrigated horticulture would fail in the Gwydir Valley, just as it has on the Darling River at Bourke because of the highly cyclical nature of the water supply in the semi-tropical rainfall zone of Northern NSW.

According to the Gwydir Regulated River Water Sharing Plan (the most comprehensive water resource management plan that has been developed for the

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Gwydir) just 34% of total valley flows are extracted from the river system. At this level most fresh water ecologists agree that economic production and environmental sustainability can co-exist.

(b) the social and economic impacts of changes proposed in the Basin;

GVIA is convinced that a Basin Plan, as proposed in the Guide will do virtually nothing to improve the environment, and will only result in further calls for even greater environmental flows when the first iteration of the Plan is reviewed.

This will result in, amongst other things, the continued decline of once vibrant rural communities such as Moree.

Both the Guide and the Judith Stubbs Report into the Resilience of Rural Communities Facing Cuts to Water Availability highlights the fact that towns like Moree are highly dependant on water availability, as irrigation is such a major driver of their economies.

This academic recognition has been verified by the massive employment and population loss that was experienced by Moree during the past 8 years of drought.

It is estimated that Moree Plains Shire Council lost in excess of 2000 people from its population over this period, and over 130 businesses closed their doors.

The Judith Stubbs report, by its own admission very conservatively estimates that a 25% cut in water availability (less than the minimum amount proposed by the Guide" will result in the permanent loss of 232 jobs, and a population loss of 649 people. Socio-Economic analysis by the NSW Irrigators Council, using Australian Bureau of Statistics Data, estimated much higher job losses (in excess of 1000).

While there is limited value in determining a definitive job loss figure, it is clear that if job losses in the Gwydir are a minimum of 232 (and possibly in excess of a 1000), the Guide's claim of only 800 jobs across the nation is a complete nonsense.

The social/economic impact of the Guide is clearly placed in context by viewing the graph on page 130 of the Guide which shows that under the 4000Gl Scenario, the new average water availability will be in line with the water availability experienced across the Basin over the past 8 years of drought. Overlay this with the loss of employment and population that was experienced by communities like Moree over that period and you get a very clear picture of the social and economic impacts that will be brought about by the introduction of the new sustainable diversion limits.

The worst part about this is such massive cutbacks in water availability would be unnecessary if a holistic approach to environmental management was taken.

(c) the impact on sustainable productivity and on the viability of the Basin;

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GVIA is strongly supportive of having both a sustainable and viable Basin, and this would be achievable if a holistic approach was taken to environmental management, using a mix of additional water, environmental works and measures, and better water management.

The very blunt approach espoused by the Basin Plan will slash agricultural production in the Gwydir by at least 25%, with very little chance of delivering long-term and effective environmental outcomes. That 25% decline in output, will result in an annual farm-gate loss of production in the order of $70 million to $100 million, with an impact on the regional economy in the order of $300 million to $400 million.

It should be noted that the Commonwealth Government has already invested over $200 million in purchasing general security and supplementary water entitlement in the Gwydir Valley, and would have to double or triple this expenditure if it wishes to achieve its aim of acquiring between 89Gl and 121Gl of long-term Cap Equivalent water entitlement.

Far better outcomes could be achieved by investing this amount of money, or less, to construct a range of environmental works in the Gwydir including, but not limited to;

- Fishways
- Riparian zone exclusion fencing
- Re-snagging
- Piping for the delivery of Replenishment Flows
- Targeted earthworks to contain environmental flows within the Gwydir Wetlands
- Multi-Level off-take on Copeton Dam to combat cold water pollution.

(d) the opportunities for a national reconfiguration of rural and regional Australia and its agricultural resources against the background of the Basin Plan and the science of the future;

A sensible basin plan that truly balances the competing interests of the environment, society and economy by having clear targets and strategies does offer exciting possibilities for reconfiguring the Basin.

However, there needs to be some reality checks – water is heavy, it requires a lot of energy to shift. Energy is likely to be as a great a challenge for the world in the future as water.

Irrigation systems must be either economic or supported by government for reasons of food security or nation building.

Government should not try to dictate irrigation systems to individual irrigators – it must be recognised that when it comes to irrigation systems there is no such thing "as one size fits all."

