



Proposed Basin Plan
Murray-Darling Basin Authority
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SUBMISSION ON THE PROPOSED BASIN PLAN
Submission to the Murray-Darling Basin Authority
by The Australian Institute of Landscape Architects

This submission has been prepared by an AILA inter-state working group and is underpinned by an appreciation of both the limitations imposed and the opportunities provided by the Water Act 2007 (Cwlth). Whilst the Act limits the Federal Government's scope and extent to which it can direct Basin states, the Plan offers invaluable opportunities to ensure the future well-being of Australia's largest piece of 'green infrastructure' and its human and natural communities.

The 'green Infrastructure' approach to planning and management now practised in contemporary economies parallels the similar deeply-held understandings in our indigenous communities concerning human dependence on the health of natural systems and demands collaborative, integrated, whole of government program delivery.

AILA commends the MDBA's efforts to date in assessing and acknowledging the varied social, economic and ecological aspects of the Basin. However, as this submission details, the Plan is currently an inadequate basis for the formulation of good governance recommendations.

The Plan is incomplete as an integrated water management plan and is presently an inappropriate document with which to inform and seek public comment. The AILA is of the opinion that further information and recommendation must be added to any future versions of the Plan in the form of:

- An appreciation of the benefits of changes in land management practices and what the related objectives for the Plan should be;
- Further review and explanation of options for the extent of planned ecological restoration coupled with an assessment of the potential ecosystem services values realised and infrastructure costs incurred;
- Consideration of identified indigenous and non-indigenous cultural landscape values and inclusion of responses to this in the Plan;
- Further supporting justification and detail of other key Plan recommendations.

On behalf of the AILA I thank the Authority for the opportunity to respond and request further opportunities to respond and provide relevant information or evidence in person or through future call for submissions.

Yours sincerely

Niall Simpson FAILA
AILA National President
29 March 2012



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1 INTRODUCTION

The Australian Institute of Landscape Architects (the AILA) is pleased to respond to the invitation to provide this submission to the Murray-Darling Basin Authority (MDBA) in response to the proposed Basin Plan (the Plan).

Since 1966 the AILA has been the peak national organisation representing the collective interests of the Australian Landscape Architecture professionals. Key Objects of the Company Constitution⁽¹⁾ oblige the AILA to:

- advance the study of landscape architecture and the related arts and sciences;
- promote and encourage the development of urban and rural areas on sound principles of landscape design; and
- bring matters affecting landscape architecture to the notice of government, municipal and other authorities, public bodies and associations and their officials, in all parts of Australia and elsewhere.

Members work across all levels of government, within the private sector and in education where the AILA accredits Australian tertiary courses in Landscape Architecture. Members provide a diverse range of professional services that relate directly to the key issues considered by the Plan and which include strategic planning, natural resource and land management, green infrastructure and sustainable settlement design and urban and open space construction services.

In partnership with the CSIRO Climate Change Adaptation Partnership, the AILA developed The Australian Landscape Principles which are relevant to the Plan and articulate an ethical decision-making framework for Australian landscape planning, design and management⁽²⁾.

The AILA is actively involved in the development, advocacy and implementation of National Policy Statements as referred to in detail below⁽³⁾.

2 SUMMARY OF THE AILA SUBMISSION – THE GREEN INFRASTRUCTURE CONTEXT

This submission has been prepared by an AILA inter-state working group and is underpinned by an appreciation of both the limitations imposed and the opportunities provided by the Water Act 2007 (Cwlth). Whilst the Act limits the Federal Government's scope and extent to which it can direct Basin states, the Plan offers invaluable opportunities to ensure the future well-being of Australia's largest piece of 'green infrastructure' and its human and natural communities.

The term 'green infrastructure' describes the multi-functional network of natural landscape assets which underpin the economic, socio-cultural and environmental health of our settlements⁽³⁾ and modern lifestyles. The Murray-Darling Basin covers 14% of Australia, produces 70% of the country's irrigated food supply and provides substantial ecosystems services for not only the 2 million residents of the Basin but for communities Australia wide and beyond.

