

# THE MURRAY-DARLING BASIN COMMISSION, AUSTRALIA

## CASE # 25

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This case describes a cross-boundary integrated river basin management organisation which took IWRM as a fundamental guiding principle. It illustrates a broad range of relevant activities for river basin management reflecting the comprehensive nature of the goals and activities of the organisation.

### **ABSTRACT**

#### **Description**

Widespread degradation of the Basin's natural resources was apparent in the 1980s and at the time, institutional arrangements for programmes of management lay with the 5 State governments in the Basin, with no co-ordination of remediation programme development. Joint action was required by governments in partnership with the Basin's rural and urban communities.

In response to this problem, the Murray-Darling Basin Commission was established in January 1988 under the Murray-Darling Basin Agreement, with a charter to:

- efficiently manage and equitably distribute River Murray water resources
- protect and improve the water quality of the River Murray and its tributaries and
- advise the Murray-Darling Ministerial Council on water, land and environmental management in the Basin.

The Commission provides a comprehensive planning framework for natural resources management for the Murray-Darling Basin. Over the decade from 1990-2000 it included:

- The Natural Resources Management Strategy
- The Basin Sustainability Plan
- Strategic Plans
- Project plans for the development of policies and strategies and
- Plans for generating and sharing knowledge, including the Human Dimension Programme.

The MDBC has established cross-border arrangements between the States to share water resources through a water trading scheme and increase water use efficiency. The sustainability of the MDBC and its programmes is still dependent on government funding, and will continue to be so, but since its inception, Federal Government support has not waned.

#### **Lessons learned**

- The participatory approach used with its Community Advisory Committee has helped the Commission be successful in winning and maintaining community interest, involvement and support
- Resource condition outcomes are more likely to be achieved where formal targets are set and accountability for achieving them clearly established and agreed by governments
- The strategies for action, programmes and frameworks have benefited from intergovernmental (top-down) approaches coupled with bottom-up actions, although determining how an equitable cost-sharing arrangement can be set up, implemented and maintained has been a challenge.

#### **Importance for IWRM**

- Describes a very large-scale interstate IWRM organisation for transboundary water resources management using negotiation and legislative tools
- Strong example of salinity management, water caps (reduction of further extractions), water quality management strategies (including point source and diffuse source pollutants) in a sub-humid environment

- Lessons learned here are transferable to other river basin organisations in the GWP Associated Programmes, e.g. INBO's work on transboundary IWRM.

## **Main tools used**

A wide range of tools used, in particular:

- A1.1 Preparation of a national water resources policy
- B1.1 Transboundary organisations for water resource management, B1.3 River basin organisations
- B2.1 Participatory capacity and empowerment
- C3 Demand management
- C7.3 Water markets and tradeable permits

## **MAIN TEXT**

### **1 Background and problems**

The Murray-Darling Basin covers 1,061,469 km<sup>2</sup>, 14% of Australia's total area. Widespread degradation of the Basin's natural resources was apparent in the 1980s, with over 50% of the original vegetation cleared. About 80% of land lies in arid and semi-arid regions and most of it had become degraded (widespread soil erosion, river siltation, accelerated recharge of groundwater aquifers and subsequent discharge of saline groundwaters to rivers, dryland salinity, loss of flora and fauna habitat, and invasion of pest plants and animals).

Problems in the basin included:

- increasing competition for scarce water resources
- resistance to further land clearing controls by State Governments
- increasing conflict over who should pay for remediation of degraded common resources
- how to best mobilise and target the use of available resources for on-ground action and
- how to address poorly specified institutional arrangements for common property resource management.

These problems highlighted the need for Basin-wide policies and programmes under a complex institutional environment which had grown up historically under each State's jurisdiction regarding land and water management and a complex array of laws and policies which were not co-ordinated across State borders. Increasing knowledge of the threats to river and catchment health gained through audits of water use and salinity in the Basin also highlighted the need to set targets for resource condition and implement environment mitigation practices and programmes.

The institutional arrangements for programmes of management lay with the 5 State governments in the Basin and there was no overall co-ordination of remediation programme development across the Basin. Joint action was required by governments in partnership with the Basin's rural and urban communities.