(e) the extent to which options for more efficient water use can be found and the implications of more efficient water use, mining and gas extraction on the aquifer and its contribution to run off and water flow;

The irrigators of the Gwydir Valley will continue to make incremental improvements in irrigation water use efficiency. The high capital cost of irrigation entitlement provides significant incentive to undertake all economically feasible efficiency improvements.

Government on-farm irrigation efficiency programmes have been of limited attractiveness to irrigators in northern NSW to-date. While these programmes have distinct advantages to the community because some of the savings are retained by irrigators for economic use within the valley, there is a general reluctance among irrigators to return water entitlement to the Government for environmental use.

To be attractive to irrigators these programmes must offer a significant premium over and above the market price for water. The justification for Government and the taxpayer is that these programmes retain economic capacity in communities, which would otherwise require significant government expenditure on welfare and other social support.

Currently there is a significant disincentive for northern NSW irrigators to participate in the government projects offered to date, with the effective price for the water under this programme being approximately 1.5 times the market price. By comparison, similar projects in the southern basin are effectively "paying" three times or more the market price to ensure irrigator participation in the on-farm irrigation efficiency projects.

It is also important to note that in valley's like the Gwydir, with highly variable water reliability; high tech, high energy and high capital cost irrigation infrastructure systems such as drip (and to an extent lateral move or centre pivot systems) are only going to appeal to a limited number of irrigators. For many, the most sensible irrigation efficiency project is to minimise the surface area of storages, so that evaporation loss will also be minimised.

Government should not fall into the trap of believing there is one ideal irrigation delivery system for all circumstances, and must accept that when it comes to irrigation systems it is very much a case of "horses-for-courses", and the irrigator is the best placed person to decide what works for his or her system.

Irrigators, like all successful business people are constantly looking to new technology for efficiencies, and one of the very positive things about the Australian cotton industry is that over the long-term it has been profitable enough to allow its growers to effectively invest in new technology.

Cotton growers will continue to seek water efficiency through, amongst many other things, the adoption of better plant varieties (converting more crop per drop),

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improved irrigation scheduling tools and the advancement of polymer technology which promises, if commercialisation can be achieved, to significantly reduce evaporation from storages.

Off the farm, emerging technology in the form of Computer Aided River Management Systems offer the promise of more efficient water deliveries.

Major infrastructure programmes like the re-configuration of Menindee Lakes, which some reports suggests has the potential to reduce evaporation losses by up to 200Gl per annum should be a national priority.

With regards to the interaction of mineral mining and water resource management GVIA would urge a cautious approach. While the issue has not been a significant one in the Gwydir to-date, it is clear from the experiences of other valleys that it is one of major concern.

As a minimum, water which is a by-product of the mining industry should only be allowed to enter a river or creek system if its quality is of a standard equal or higher than the quality of the water that naturally flows in the system.

However, the issue is bigger than just the quality of return flows. The interaction of various aquifers must be fully understood before mining occurs in any manner which may put the quality and integrity of aquifers used for human, stock or irrigation consumption at risk.

(f) the opportunities for producing more food by using less water with smarter farming and plant technology;

These opportunities will always emerge when adequate resources are devoted to research and technology. In terms of greater water efficiency, the aim must be to always produce "more crop per drop". In some cases this make actually involve a greater application of water per hectare, but as long as it results in the total production per megalitre increasing it should be accepted as genuine water use efficiency.

Based on the impact of research over the past couple of decades, the greatest gains in "efficiency" have been achieved through the development of better plant varieties.

Work on more even irrigation application, reducing saturation times, and better irrigation scheduling has also played their part.

Government should be very careful in trying to "pick winners" here, but should ensure that the industry environment encourages good research and adoption, providing irrigators with a broad range of options to improve their overall efficiency.

In most cases the economic incentive to maximise the return from an irrigator's investment in water licences will ensure the rapid adoption of new technology when in offers true advantages.

(g) the national implications of foreign ownership, including: (i) corporate and sovereign takeover of agriculture land and water, and (ii) water speculators;

GVIA has long held the view that the ownership of water should be subject to the same foreign investment rules that apply to other Australian assets. It does not see any compelling justification for specific rules to cover the irrigation industry.