The 'green Infrastructure' approach to planning and management now practiced in contemporary economies parallels the similar deeply-held understandings in our indigenous communities concerning human dependence on the health of natural systems and demands collaborative, integrated, whole of government program delivery.

AILA commends the MDBA's efforts to date in assessing and acknowledging the varied social, economic and ecological aspects of the Basin. However, as this submission details, the Plan is currently an inadequate basis for the formulation of good governance recommendations.

SUMMARY OF KEY POINTS

The Plan is incomplete as an integrated water management plan and is presently an inappropriate document with which to inform and seek public comment. The AILA is of the opinion that further information and recommendation must be added to any future versions of the Plan in the form of:

- an appreciation of the benefits of changes in land management practices and what the related objectives for the Plan should be
- further review and explanation of options for the extent of planned ecological restoration coupled with an assessment of the potential ecosystem services values realised and infrastructure costs incurred
- consideration of identified indigenous and non-indigenous cultural landscape values and inclusion of responses to this in the Plan
- further supporting justification and detail of other key Plan recommendations.

3 Land Management

3.1 THE AILA POSITION

The AILA believes that Land Management must be an integral part of the Plan and advocates an Integrated Water Resource Management (IWRM) approach⁽⁴⁾. The Plan does not adequately demonstrate such an approach and should be amended to give due recognition to Land Management as central to achieving and sustaining a healthy and viable Murray-Darling Basin.

The investigation of sustainable water use and the volumes of water required must be interlinked with the identification of sustainable land use practices and the integration of the management of all the resources within the Basin⁽⁵⁾.

KEY POINT
<p>The AILA considers sustainable Land Management as central to sustainable water management and advocates an Integrated Water Resource Management approach to the Plan. Encouragement of best practice Land Management is complementary to the objectives of the Plan and must be incorporated into it.</p>

3.2 UNDERSTANDING OF LIMITATIONS

The AILA recognises MDBA has limited powers to require Land Management actions in the Plan or in the water resource plans that it requires the Basin states to produce. The AILA particularly notes the statement in Chapter 9 of the 'Plain English summary' that *'The water resource plans will not directly regulate land use or land-use planning, management of other natural resources or pollution control'* and finds this unsatisfactory and an impediment to the future success of the Plan.

3.3 DISCUSSION

The AILA believes that the Plan must better encourage and promote Land Management as a core theme and consider incentives to Basin states to follow an IWRM approach to water resource planning. Such an approach not only recognises the importance of the Plan to the management of the Basin's limited water resources but it also provides the means to better manage the economic, social and environmental pressures on these resources.

In fact, the Plan does allude to Land Management but its importance is re-enforced inadequately. Many of the water quality and salinity issues raised in the 'Plain English summary' Chapter 9 and Schedule 8 are substantially Land Management issues yet specific Land Management actions to address these issues are not made⁽⁶⁾. Solutions to the effects of poor land management on water quality, salinity, soil erosion, loss of habitat and biodiversity, groundwater recharge rates, and soil health and fertility are well documented⁽⁷⁾ in other government policies dealing with IWRM but are absent from the Plan to its detriment.

Our Appendix identifies parts of the Plan that the AILA considers such actions should be amended to include Land Management actions and recommendations⁽⁸⁾.

The achievement of the Plan's objective of a 'healthy working Basin' ('Plain English summary' Chapter 5 – Management objectives and outcomes) appears improbable if the Plan continues to deal primarily with the volume of water that can be returned to the environment, and the management of that water, without advocating best practice Land Management.

3.4 RECOMMENDATIONS

The Plan should advocate the stimulation and encouragement of action in the following areas by means of education, government incentives (such as the 'Caring for Country' program ⁽⁷⁾), management of Crown Land and public land and provision of employment opportunities in regional areas.

