



I N L A N D  
R I V E R S  
N E T W O R K

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## **Sustainable Diversion Limits Issue Paper Submission**

The Inland Rivers Network (IRN) is a coalition of environment groups and individuals concerned about the degradation of the rivers, wetlands and groundwaters of the Murray-Darling Basin. It has been advocating for the conservation of rivers, wetlands and groundwater in the Murray-Darling Basin since 1991. Member groups include the Australian Conservation Foundation; the Nature Conservation Council of NSW; the National Parks Association of New South Wales; Friends of the Earth; Central West Environment Council; and the Coast and Wetlands Society.

IRN would like to thank you for the opportunity to comment on the Sustainable Diversion Limits (SDL) discussion paper. We offer the following contributions to your deliberations on this very important advance in the management of the ecological health and integrity of the Murray Darling Basin (MDB) water sources.

The Water Act 2007 has a core objective to 'give effect to relevant international agreements' through the development of a Basin Plan. These agreements as listed in s4 of the Water Act are:

- The Ramsar Convention (wetlands of international importance)
- The Biodiversity Convention
- The Desertification Convention
- The Bonn Convention (conservation of migratory species of wild animals)
- CAMBA (China-Australia migratory bird agreement)
- JAMBA (Japan-Australia migratory bird agreement)
- ROKAMBA (Korea-Australia migratory bird agreement)
- The Climate Change Convention

The matters that should be given effect through the Basin Plan include sustainable use of resources, biodiversity, water quality, salinity, indigenous water use, resource and environmental monitoring, wetlands, principles of ecologically sustainable development and environmental asset protection.

IRN believes that the current approach of developing SDL prior to defining the environmental watering requirements across the whole MDB is counter to some of the key elements of the Water Act. The establishment of the Environmental Watering Plan and the Water Quality and Salinity Management Plan would jointly inform the environmentally sustainable level of take which is the basis of the SDL. To develop these first would be a more consistent approach to achieving the core ecological objectives of the Water Act.

### **1. Key environmental assets:**

Throughout the Murray-Darling Basin altered and reduced environmental flows have resulted in the loss of 90<sup>1</sup> per cent of floodplain wetlands.

Because of this historic loss, all remaining wetland areas should be considered to be key environmental assets regardless of their condition. The return to an SDL should allow degraded wetland areas to improve and be restored. All remnant water-dependent ecosystems have high conservation value because they are irreplaceable.

### **2. Key ecosystem functions:**

The process of identifying environmental water requirements needs to acknowledge that key ecosystem functions have already been severely compromised within the Basin.

The simplification of the key ecosystem functions down to three physical processes, to assist modelling parameters, is a continuation of the compromises placed on environmental knowledge and on-ground outcomes.

The set of performance targets developed for the three processes i.e.

- Inundation of river beds, banks and floodplains
- Material mobilisation, transport and dispersal
- Lateral, longitudinal and vertical flow connectivity

are inadequate and must include targeted beneficial improvements to these functions and the associated ecological assets. Maintaining the status quo is not acceptable. Therefore setting of SDL must reverse the ongoing decline of water-dependent ecosystems in the Basin.

The focus on physical processes to the detriment of chemical and biological components is a major concern. A better approach would be to clearly articulate the chemical and biological needs of water dependent ecosystems, natural habitats and species, develop the water quality and salinity management plan and then identify the key ecosystem functions required to deliver those needs.

A range of defined water quality functions and biological functions (eg as defined in Native Fish Strategy) should be reflected in this part of the SDL development.

### **3. Productive base and key environmental outcomes**

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<sup>1</sup> Hankinson and Soutar. (2008) *Darling Values Report*. Inland Rivers Network, Sydney.

There is an indication that the MDBA will conduct a case-by-case assessment of an SDL to ensure that providing sufficient water, to protect key environmental assets and key ecosystem functions, will also provide sufficient water for the productive base and key environmental outcomes.

There is no indication of how this case-by-case assessment will be achieved.

## **ISSUES:**

### **1. Which Water Resource Plan areas should be used?**

***What are your views on the proposed approach to determining WRP areas as set out in this paper?***

IRN supports the concept of WRP at a catchment scale. However, it is imperative to identify the known links between groundwater and surface water systems and to resource appropriate investigation into those areas where knowledge of groundwater system connectivity is limited.

Figure 3, p.55 shows a significant surface water-groundwater interaction in key river systems across the Basin.

***Do you have any suggestions you would like to provide to the MDBA in this regard?***

The catchment WRP must include groundwater interactions.

IRN strongly disagrees with the suggested general approach to set separate SDLs for surface water and groundwater. This approach will not lead to an improvement in sustainable water management in the MDB. Improved monitoring and more resources into gaining more knowledge about the connectivity between groundwater and surface water systems will enable joint SDLs to be developed.