One of the features of water is that it cannot be readily exported in its natural state, so regardless of the nationality of the owners , the primary use of the water will always occur in Australia.

With regards to speculators, in general GVIA has seen no evidence of deliberate market manipulation. In fact the closest that has occurred has been the activity of the Commonwealth Government in the water market. In this regard we have the largest player in the market also being, if not the most significant, one of the most significant policy setters in the water sphere.

It is highly unlikely that bodies like the Australian Competition and Consumer Commission would allow any other organisation to set the rules and be a major market player, but this is exactly what the Commonwealth has been doing. This can be clearly evidenced by the range of prices paid in the various Southern Basin water tenders, were the price fluctuations can be directly linked to changes in joint Federal/State water policies.

(h) means to achieve sustainable diversion limits in a way that recognises production efficiency;

As described in GVIA's opening comments the means to achieving sustainable diversion limits can be summarised as follows:

1. Clearly identify the environmental, social and economic priorities at an individual catchment level, including development and acceptance of measurable targets.
2. Identify a range of actions/management regimes that could be applied, allowing a genuine choice to optimise the social, economic and environmental outcomes.
3. Initiate selected actions/management regimes, utilising a continuos cycle of adaptive management improvement.
4. Have regular and transparent measurement and reporting of performance against the targets.

If the above four points are carried out, utilising an holistic approach to environmental management water, then the remaining water will naturally gravitate to the highest value use within the constraints of it hydrological, market, and production

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environment.

(i) options for all water savings including use of alternative basins; and

While GVIA is broadly supportive of the development of alternative basins, its sound the following words of caution.

In the current user pays environment, any development must be economically feasible and allow for a reasonable rate of return to the irrigator.

For example, if it will cost irrigators in the Gwydir $1000 per megalitre of water delivered from a Clarence Diversion scheme there will be no takers, if the cost is in the order of $200 to $400 per megalitre there may be some interest, if the cost is less than $100 per megalitre there will be plenty of interest.

Government has two clear choices in this area, it either subsidise the cost of these schemes to ensure food security and the strength of regional economies or it only support the development of schemes that have the capacity to be funded by the users.

Both are legitimate choices for government, but it does need to decide which choice it wishes to make.

(j) any other related matters.

The following are extracts from the Gwydir Valley Irrigators Association's Submission to the Murray-Darling Basin Authority on the MDBA Plan

Current Water Sharing Plans Have Not Been Given the Opportunity to Operate Through a Complete Climate Cycle

GVIA is strongly of the belief that there is no justification for any significant adjustment of the water sharing rules as they are articulated in the NSW Water Sharing Plans that were introduced in the Gwydir Valley in 2004 and 2006.

These water sharing plans were designed to ensure sustainability, and to operate across the full range of climate cycles.

However, up until the past couple of months, these plans have only had the opportunity to operate during the extended dry period which has been consistently described in a 1-in-100 year drought.

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

All water sharing plans operating in the Gwydir Valley have demonstrated their ability to manage prolonged dry sequences. The Gwydir Regulated River Water

Sharing Plan is openly acknowledge to fairly share the water resources of the valley in both wet times and dry.

During the drought the Gwydir 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 July. When the drought broke there was still some 17,000Ml of water in the Environmental Contingency Account which demonstrates that environmental managers had adequate resource to manage through this record dry time.

By any measure, the Gwydir Water Sharing Plans have achieved their purpose of maintaining the environment at a level that allows full response to the climatic conditions that its faces.

With the return to what appears to be the start of a wet period, there is no justification to inflict further water resource cutbacks on the community of the Gwydir Valley, at least and until, there is clear evidence that the Gwydir Valley Water Sharing Plans are not delivering long-term sustainability.

Specific Concerns in the Guide Impacting on the Gwydir Catchment

Terminal Nature of the Gwydir River

A key concern for GVIA is the Guide's calculation of the level of without development outflows from the Gwydir catchment.
GVIA is disgusted by the use of numerous maps by the Authority (both in the Guide and public presentations) that shows a defined river course linking the Gwydir River with the Barwon.

No such defined courses exist, and GVIA challenges the Authority to ground-truth the course of the Gwydir Wetlands. Both the Gingham and the Lower Gwydir watercourses terminate on the floodplains to the west of Moree. Direct flows into the Barwon would only occur during major floods, in a manner not much different pre- or post- development.