3.4.1 *ECOLOGICAL MEASURES*

- Fencing of riverbanks to prevent the incursion of stock, reducing erosion, vegetation loss and water turbidity.
- Revegetation of degraded wetlands and increased Water Sensitive Urban Design measures in Basin towns in order to improve the quality of inflows into the system.
- Revegetation along rivers and creek lines to help maintain a more suitable water temperature, infiltration of excess nutrients and soil erosion (revegetation will also assist in the increase of biodiversity, will provide habitat links to allow species to adapt better to Climate Change and will decrease the quantity of suspended matter and turbidity in the river).
- Return of native vegetation community structures, particularly trees, to maintain hydrological interconnections between surface water, ground water and evapotranspiration (achieved by planning and implementation of biodiversity corridors throughout all land uses, thereby providing many other benefits such as habitat restoration, soil improvement and the safe-guarding of ecological integrity).
- Consideration of the rationalisation of levees to allow more natural floodplain connections.

3.4.2 *GOVERNMENT INITIATIVES*

- Prevention of further clearing of land and encouragement of large scale tree planting as long term forestry projects (plantations provide long-term employment, act as carbon sinks, lower salinity, assist the recharge of aquifers and may beneficially affect rainfall patterns).
- Development of further efficiencies in irrigation, such as the use of drip-line irrigation where appropriate, opportunistic cropping and the identification and reduction of irrigation with saline water.

Whilst the AILA strongly supports the 'Adaptive Management' provision of the Plan as a process of enabling response to change, the application of this provision is restricted by the scope of the Plan. In effect, Land Management is not part of the Plan and unless amended the Plan will be unable to respond legitimately to changes in circumstances or encourage adoption of new practices of critical importance to the health of the Basin.

Although the above examples are far from exhaustive the AILA believes them to summarise the bare minimum of Land Management recommendations that should be included as central to the Plan in order for it to be effective in meeting its objectives and able to appropriately apply Adaptive Management principles in the future. The AILA believes that greater recognition of the importance of Land Management be incorporated into any future versions of the Plan.

4 Environmental Assets

4.1 THE AILA POSITION

The AILA supports the general premise of the Plan that *'there are major environmental benefits to restoring a more natural watering regime'*⁽⁹⁾. In addition, the AILA supports the Plan's aim to improve lateral and longitudinal ecological connectivity, its 'high-level environmental objectives' and its confirmation that *'Basin-wide objectives and targets give particular regard to' international, Commonwealth and State legislation*⁽¹⁰⁾.

The AILA particularly supports actions that will lead to improvement in the condition of the Coorong and Lower Lakes ecosystems and Murray Mouth opening regime and accepts the Plan's assurances in this respect.

However, the AILA believes that the stated Plan *'constraint of being deliverable in a working river system that contains public and private storages and developed floodplains'*⁽¹¹⁾ has been interpreted in a way that has led to the recommendation of flow regimes that the Plan itself shows to be unacceptable within its own terms of reference for treatment of environmental assets. The Plan does not provide analysis to support the conclusion that constraints are of an order that outweigh ecosystem services benefits.

KEY POINT

The Plan provides an incomplete review and explanation of the flow regime options for the protection, enhancement and restoration of mid and high level floodplain habitats and does not assess the potential ecosystem services values realised against the costs of overcoming infrastructure constraints.

4.2 UNDERSTANDING OF LIMITATIONS

The AILA appreciates the complexities of planning for the support of established land uses and communities in a naturally dynamic, flood-plain environment. However, the Plan has openly set goals for 'water dependent ecologies' that it has not achieved, thereby not only falling short of present aims but also prematurely lowering expectations for the subsequent Water Resource Plans that will follow and not fulfilling its potential under the Water Act 2007.

This criticism is made with reference to the mid and high level floodplain habitats that depend on inundation by medium to large over bank flows that the Plan concludes to be *'generally outside the ability for river operators to influence and manage with current river operating constraints (such as the flooding of private land)'*⁽¹²⁾.

4.3 DISCUSSION

The Plan notes in its region by region review of environmental outcomes that these communities are generally the river red gum and black box communities and that *'In some parts of the Basin these habitats are in declining health and transitioning to more flood tolerant vegetation communities (as compared to flood dependent vegetation) There may be opportunities for works and measures to overcome delivery constraints, and provide other outcomes that improve the ability to manage these areas in the future. These actions could deliver substantial benefits to these habitats, but further cost benefit analysis and consultation with stakeholders and communities is required'*⁽¹³⁾.