### **2 Decisions and actions taken**

#### **Establishing the Murray Darling Basin Commission**

The initial action taken in November 1985 was to create the Murray-Darling Ministerial Council, which comprised Ministers holding land, water and environmental portfolios in the Commonwealth and each partner State and Territory Government. One of the first actions of the Council was the production of the Murray-Darling Basin Environmental Resources Study (1987), which highlighted the extent of environmental degradation.

To support the Council, the Murray-Darling Basin Commission (MDBC) was established in January 1988, under the Murray-Darling Basin Agreement. The Commission is the inter-governmental body responsible for managing the water of the River Murray and lower Darling River, advising on policies and programmes for the management of the Murray-Darling Basin's

environmental resources and overseeing the implementation of policies and programmes aimed to help achieve their sustainable use. The mission of the MDBC is:

*“Through the Government-community partnership, to foster joint action to achieve the sustainable use of water, land and other environmental resources of the Basin for the national benefit of present and future generations, and to maintain responsible, efficient and cost-effective delivery services of water of agreed quality from the River Murray.”*

## Structure of the Commission

The Commissions charter requires it to:

- efficiently manage and equitably distribute River Murray water resources
- protect and improve the water quality of the River Murray and its tributaries and
- advise the Murray-Darling Ministerial Council on water, land and environmental management in the Basin.

The Commission is chaired by an independent President and contains Commissioners from the six governments responsible for the Murray-Darling Basin (Queensland, New South Wales, Victoria, South Australia, the Australia Capital Territory and the Commonwealth Government). The Commission is empowered by the Murray-Darling Basin Agreement, which is underpinned by specific laws in each of the partner governments (this agreement was built on the 1917 River Murray Waters Agreement). The Commission works closely with the Murray-Darling Basin Community Advisory Committee (appointed by the Ministerial Council) to which the Commission reports. MDBC has an operational budget of approximately \$US35mn (million), and operates from a secretariat of about 60 people in Canberra.

The Murray-Darling Basin Ministerial Council, the Murray-Darling Basin Commission and Community Advisory Committee provide a forum for reconciling the respective interests of the partner governments and communities in setting priorities for long-term investments in natural resource management within the Basin. There is now, through this process, a very strong focus on integrated support for on-ground action within catchments. The Commission is directly involved in a range of activities including:

- The management of the River Murray System through shared investment
- Implementing the Salinity & Drainage Strategy (works & measures to reduce salinity in the River Murray, maintenance of a Register of salinity credits & debits, ‘rules’ for determining salinity credits for joint works between governments & debits arising from state activities adding salt to the rivers)
- Piloting interstate water trading (transfer of water allocations) and
- Implementing a cap on further diversions of irrigation water from the Murray-Darling system.

## Actions and strategies

Over the period 1990-2000, the framework for action was developed through the following documents:

- a) The Natural Resources Management Strategy** – to promote a co-ordinated, strategic approach to natural resource management by governments and communities based on the philosophy of integrated catchment management and a government/community partnership. It outlined resource management objectives, broad responsibilities for governments, communities, the Murray-Darling Basin Commission and Ministerial Council and the Murray-Darling Basin Community Advisory Committee, and actions necessary to implement the strategy, including the development and implementation of community-based action plans for improving on-ground management. The Strategy has been advanced through the development of strategies to address specific issues (e.g. Algal Management Strategy) and the development of a planning framework for the Basin, referred to as the Commission’s Basin Sustainability Plan (BSP).
- b) Basin Sustainability Plan** – this provides a framework for stable, targeted investment in sustainable natural resources management and for evaluating investment outcomes, and

promotes co-ordination of activities across governments and the community. The goal of the BSP is to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin (reflecting the purpose of the Murray-Darling Basin Agreement). The BSP contains long-term objectives for sustainable agriculture, water quality, nature conservation and cultural heritage. For each of these priority thematic areas, specific objectives apply to irrigated and dryland regions of the Basin and to its riverine environments. Management objectives also apply across all the above BSP components.

These two main approaches are supported in turn by:

- Strategic Plans - used to guide priority activities towards achieving the long-term objectives of the Basin Sustainability Plan for policy, knowledge and on-ground action
- Project plans for the development of policies and strategies – implemented through high level boards of Commission members and
- Operational Plans for generating and sharing knowledge – which are used to guide investigation projects, information exchange and education.