Table 5.1 (pg 47 Vol 1) shows the Gwydir as having total inflows of 1,131Gl (compared with 1,141Gl in the Gwydir Regulated River Water Sharing Plan), pre-development outflows are shown as 429Gl or 38% of inflows.

The pre-development outflow percentage for the Border Rivers is shown as 36% and for the Namoi River is 39%.

Given that the Gwydir catchment is in effect an inland delta with a terminal wetlands system, it fails the "commonsense" test that its pre-development outflows could be greater, or virtually the same as the two adjacent river systems which are classic "flow-through" river systems with no terminal wetlands.

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While GVIA is not in the position to provide detailed hydrological information to refute the "Guide's" outflow assumption, it does provide the following information for consideration by the Authority:

1. The assumption fails the "commonsense" test, as the pre-development outflow percentage figure for the Gwydir is greater than percentage figure for the Border Rivers.

2. Historically, the people of the Gwydir Valley have been told by the NSW Office of Water (NOW) and its various predecessors that outflows from the Gwydir system were in the order of 7-10%, with almost all the outflows occurring during period of significant flooding.

3. There is ample anecdotal evidence and observations from long-term residents of the Gwydir Valley that can confirm that significant outflows only occurred during periods of major floods. GVIA can provide the Authority with contact details of Gwydir Valley residents who can clearly articulate the flow patterns of the Gwydir Valley.

4. There has been significant re-engineering of the Mehi River and Carole Creek channels, which allows a level of outflow that was never possible pre-development, and GVIA does not believe these changes have been fully considered in the Authority's modelling.

5. The Murray-Darling Basin Commission's *State of the Darling Hydrology Report* – March 2007 Table 7 (p22) flagged considerable uncertainty re the contribution of the Gwydir to the Darling during to the lack of pre-development data on the division of flows between the Mehi and the Gwydir.

6. Figure 6.1 in the Guide indicates the level of wetland and floodplain inundation thought to occur in a 1 in 10-year flood. It should be noted how little the inundation spreads to the bottom of the Gwydir Valley, confirming GVIA's position that there was only significant contribution during large to very large floods (there has been approximately five of that magnitude since 1945), and that in most events the floodwaters are soaked up by inundation across the extensive floodplains of the Gwydir Valley.

7. GVIA believes that river gauge data, obtained at the bottom of the Mehi and Gwydir system is flawed because it has been influenced by water backing up from the Barwon River, rather than accurately recording flows that originate from the rivers that the gauges purport to measure. GVIA believes it is imperative that the Authority investigate the accuracy of these gauges, and determine the impact inaccurate readings have had on the modelled outcomes.

Current Diversion Limits

GVIA notes the Diversion Limits has they appear in Table 5.2 of the Guide. At this stage GVIA neither accepts nor rejects the modelled numbers, as it has not been provided with any detailed information on how they have been calculated. The numbers certainly do not correspond directly with the numbers used in the Gwydir Regulated Water Sharing Plan, and therefore they are not familiar to GVIA.

The estimates on diversions in particular, and lack of clear information on what has been included or not included make it extremely difficult for GVIA to assess what level of confidence it can have in the Authority's numbers.

Environmental Water Requirements

As GVIA understands the Guide, it is proposing a decrease in the Gwydir's current diversion limits (as determined by the Authority) by between 89Gl and 121Gl (The range is determined by whether the overall target reduction for the Basin is 3000Gl or 4000Gl).

Further, GVIA understands that the additional environmental water is being sourced for in-catchment health and not to provide additional flows in the Barwon-Darling.

However, as a consequence of providing additional in-catchment flows, catchment outflows will increase by between 47Gl and 64Gl.

GVIA understands that in the in-catchment health drivers for the Gwydir are the water requirements for the hydrological indicator site of the Gwydir Wetlands, and the requirements of the four ecosystem function sites.

However, GVIA has not been able to identify in the Guide any justification for the additional water sought by the Guide. Infact the Guide, and supporting documentation, appears to indicate that no further water is needed.

Appendix B (Vol 2) starting at page 535 details in the Authority's view the environmental water requirements of the Gwydir Wetlands.