This approach appears not to acknowledge the inter-connectedness of all the ecological communities in the Basin, and the important interface that these higher level floodplain communities have with those that are non 'water dependent'. The conclusion of the Plan is that the recommended level of take will be inadequate for mid and high level floodplain habitats – given their significance, geographic extent and interface with non-water dependent habitats, this is a major concern.

Since 1 March 2011 the Queensland and New South Wales Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions ecological community have been protected under the Environment Protection and Biodiversity Conservation Act as an 'Endangered' ecological community. The widespread modification of the floodplain by the construction of diversion banks, channels, levees, drains and upstream extraction of water for irrigation has seen considerable changes to seasonality, periodicity, duration, frequency, depth and pattern of flood regimes. Many remnants of this flood-dependent community are assessed as in protracted decline ⁽¹⁴⁾.

In Victoria, in April 2005, the State government requested the Victorian Environmental Assessment Council (VEAC) to undertake an investigation into the River Red Gum Forests and associated ecosystems in the Murray floodplain region of northern Victoria. The report noted that some natural values on the floodplain, particularly areas with Black Box, are currently in very poor condition and show signs of insufficient water, compounded by insufficient local rain ⁽¹⁵⁾.

In South Australia the river red gum and the black box floodplain communities of the Pike River are of High conservation value but declining and in 'stressed' to 'very poor' condition due to the '*current hydrological regime imposed by river regulation and abstraction*'. Flooding is seen to be the means of achieving improved health of floodplain woodland, particularly that of the high elevation black box woodlands ⁽¹⁶⁾.

4.4 RECOMMENDATION

The Plan is a mechanism by which this decline in demonstrated, recognised environmental assets could be arrested. In order to take advantage of this opportunity, and fulfil Plan objectives, the AILA believes that more work must be undertaken to establish the ecosystem services benefits and infrastructure costs of providing adequate flows for the restoration and long term health of floodplain environments described above.

5 Cultural Landscapes

5.1 THE AILA POSITION

The MDBA states that *'We want a future for the Basin which is prosperous and vibrant. We want a healthy economy, a healthy social fabric and a healthy environment for the Basin. The shared vision is for a healthy working Basin'* ⁽¹⁷⁾. This cannot be achieved by looking at the quantitative measures of water quality and quantity alone.

The Murray-Darling Basin could be perceived as a 'shared landscape' in which cultural values and connections are not confined separately to either indigenous or non-indigenous peoples. The community's connection to place and identity linked to their landscape heritage cannot be understated. This has certainly been identified for indigenous communities⁽¹⁸⁾ and to some extent non-indigenous communities ⁽¹⁹⁾. However, the Plan does not adequately address the risks to cultural landscapes (refer Chapter 4) nor does it list the protection of cultural landscapes as a management objective or desired outcome (refer Chapter 5). Further, the plan does not identify the protection of cultural landscapes as a priority or principle to be applied when formulating environmental watering plans (refer Chapter 7) and the identification of non-indigenous cultural landscapes is not a requirement of water resource plans (refer Chapter 9).

The AILA believes that the above omissions may lead to inadequate assessment of these cultural landscapes and therefore an insufficiency of information on which to base the priorities and the details of water resource plans.

KEY POINT

The AILA believes that identifying and incorporating the diversity of cultural values and landscapes into the Plan will contribute to an Integrated Water Resource Management Plan that appropriately embraces the social capital of the Basin's population while assimilating and enhancing environmental and economic values.

5.2 UNDERSTANDING OF LIMITATIONS

The AILA acknowledges that cultural and social considerations cannot be formally addressed under the Water Act (2007) that underpins the statutory basis of the Plan. However, the AILA believes that embracing these considerations will assist in developing a more robust and enduring Plan that better addresses the needs of Basin communities and more clearly recognises the dependencies and future role of human intervention in the Basin.

5.3 DISCUSSION

Three types of culturally important or significant landscapes can be recognised:

- Designed landscapes (eg. botanic gardens, avenues of honour);
- Organically evolved or 'vernacular' landscapes (eg. land use patterns, productive or industrial landscapes); or
- Associative landscapes (eg. sites associated with indigenous cultural heritage or historical events, scenic locations).