Outcomes against these objectives are expected to be achieved through undertaking activities that result in: major policy and strategy development; knowledge generation and transfer (i.e. developing and co-ordinating information which can be applied to decisions, plans and actions) and the development of appropriate tools and support to assist implementation of catchment on-ground works and measures.

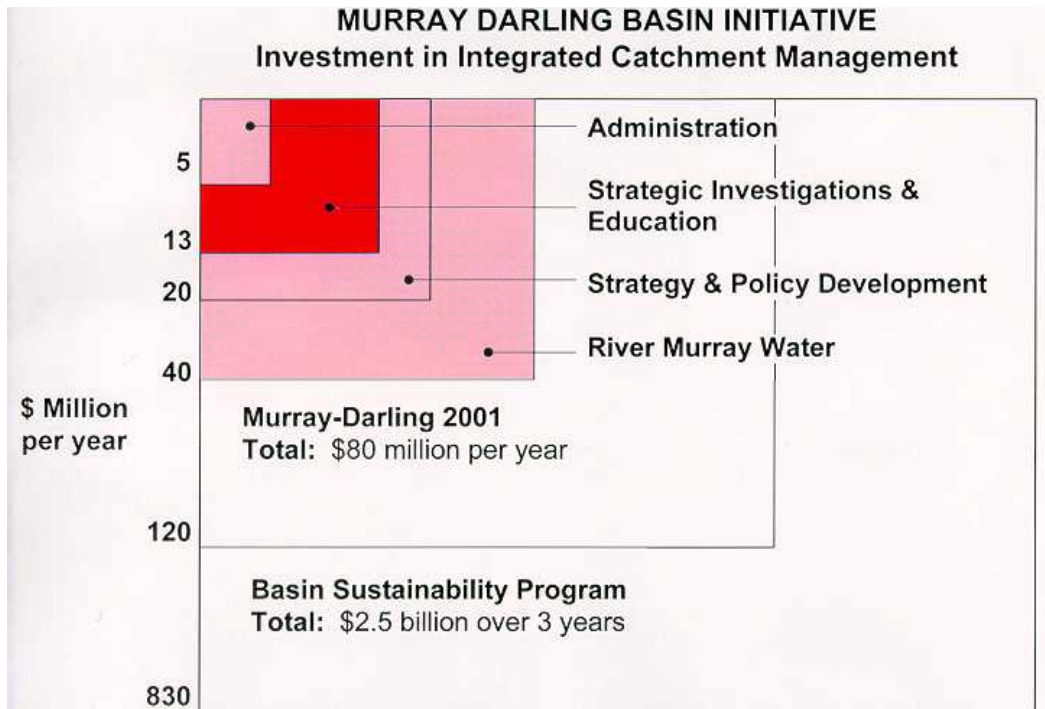
The knowledge generation activities of the Commission have been developed to:

- Support on-ground investments
- Report to the Ministerial Council and the Commission on the condition, trends and management status of resources, the impediments to effective management, the most appropriate investments, and performance
- Transfer results to decision-makers.

## **Financial commitments**

The investment of some \$A8mn each year into this programme of activities aims to underpin the key policy and on-ground investments within the Basin Sustainability Plan framework. This investment underpins some \$A830mn annual investment in natural resources management by governments and the Basin community. The figure below illustrates the relationship of funding investments between policy, knowledge generation and on-the-ground activities within the Murray Darling Basin Initiative over the past three years (in \$A 2001).

Figure 1



### Recent developments

In June 2001, the Murray-Darling Basin Ministerial Council and its Community Advisory Committee jointly released an Integrated Catchment Management Policy Statement for the Basin as the framework for natural resource management over the coming decade. It effectively replaces the Natural Resources Management Strategy, and is intended to shape the evolution of natural resource management using a stronger government/community partnership, increased responsibility and accountability for catchment organisations, capacity building, and a targets-based approach to improve resource condition and thereby protect important environmental, economic and social assets in the Basin. Under the policy, a new Basin Salinity Management Strategy was released in October 2001 with Basin, State and end-of-valley in-stream salinity targets to be achieved between 2001 and 2015. Over the period to 2008, further targets will be set for nutrients, water sharing, riverine ecosystem health and terrestrial biodiversity, with these targets providing signals of catchment health.