Tables B5.3 & Table B5.4 documents the Guide's view on the current areas of wetland vegetation in the Lower Gwydir and Gingham Channel regions.

The total area of semi-permanent wetlands of between 8,192 and 6,829Ha appears to be in the order of what GVIA would expect, although GVIA has done no mapping or ground-truthing and is relying on information supplied to the Gwydir Environmental Contingency Allowance Operations Advisory Committee (GECAOAC).

However, GVIA strongly disputes the areas outlined in Table B5.4 of the various levels of floodplain vegetation. There simply is not anywhere near 70,000ha's of natural Coolibah of Coolibah-Black Box Woodland within the Gwydir Wetlands area.

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For a whole range of reasons, primarily lippia control and the expansion of dryland cereal farming, the areas of natural woodlands have been reduced, and cannot be restored.

It is imperative that prior to the Authority determining the environmental water requirements of the Gwydir Wetlands that it conducts a rigorous vegetation mapping process of the area known as the Gwydir Wetlands.

In reviewing the Environmental Water Requirements for the Gwydir Wetlands, as they appear in Table B5.9 (P 544, Vol 2, Part II) GVIA believes it confirms it view that the environmental water needs of the Gwydir Wetlands (despite the inflated vegetation figures discussed above) are being more than met by the current water management regime, as determined by the Gwydir Regulated River Water Sharing Plan.

The table lists Seven Flow rules that need to be met to ensure the environmental health needs of the Wetlands.

Of the seven, current conditions exceed the pre-development achievement of these conditions, and the other four fall within the range identified by the Guide to meet the environmental objectives.

An eighth flow rule, designed to meet the needs of the Mallowa Floodplain Wetlands, is by the Guide's own admission a manufactured flow rule, and it is already being largely met by provision of the Mallowa replenishment flow.

Therefore, there does not appear to be any argument identified in the Guide to suggest any of the additional 89Gl to 121Gl of water is required to meet the requirements of the Gwydir Wetlands.

Further, there is on-ground evidence, resulting from the improved inflow conditions of the valley, that confirm that the environmental water needs of the Gwydir Wetlands are being met by the requirements of the Gwydir Regulated Water Sharing Plan.

The Authority needs to consider that:

- natural inflows, occurring since July 2010 under current water sharing plan rules, have completely inundated the Gwydir Wetlands
- The inundation is to the extent that the Commonwealth Water Holder has opted not to take supplementary flows allocated to it over the Spring
- No water that has accumulated to the 105,000 megalitres of general security entitlement owned by the NSW Government and the Commonwealth has been used. Both the NSW Government (through its Environmental Contingency Allowance and River Bank Licences) and the Commonwealth Water Holder now have in excess of 85,000 megalitres of water stored in Copeton Dam, and the previous greatest release of environmental water was approximately 20,000 megalitres to sustain a bird breeding event.

There has been significant flooding of dryland wheat fields above, below and adjacent to the Gwydir Wetlands this season, further demonstrating that the environmental water requirements of the remaining wetlands are lot lower than has been argued.

It is important that the authorities use this period (when environmental water is available) to determine, through adaptive management, the true environmental water requirements of indicator sites such as the Gwydir Wetlands.

As GVIA understands, the second requirement for in-catchment health is to restore the hydrological performance of the various streams by returning flow regimes to between 60% & 80% of pre-development flows.

The four sites chosen are the following gauges Gwydir at Collymongle; Gwydir at Pallamallawa, Gwydir Downstream of Copeton Dam and Gwydir at Stonybatter.

GVIA notes that these four sites are four of the five sites assessed as part of the 2007 Sustainable Rivers Audit (SRA) conducted by the then Murray-Darling Basin Commission.

As an aside, GVIA is very disappointed, that despite receiving a letter dated 24-9-2009 from the Authority's Dr Michael Wilson acknowledging the SRA was in error in its assessment of the hydrology of Tycannah Creek at Horseshoe Lagoon, and undertaking to correct it in both the print and web version of the SRA, the correction has not taken place.

This lack of action makes it very hard for GVIA to put much faith in the Authority's commitment to the "best available science".