Culturally significant or important landscapes are identified and protected at an international (ICOMOS), national (i.e. National Heritage Register and National Trust), state (i.e. Aboriginal Affairs Victoria, Heritage Victoria and other state equivalents) and local level (significant landscape overlays in local planning schemes). A relevant example is Lake Hume and surrounds. Protected by a Significant Landscape Overlay in Victoria's Indigo Shire Planning Scheme, this expansive site encompasses the lake and its environs including the Murray Valley Highway and the National Trust classified Wodonga-Cudgewa railway line⁽²⁰⁾.

The Plan does not adequately identify the need to protect cultural landscapes or the importance of consulting with both indigenous and non-indigenous local communities to aid in the determination and identification of cultural values.

5.4 RECOMENDATIONS

The AILA believes the Plan should be amended to rectify deficiencies in addressing cultural landscapes and values, including, but not limited to the following parts of the Plan (with reference to Chapters in The Plan):

- Chapter 2 - Basin water resources and the context for their use (refer Schedule 1). While community, recreation, tourism and indigenous uses are acknowledged, more work should be done to emphasise, identify and assess non-indigenous cultural values. It should be self evident that improvements in health, wellbeing and empowerment from 'cultural flows' are not confined to indigenous people.
- Chapter 4 – The identification and management of risks to Basin water resources. Improving the knowledge of requirements relating to both indigenous and non-indigenous cultural uses should be identified as a strategy to manage risks.
- Chapter 7 - Environmental Watering Plan. Both indigenous and non-indigenous cultural values need to be considered when setting watering priorities. Both indigenous and non-indigenous cultural values should also be considered when addressing the need to maximise environmental benefits.
- Chapter 9 - Water resource plan requirements. It should be mandatory to include the identification and assessment of both indigenous and non-indigenous cultural landscapes and values as well as the impact of a water resource plan on these values and landscapes.

The AILA believes that respect for and protection of cultural landscapes and values are essential to the health and management of the Basin. An understanding of the Basin as an evolving landscape providing ecosystems services to an increasing population and diverse social structure in a changing climate is vital to the long term success of the Plan and the health and wellbeing of the Basin communities.

6 Other aspects of the Plan

The AILA requests additions into the Plan as follows.

6.1 CLIMATE CHANGE AND ADAPTATION

The AILA accepts the science of climate change, reliance on probability and the provision for the Plan to be reviewed in 2015 but finds the presentation of the consideration of climate change ('Appendix A – Outline of the scientific knowledge') to be confusing and unhelpful in preparation of submissions. Appendix A confirms a 10% reduction in surface water flows by 2030 under a medium climate change scenario yet the introduction to the 'Plain English summary' ('Explanatory note') does not refer to this figure, nor is it prominent in the rest of the document. As a result, figures of level of take remain without adequate qualification.

The AILA recommends that this accepted basis of the current Plan, a 10% reduction in surface water flows by 2030 under a medium climate change scenario, be stated in relevant sections where levels of take are quantified.

The AILA accepts the key findings of the latest Australian Government climate change research report 'STATE OF THE CLIMATE 2012' (CSIRO/BOM, 2012). This research provides evidence across a broad range of environmental indicators including rises in average annual temperatures over land and a trend in long term rainfall reduction for a significant portion of the Basin catchment. Ongoing Australian climate change research should form the basis of decision making for the MDBA's Adaptive Management approach.

6.2 RISK MANAGEMENT

Increasing land temperatures and long term rainfall decline highlight the vulnerability of the Basin and must be recognised as significant risk factors for organisations that manage infrastructure and settlements within the Basin, such as the MDBA.

The AILA, is a member of the multi-stakeholder industry and cross-governmental working group facilitated by Standards Australia on behalf of the Commonwealth Department of Climate Change and Energy Efficiency to develop the Draft Australian Standard for Climate Change Adaptation (DR AS 5334)⁽²¹⁾. This voluntary standard aims to provide consistent principles and guidelines for the effective identification and management of risks to infrastructure and settlements.

The AILA supports the ongoing review of sustainable diversion limits and water allocations being informed by the latest credible climate change research from lead government agencies such as CSIRO and Australian Bureau of Meteorology.