It is a major concern that the extent of the ground water model is only in the southern Basin. The northern Basin also has significant connectivity and requires improved modelling.

There is no indication of the influence of the Great Artesian Basin groundwater recharge and discharge areas which are significant in parts of the MDB.

The discussion paper indicates that economic & social assessments will inform how, where and when water can be delivered to meet environmental requirements at least social & economic cost. This is a further compromise to the achievement of the core ecological objectives of the Water Act. The Environmental Watering Plan should provide the key information about the delivery of water to meet environmental requirements.

There needs to be major resources allocated to improve knowledge of environmental assets and needs.

### **2. Which forms of 'take' should be limited by the SDLs?**

***What are your views on the proposed approach to 'take' limited by SDLs, as set out in this paper?***

The paper does not identify 'basic rights' as defined under NSW Water Management Act 2000. IRN's view is that the Basin Plan needs to identify how to put a limit on growth of 'basic rights' take. This form of water take is un-metered, unlicensed and difficult to quantify. At times of low flow, 'basic rights' take can have a significant impact on base flows in unregulated streams, particularly in times of low rainfall. The capacity for 'basic rights' take to grow is currently unfettered, particularly in new subdivisions in rural residential areas.

IRN objects to this unmanaged growth of water use. It must be identified as take when developing the SDL and growth restricted accordingly.

The use of industrial water under town water supply licenses must also be identified. Currently under the NSW Water Management Act 2000, town water supply can continue to grow. The licensing arrangements around urban water supply must be closely considered under the SDL arrangements.

The uses of water for critical human needs must be clearly defined. It should not include watering lawns and rose gardens.

IRN believes that the incidental interception of mining operations on surface flows and aquifer interference is a major issue that needs to be addressed. Mining disturbs springs, destroys aquifers and interrupts water sources at the headwaters of catchment systems eg Cadia Gold Mine near Orange, Lake Cowal Gold Mine, Ulan Coal Mine north of Mudgee is planning to cross beneath the Great Dividing Range and intercept headwaters of the Talbragar River in the Macquarie catchment, the proposed Cobbora Coal Project east of Dubbo will also intercept ground water and surface water flows to the Talbragar River.

The destruction of irreplaceable groundwater systems has a major impact on ecosystem health and ecological function. The disruption of the natural capacity to store water in the landscape and subsequent loss of base flows needs to be closely considered.

The connectivity between surface water and groundwater, particularly with alluvial aquifers, needs to be clearly understood when defining take. This connectivity is important for both aquatic and terrestrial biodiversity reasons.

### **3. How should interception activities be treated?**

***What are your views on the proposed approach to treating interception activities as set out in this paper?***

The key issue with interception activities is their cumulative impact on the hydrology of the Basin. The SDL discussion paper identifies that farm dams greater than a certain volume may require suitable management approaches such as a water access license equivalent to the volume being intercepted. However, the existing volume of water intercepted by farm dams needs to be quantified and calculated in the SDL.

There is an extensive amount of on-farm private storage dams whose total volume now rivals that of the major public dams (MDBC, 2006). Evaporation from these private dams in combination with evaporation from public dams is equal to about 25% of the average flow in the Darling Basin's rivers (MDBC, 2006).

There are also many "hillside dams" in the Basin, primarily in the east on the slopes coming down from of the Great Dividing Range. Though small, their sheer number and placement has meant that they also have a large impact on water flows in the rivers. Total average annual volume of use and evaporation from hillside dams could be close to 1000 Gigalitres. This is about 20% of the total volume of water extractions and water storage evaporations for the Basin (MDBC, 2006). Future expansion of farm dams could further reduce water availability. CSIRO have estimated further losses of between 250 to 3,000 gicalitres/year over 20 years throughout the Murray-Darling Basin (Van Dijk et.al 2006).<sup>2</sup>

The cumulative impact of all existing interception activities needs to be assessed and adequately managed. The SDL discussion paper infers that new interceptions will be ongoing unless they are of a certain size. This is unacceptable and will lead to an ongoing increase in take beyond the SDL

***Which interception activities are significant enough to be explicitly identified in the SDL provisions.***

IRN believes it is critical for all forms of interception activity to be licensed and quantified as take in the SDL.

This will prevent the growth of interception activities in the future

Aquifer interference & surface flow disruption/diversion from both open cut and underground mining operations need to be fully quantified and licensed as take in the SDL;

All types of flood plain harvesting and water interception for flood mitigation purposes need to be accounted for in the SDL.

The 10% farm dam harvest rule in NSW and the volume held in farm dams across the state needs to be quantified and included in the SDL. This is particularly significant at time of low rainfall and run off and at times of drought breaking when empty storages capture all the first flow events.