### 3 Outcomes

The original framework has now evolved to a planning system based around inter-linked resource condition targets at Basin, State, catchment and sub-catchment levels through the development of Basin, State, and catchment strategies/plans. Local action plans will identify the activities needed to achieve catchment targets, while Basin strategies will identify the joint actions needed by governments to help achieve Basin targets. This approach has developed in response to the need to address specific threats such as salinity.

The MDBC manages a broad, diverse portfolio of operations. It is difficult to evaluate the outcomes of this portfolio because many of the outcomes are intangible in the short term.

### Limited eco-system benefits to date

Recent audits by the National Land and Water Audit of Australia's natural resources has shown that ecosystems in the Murray-Darling Basin are continuing to degrade. After 15 years of operation, there have been only minimal ecosystem benefits, if the NLWA results are a reliable indicator. However, this is expected as ecosystem restoration in sub-humid environments takes

a long time. For example, dryland salinity amelioration on the Liverpool Plains in the north part of the Basin may take at least 50 years before benefits become apparent.

## **Significant short term outcomes**

The MDBC has produced significant short-term outcomes:

- Reducing river salinity through the construction of jointly-funded salt interception schemes with some of the salinity benefits used to offset the impacts of land, water and management plans
- Stabilisation of water extractions from the Basin's rivers through the Cap on Diversions
- Allocation of water for high environmental value ecosystems and deliberate operation of the river to achieve environmental flows
- Increased knowledge and awareness of declining resource condition and of management practices needed to address the causes
- Increased understanding by Basin communities of the geography of the Basin and their place within it
- Establishment of a Human Dimension Programme, one aim of which is to integrate social, institutional and biophysical sciences to improve the likelihood of adoption of best management practices for managing the Basin's natural resources and improve policy development for natural resources management.

## **Need for trade-offs recognised**

The 2001 Integrated Catchment Management Policy Statement recognises that many of the management changes needed in the Basin will involve trading wealth between communities and individuals, and that in making trade-offs, there will be winners and losers. One of the aims of the Human Dimension Programmes is to better understand and consider the social, economic and environmental costs and benefits of Commission policies and programmes, and facilitate the development and implementation of a range of mechanisms to help achieve sustainability.

## **Sustainability and political support**

The ongoing, bi-partisan political support for the MDBC programmes suggests the organisation itself is sustainable. The case of maintaining MDBC programmes is based on the use of a partnership approach between Governments, industries and community organisations. This will make it more likely to achieve long-term ecosystem restoration than short-term political support, typical of many resource management programmes in developed and developing countries.

## **Challenges to come in reallocation**

The critical issue, however, which the MDBC and its communities have yet to face, is that there is inevitably widespread economic reform needed in the water sector. This will result in increased impacts, with very different operational environments for irrigated agriculture. This will produce greater needs for efficiency gains to be made in the farming sectors. The issue relates to how much water is required for environmental flows for groundwater reserves and river and floodplain systems. The big challenge ahead for the MDBC is to achieve agreement between its stakeholders on effective environmental water allocations and who pays for them. This raises other questions about how governments 'claw back' prior entitlements, share future water allocations for competing users (recreation, urban (domestic), industrial, as well as agriculture (the largest MDB user)). These challenges suggest that the MDBC model is yet to be tested thoroughly in this policy area and it is unclear how robust and effective this institutional model is in achieving sustainability outcomes.

## 4 **Lessons learned**

Several lessons have been learnt since operations began in 1985:

- The Commission has been successful in winning and maintaining community interest, involvement and support because of the participatory approach used with its Community Advisory Committee
- The strategies for action, programmes and frameworks discussed above have benefited from both intergovernmental (top-down) and bottom-up approaches to IWRM. Government policies in the States and Territory have been realigned according to the MDBC strategies, while on-ground support and actions have been implemented over a very large area through the Murray-Darling 2001 funding programme. This programme, operated through the Federal Government's Natural Heritage Trust and in which State governments match Federal funds \$ for \$, financially supports local action programmes developed within the framework of regional/catchment plans, using cost-sharing arrangements between community organisations, private sector organisations and governments. In this process, the challenge has been to specify who pays for what: how an equitable cost-sharing arrangement can be determined, implemented and maintained
- The MDBC has established cross-border arrangements between the States to share water resources through a water trading scheme and increase water use efficiency. While still in its infancy, a review in 2000 showed that trade has increased the economic value of water, with 75% of the water traded going into new irrigation developments using state-of-the-art water-use technology
- Resource condition outcomes are more likely to be achieved where formal targets are set and accountability for achieving them clearly established and agreed by governments
- The sustainability of the MDBC and its programmes is still dependent on government funding, and will continue to be so. It is apparent that without central (Federal) government intervention in the first place, and ongoing Federal government support, this activity would not be sustained. Australia has benefited from a succession of Federal Governments who have supported the Commission since 1985.