The AILA supports the adoption of a risk and vulnerability assessment approach as integral to the adaptive management decision making for the MDB.

6.3 GREEN INFRASTRUCTURE

The AILA has described the relevance of the green infrastructure approach and cited the AILA policy. The voluntary Draft Australian Standard for Climate Change Adaptation⁽²¹⁾ includes the term '*green infrastructure*'. It is probable that Federal and state governments will produce green infrastructure strategies in the immediate future.

The AILA recommends that as a minimum the Plan incorporates acknowledgement and a definition of green infrastructure and introduces the approach as a framework for integrated management and governance in the future water resource plans.

6.4 GROUND WATER TAKE

The AILA is unable to comment on the recommended ground water contribution to the Plan but notes that (Schedule 4 of the 'Plain English summary') ground water sustainable diversion limits are higher than current baseline diversion limits.

The AILA recommends that the current Plan is amended to include a clear statement on what changes to ground water extraction are proposed.

6.5 BASIN STATE COMPLIANCE WITH SUSTAINABLE DIVERSION LIMITS

The AILA is concerned that it is proposed that Basin states will be able to exceed sustainable diversion limits by up to 20% and still comply with MDBA audits.

The AILA recommends that the Plan provides further justification of this tolerance.

7 FURTHER ASSISTANCE

The AILA appreciates that Basin communities are under stress and although land use, with Government support, has contributed to the problem, their knowledge of the Basin landscapes and their desire to survive should be part of the solution.

Australia's urban and rural communities need to understand their dependency on the Murray-Darling Basin and accept responsibility for the condition and health of this significant piece of green infrastructure.

The AILA view set out above reflects its Policy on Sustainable Settlements⁽³⁾ which states that *'sustainable settlement should be designed to accommodate the complex interactions, complementarities and conflicts which occur between individual sustainability parameters (such as energy, water, population growth, transport, infrastructure, climate, natural resources etc.), and their subsequent impact on the patterns and effects of human settlement at local, regional and national scales—and to enable rigorous analysis and optimization of necessary 'tradeoffs' in decision-making to support broader national sustainability goals.'*⁽³⁾

The AILA commends the MDBA for its efforts in producing the Plan within a limited scope and timeframe. However there are key issues the Plan fails to deal with. While some of these may fall outside the scope of the Plan they are of a significance that demands attention. The MDBA is therefore urged to address the AILA comments on Land Management, environmental assets, cultural landscapes and other matters.

The issues raised by the AILA cannot be ignored or left unintegrated into the Plan if it is to provide a sustainable and equitable outcome for Basin communities and the broader Australian society. The Plan supports adaptive management, stresses the importance of risk management and AILA acknowledges that this will provide for ongoing review and adjustment. However, the Plan is currently an inappropriate basis on which to proceed and meaningful targets for water returned to the environment cannot be finalised without a more comprehensive understanding of the issues we raise.

The AILA offers support to the MDBA in working to achieve a revised Plan that delivers the best outcome for all.

APPENDIX

Notes

- (1) refer to the following www.aila.org.au/constitution
- (2) refer to the following link www.aila.org.au/landscapeprinciples
- (3) refer to the following links to Selected AILA National Policy Statements
<http://www.aila.org.au/policies/docs/sustainable.pdf>
<http://www.aila.org.au/greeninfrastructure/>
<http://www.aila.org.au/policies/docs/IntegratedDesign.pdf>