Many farm dams intercept springs and ground water sources that would have formed base flows to creeks and water ways.

The interception of interconnected groundwater and surface water flows impacts on biodiversity and ecological integrity of aquatic and terrestrial ecosystems

**4. How should SDL provisions be determined in a way that optimises economic, social and environmental outcomes?**

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<sup>2</sup> Hankinson and Soutar. (2008) *Darling Values Report*. Inland Rivers Network, Sydney.

***What are your views on the proposed approach to optimising economic, social and environmental outcomes through SDLs as set out in this paper?***

The proposal to develop SDL before determining the environmental watering needs of the Basin will compromise the optimisation of ecological restoration. The bulk of the resources for developing the Basin Plan have gone towards socio-economic analysis. No adequate resources have gone into research and improvement of knowledge of the ecological needs of the Basin. The MDBA is relying on existing knowledge, which in many cases is very sparse or non-existent. The emphasis on least social and economic cost when considering water delivery to meet environmental requirements indicates a major compromise before the environmental requirements have been identified.

The discussion paper identifies that community involvement, including Indigenous communities, will have an important input to the social and economic choices reflected in the provisions of the Basin Plan. The emphasis appears to be on consultation around socio-economic issues to the exclusion of ecological knowledge.

While there is an indication that local Indigenous knowledge and recognition of ecological values will be sought in this process, there is no indication that local groups such as Field Naturalist societies will be consulted.

***What is the best way to maximise input from particular communities of interest in the time available?***

There are a large number of community groups in the Basin with detailed knowledge of the ecological values in their area of interest. These include Field Naturalist groups, branches and member groups of the peak environment bodies, environmental education groups and field study centres, Landcare, Bushcare, bird watching groups and other associations.

A questionnaire could be circulated to these groups asking for details of their on-ground knowledge of particular water dependent ecosystems in their area. These groups often have detailed lists of bird sightings, plant records and other observations that can build on the ecological information needed to understand the values of water dependent ecosystems across the Basin.

***Do you have any suggestions you would like to provide to the MDBA in this regard?***

A questionnaire could be developed in consultation with IRN and peak environmental bodies to collect on-ground environmental information from locally based interest groups.

The Basin Plan should be looking to achieve ecological sustainability as noted in the IUCN mission statement to which the Australian Government is a signatory.

The Basin Plan should be identifying inappropriate water use activities that are inconsistent with the international treaties identified in the Water Act objectives and not including them in the SDL.

**5. How should surface water-groundwater connectivity be dealt with?**

***What are your views on the proposed approach for dealing with surface water-groundwater connectivity as set out in this paper?***

As stated earlier in this submission IRN does not support separate SDLs for surface and groundwater systems where there is a high level of connectivity.

While the paper identifies that increased use of groundwater will lead to ongoing depletion of stream flow, there is no acknowledgement that surface water extraction also impacts on ground water recharge.

The recognition of existing double accounting of water source use, it is imperative that closely linked surface water and groundwater are licensed as the one water source in the SDL. This management arrangement has been achieved in the Wybong unregulated water sharing plan in the Hunter Valley and could easily be repeated in WRP in the MDB.

Connectivity with the Great Artesian Basin has not been identified in the discussion paper.

The depleted ecological condition of water dependent ecosystems in the MDB make it imperative that no further increases of groundwater use can be considered in the SDL

***Do you have any suggestions you would like to provide to the MDBA in this regard?***

It is essential that research into surface water and groundwater connectivity in the MDB be given a similar level of resources as the socio-economic analysis currently being undertaken.

The lack of well funded research into ecological function and hydrology of the Basin is one of the reasons for its current poor state.

**6. How should SDLs be set and expressed?**

***What are your views on the proposed approach to setting and expressing SDLs as set out in this paper?***

As previously stated IRN is of the view that a more consistent approach would be firstly define the environmental watering requirements across the whole MDB, and from this establish the Environmental Watering Plan, then establish Water Quality and Salinity Management Plan, and these should then jointly inform the environmentally sustainable level of take which is the basis of the SDL.

***Do you have any suggestions you would like to provide to the MDBA in this regard?***

Well resourced research and knowledge improvement is critical to get this process right. The MDB has had a significant number of planning processes in the past that have not achieved sustainable communities or ecosystem health.

The Basin Plan under the Water Act 2007 is the best opportunity to get it right. By rushing into the process and establishing SDLs before developing the Environmental Watering Plan and the Water Quality and Salinity Management Plan is making the same set of mistakes that past planners have made.

If the MDB is to be finally put on a sustainable footing in the context of climate change impacts, a solid understanding of the environmental needs and complexity of the hydrological systems is imperative.