With regards to the selected hydrological indicator sites, judging on the score received by the sites in the SRA the hydrology is already operating within the "moderate to good" level sought by the Authority, and therefore there is no justification for reduced sustainable diversion limits to meet hydrological requirements.

However, GVIA would recommend that the Authority review the High Flow Event score received by Gwydir at Collymongle as this appears to be an anomaly having only scored 33.

GVIA does not believe that it makes sense that this site should be severely affected by changes to High Flow events, but score highly for all the other measures.

In summary, the Authority has failed to make a case for additional in-catchment health water for the Gwydir.

The Authority's assessment shows the water needs of the Gwydir Wetlands are being met by the provisions of the Water Sharing Plan, and this position is supported by the current experiences of the environmental water managers.

With regards to the requirement to restore flows regimes to 60-80% of their pre-development level, as measured at four hydrological indicator sites, the Authority has singularly failed to present any detailed information to justify its claim.

In the absence of that information GVIA has relied on the SRA, and it shows that the Gwydir Catchment is already operating at the "moderate to good" level desired by the Authority.

Should the Authority, after reviewing this submission, still argue that additional in-stream health water is required, then it must clearly, and specifically articulate the drivers for the additional water.

GVIA takes this opportunity to point out that it believes that approach taken by Authority to try and justify additional environmental water for in-catchment health is flawed. It has failed to:

1. Identify the specific environmental problem.
2. Identify the range of actions that might be taken to remedy the problem.
3. Determine the least impact way of remedying the problem.
4. Identify how a successful remedy may be measured.

In GVIA's view, the Authority has adopted a simplified, one-size-fits-all approach that fails to take into account the environmental characteristics of all catchments.

Groundwater Requirements

Due to the fact that the Guide has not identified any need for additional cuts to the Sustainable Diversion Limits for the three groundwater zones in the Gwydir Valley, GVIA has not as closely studied this section of the Guide, as it has other parts.

However, GVIA is confused how the Authority could assess all the major NSW Groundwater Zones that were subject to the Achieving Sustainable Groundwater Entitlement (ASGE) programme, and find some were at sustainable yield and other were not.

Therefore, GVIA asks the question that if some groundwater sources were found by the Authority to be operating at above sustainable yields, were any of the ASGE groundwater sources assessed as operating below sustainable yield?

If such an assessment was not done, GVIA request that it be done.

Socio-Economic Impacts

One of the very disappointing aspects of the Guide is the blatant attempt to under estimate the social and economic impacts of the proposal.

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The ridiculous assumption that the proposal would only cost 800 jobs across the Basin (an assumption that the Authority stopped defending almost immediately) clearly indicates that the Authority was not serious about truly calculating the human cost of the plan.

GVIA does note that the Authority recognises that the impacts on highly water dependant communities like Moree will be significantly affected.

GVIA believes one of the most telling graphs in the whole Guide appears on Pg 130 (Vol 1) that clearly shows that if the Guide was adopted at the 4000Gl level, water availability across the basin would be at the same level as experienced over the past eight severely drought affected years.

A simple way of calculating the economic impact on Moree would be to record the level of population and business loss that occurred between 2001 and 2010.

Moree Plains Shire Council estimates that approximately 2000 people were lost from the Shire.

GVIA would recommends that the Authority adopt the Judith Stubbs report "Exploring the Relationship between Community Resilience & Irrigated Agriculture in the Murray Darling Basin" as the definitive study into the likely impact of losses in water availability.

The report identifies that a reduction in water availability in the Gwydir of 25% (just less than the impact of the 3000Gl proposal) would result in the loss of 232 jobs and 649 people from the shire. It should be noted that by the reports own admission job loss estimates are considered to be very conservative.

GVIA's analysis suggests that average irrigated production would fall by somewhere between 15,000ha and 20,000ha (current average 60,000ha), result in a loss of farm-gate value in the order of $70 million to $120 million.

While GVIA supports the Authority carry out more detailed and relevant socio-economic studies, GVIA is concerned that the studies will in effect become nothing more than a "body count", when the real emphasis should be placed on finding ways to achieve the desired environmental outcomes at the least possible cost to the community.

This can only be achieved if the Authority is given the mandate to extend "tool-kit" to include non water volume solutions.

Submission Concludes