Land Management

- (4) The AILA supports the definition of Integrated Water Resource Management given by Connected Water at - http://www.connectedwater.gov.au/water_policy/integrated_mgt.html
- (5) An explanation of this is given by Walter Rast in the text *Achieving Sustainable Freshwater Systems; a web of connections* (edited by Marjorie M. Holland, Elizabeth R. Blood, and Lawrence R. Shaffer, published 2003 by Island Press, Washington DC). In Chapter 1 titled 'Sustainable Freshwater Resources: the promise and reality', page 29, Rast explains that "[O]ur individual and collective actions within drainage basins are not isolated; rather, they are interconnected in both cause and effect. An integrated approach recognizes the interlinkages between human activities in one part of a watershed and their impacts in other parts of the watershed."
- (6) **Parts of the Plan where Land Management is addressed**
Section 4.03,(h): 'improve knowledge of ...land use change.'
Section 7.05 (4): Protection and restoration of ecosystem functions of water dependent ecosystems, "An objective is that natural processes that shape landforms (for example, the formation and maintenance of soils) are protected and restored."
Section 8.14 (4): Water quality targets for irrigation water. "The target value for the sodium adsorption ratio of irrigation water is the value, which exceeded would cause soil degradation when that water is applied to land."
Section 9.37 (3): WQM Plan to identify measures. "The measures may include matters relating to land management."
Schedule 8, in its entirety.
- (7) The importance of Land Management to obtaining positive environmental outcomes for sustainable landscapes is supported by initiatives and organisations such as *Land and Water Australia* <http://lwa.gov.au/> , and *Caring for Country - National Resource Management* <http://www.nrm.gov.au/index.html>. A example of this is provided by the publication *Investing In Our Landscape* (2005), by Land and Water Australia, Canberra <http://lwa.gov.au/files/products/land-and-water-australia/pk051013/pk051013.pdf>.
- (8) **Parts of the Plan where Land Management should be addressed, as a minimum:**
Chapter 4: Identification and management of risks to Basin water resources. Poor land management practices should be identified as a risk to the sustainable and economic future of the Basin.
Chapter 5: Management objectives and outcomes to be achieved by the Plan. Integrated water and land management should be included as a crucial part of the management and the improvement of Land Management practices recognised as a positive outcome.
Chapter 8: Water quality and salinity management plan must recognise the crucial role to be played by sustainable Land Management.

Chapter 9: Water resource plan requirements: initiatives to encourage good land management should be one of the aspects included in the Water resource plans developed by the Basin states. Section 9.37 must be strengthened to include fuller recognition of the role of Land Management in achieving water quality improvements.

Chapter 12: Program for monitoring and evaluating the effectiveness of the Basin Plan. Recognition of improvements made in Land Management, and evaluation of the success of different measures in achieving positive outcomes for the health of the Basin should be included in this section.

Schedule 8 should not simply identify Land Management practices as contributing to water quality degradation, but also provide positive steps that could be taken to address these issues, which may then be included in the Basin States Management Plans.

Environmental Assets

- (9) Section 1.3.2, the MDBA report The proposed 'environmentally sustainable level of take' for surface water of the Murray-Darling Basin: Methods and Outcomes, November 2011.
- (10) Above, Section 3.2 'Basin-wide environmental objectives and ecological targets'
- (11) Above Reference – section 3.2
- (12) Above Table 11.1 Mid and high level floodplain habitats
- (13) Above Table 11.1 Mid and high level floodplain habitats
- (14) (<http://www.environment.nsw.gov.au/threatenedspecies/CoolibahBlackBoxWoodland.htm>)
- (15) (<http://www.environment.gov.au/biodiversity/threatened/communities/maps/pubs/66-map.pdf>)
- (16) ([http://www.veac.vic.gov.au/reports/352-VEAC Red Gum Flood-dependent natural values Report V1-0.pdf](http://www.veac.vic.gov.au/reports/352-VEAC%20Red%20Gum%20Flood-dependent%20natural%20values%20Report%20V1-0.pdf))
- (17) http://www.sardi.sa.gov.au/_data/assets/pdf_file/0011/140978/No_479_Relationship_between_floodplain_black_box_woodlands_and_soil_condition_on_the_Pike_River_Floodplain.pdf

Cultural Landscapes

- (18) (www.mdba.gov.au/draft-basin-plan)
- (19) Refer points 56, 57, 65, 66 and 67 of Schedule 1 of the Basin Plan.
- (20) Schedule 1 to the Significant Landscape Overlay, Indigo Planning Scheme, SL01 Lake Hume & Surrounds

'Climate change adaptation and risk management

- (21) refer to the following links:
<http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climate-2012.aspx>
<http://www.standards.org.au/OurOrganisation/News/Pages/Australian%20Standard%20for%20Climate%20Change%20Adaptation.aspx>