### **Replicability**

The interstate approach has been replicated elsewhere in Australia with the establishment of the Lake Eyre Basin Agreement (see [www.LakeEyreBasin.org.au](http://www.LakeEyreBasin.org.au)). This river basin organisation is still in its early stages of formation, and a recent Ministerial Forum suggests the MDBC model could be replicated here. MDBC expertise has also been exported to Vietnam. The skills and approaches being developed in the Murray-Darling have been used to assist the Mekong River Commission, through twinning of experience and high-level exchanges.

It is doubtful if the structure of the Murray-Darling Basin initiative can be transferred directly to other countries, although the principles used can be easily transferred. The Australian experience is based on a federation of state governments, who function as quasi-independent entities developing natural resources management programmes. The Commonwealth Government sets policy directions through its activities in the Council of Australian Governments (in areas such as in water reform). If these conditions occur elsewhere, there is the opportunity to transfer the Australian experience.

### **Principles and practices transferable**

The most important aspects of the approach should be seen as principles and practices which can be replicated elsewhere. These include the use of:

- An integrated approach
- Commonwealth-State-community partnerships
- A real sharing of power between participating jurisdictions
- An approach based on agreed values and operational principles
- Using resource condition targets to help prioritise investment and effort
- A range of mitigation strategies, including market-based solutions
- A cap on water diversions
- A Human Dimension Programme, and

- The use of negotiation and legislative tools.

These principles and practices are transferable to other river basin organisations throughout the world, especially to the GWP Associated Programmes. The GWP activity, run by the International Network of Basin Organisations (INBO), could use MDBC's approach, and apply it to some of the world's most difficult transboundary IWRM cases.

## Importance for IWRM

This case is important to the IWRM approach because it illustrates:

- The ability of an intergovernmental organisation to implement IWRM, lessons from which can be cautiously applied to other transboundary water resources management contexts
- A unique approach to salinity management (setting targets for in-stream salinity levels), water caps (limit to further extractions), and water quality management strategies (including point source and diffuse source pollutants) in a sub-humid environment
- How to harness public participation to achieve regional water resources management goals in the context of national policies
- How to develop and implement human dimensions of natural resources management programmes - viewing natural resources management as a human activity, rather than relying on biophysical sciences and technology to provide the sole solutions to complex environmental issues
- How to use partnerships to build policy directions and implementation processes (using the values and behaviours of Courage, Inclusiveness, Commitment, Respect, Flexibility, Practicability and Mutual Obligation).

## 5 References

### Published sources of information about the case study

Key web information source are:

Murray-Darling Basin Commission: <http://www.mdbc.gov.au/>

Murray-Darling Basin Community Advisory Committee:  
<http://www.mdbc.gov.au/about/cac/cac.htm>

Other web pages:

Basin-wide planning documentation:

[www.mdbc.gov.au/naturalresources/planning/basinwide\\_planning.htm](http://www.mdbc.gov.au/naturalresources/planning/basinwide_planning.htm)

Integrated Catchment Management Policy Statement:

[www.mdbc.gov.au/naturalresources/planning/icm/icm\\_framework.htm](http://www.mdbc.gov.au/naturalresources/planning/icm/icm_framework.htm)

Basin Salinity Management Strategy:

[www.mdbc.gov.au/naturalresources/policies\\_strategies/projectscreens/salinity\\_manage\\_strategy.htm](http://www.mdbc.gov.au/naturalresources/policies_strategies/projectscreens/salinity_manage_strategy.htm)

A wide range of papers also available from the Murray-Darling Basin Commission (Email: [info@mdbc.gov.au](mailto:info@mdbc.gov.au)):

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