The Murray Darling Basin – Managing our National Heritage

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In 1971 Dr HJ Firth wrote – '*the Murray- Darling system, in addition to being the greatest river Basin in the land, is one of the greatest and most complex problems of resource conservation and management."*

If you can't measure it you can't manage it!

If you don't know how it functions you can't manage it!

If the laws, institutions and governance arrangements act as barriers then you can't manage it!

If you don't understand the relationships between the many human and natural resource components of a catchment, then management interventions may have unintended consequences!

If people don't know what to do don't care or won't act then change cannot be managed

If you reflect on these five statements it is possible to begin to comprehend the inherent risks and opportunities we face in managing our national heritage – the Murray Darling Basin.

Perhaps the first being that while we all want a healthy Basin, we can rarely agree on how much data and understanding is required, what the appropriate institutional arrangements might be and what mechanisms and incentives should be employed to motivate individuals to change!

Given that 71% of Australia's irrigation and about 2 million people live in a Basin that enjoys a mere 6% of the total surface water resources in Australia it is clear that water is our most precious resource. We must manage all of our resources and human behaviour in a way that ensures that we maintain or improve the quantity and quality of water available. If we fail we won't be living in the Basin!
Over the last ten years or so, the way in which people think about and manage water and related natural resources in the Murray Darling Basin has changed fundamentally. We are in a period of major transition.

How well the Basin comes through the transition probably depends on how well we mange the existing, emerging and as yet unknown threats/risks to our river and water resources.

In that context I would like to focus on 3 things.

The Murray Darling Basin Initiative

Risk management at the Basin scale

Catchment management

1. The Murray-Darling Basin *Initiative*

Debate and conflict over how to manage the waters of the River Murray across a number of states have been around since federation. The Australian Constitution gives the states responsibility to use and manage their land and water resources. State borders were not drawn to accommodate catchment boundaries, which creates significant challenges in the Murray Darling Basin.

From its origins of building dams and infrastructure to utilise the scarce water resources in the Basin the Murray Darling Basin Initiative is now focused on how best to protect that investment. The Murray Darling Basin Agreement (1992) establishes the governance framework through which the 6 partner governments are able to reflect on and agree policy approaches to deal with the shared risks and opportunities.

The purpose of the *Agreement* (1992) is "to promote and coordinate effective planning and management for the equitable efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin". It is ratified by identical legislation enacted by the Parliaments of all the signatory governments.

With this broad and inclusive 'purpose' and all of the partner governments represented in decision making it is theoretically possible to manage all of the natural resources of the Basin in an integrated manner. The reality is quite different. The key strategic challenge for decision makers is to distinguish those issues for which there must be a Basin-wide approach to both decision-making and accountability and those for which local, regional, individual state or bilateral approaches will be adequate. It would be ineffective and inefficient to require coordination of all decision making and integration of all matters at the Basin level.

The *Agreement* establishes a governance framework which includes – the Murray-Darling Basin Ministerial Council, a Community Advisory Committee (CAC) and the Murray-Darling Basin Commission. The decision makers, the Ministerial Council work on a consensus model and each government has the right to veto a decision.

The roles of each of these bodies are outlined in Table 1.

Table 1: Roles of the Murray-Darling Basin Ministerial Council, Community Advisory Committee and Commission

Murray-Darling Basin Ministerial Council	Develop, consider and, where appropriate, to authorise measures for the equitable efficient and sustainable use of the water, land and other environmental resources Exercise other functions as conferred on the Council, e.g. the Cap on diversions, salinity management
Community Advisory Committee	The CAC has such members, terms of reference, powers and functions as the Ministerial Council determines. The current terms of reference (CAC IV) are: To advise the Ministerial Council on: • the natural resource management issues referred to the Committee by the Ministerial Council; and • the full range of views of Basin communities on natural resource management issues of significance within the Basin.

	To assist the Murray-Darling Basin *Initiative* by disseminating within Basin communities, Ministerial Council's decisions in a way that promotes clear understanding of their context and rationale, and enhances their ownership and adoption. To participate, as directed by Ministerial Council, in Basin community engagement programs and provide Ministerial Council with advice on effectiveness of that engagement. To participate, as directed by Ministerial Council, in policy development processes of the MDBC and Ministerial Council.
Murray-Darling Basin Commission	Advise the Ministerial Council in relation to the planning, development and management of the water, land and other environmental resources of the MDB Assist the Ministerial Council in developing measures for the equitable efficient and sustainable use of the water, land and other environmental resources Coordinate the implementation of / implement any measures authorised by Ministerial Council Give effect to any policy or decision of the Ministerial Council, which it is required to implement To achieve this, the Commission works cooperatively with partner governments, committees and community groups to: Develop and implement policies and programs aimed at the integrated management of the Murray-Darling catchment Manage and distribute the water resources of the river Murray system in accordance with the MDB Agreement.

Murray-Darling Basin Agreement (1992)

MDBMC (2003 unpublished)

2. Risk management at the Basin scale

While there are many critics and many things which in hindsight could have been done better the reality is that the MDB Ministerial Council has led Australia in terms of water reform and integrated catchment management. These reforms have created wealth and underpinned agriculture at a Basin scale. However, this has not always been the perception or experience of people at the coal face because the costs and benefits of decisions do not necessarily fall evenly across catchments, communities or industries. In some instances different implementation arrangements in different states have caused perceived and sometimes real inequities. That said I want to provide an overview of what has been achieved under the MDB Agreement since the establishment of the Ministerial Council in 1985 – merely 19 years ago.

2.1 Salinity

The first collaborative attempt at dealing with threats to the Murray Darling Basin was the agreement of a

Salinity and Drainage strategy in 1988 to manage the salinity and drainage problems associated with irrigation in the Murray and Murrumbidgee valleys. To quote Don Blackmore – this established the world's first system of tradeable pollution entitlements through the creation of a register as a schedule to the MDB Agreement which records debits and credits for actions taken.

The aim was to improve water quality in the River Murray for all beneficial uses - agricultural, environmental, urban, industrial and recreational through the use of:

- salt interception schemes to reduce river salinity
- changed operating rules for storages
- land and water management plans

This was very successful but over time it became clear that dryland salinity rather than irrigation salinity was a major threat to rivers, biodiversity and water quality. This resulted in the Ministerial Council agreeing the Basin Salinity Management Strategy in 2001. A key feature of the fifteen-year plan is the adoption of end-of-valley salinity targets for each tributary catchment and a Basin target at Morgan in South Australia. The Basin target is to maintain the salinity at Morgan at less than 800 EC units for 95% of the time.

The targets are a way of measuring the progress towards achieving key objectives of:

- maintaining the water quality of the shared water resources of the Murray and Darling Rivers;
- controlling the rise in salt loads in all tributary rivers of the Murray-Darling Basin;
- controlling land degradation and protecting important terrestrial ecosystems, productive farm land, cultural heritage and built infrastructure; and
- maximising the net benefits from salinity control across the Basin.

For the most part it will be the responsibility of organisations like the NSW Catchment Management Authorities to achieve the end of valley targets through NAP and NHT investment with the MDBC continuing to invest in salt interception schemes. At this point in time it is almost impossible to hold individual catchments accountable for achieving their targets. What would you do to a catchment community which consistently fails to meet its targets and continues to pollute downstream communities?

2.2 Integrated Catchment Management (ICM)

To bring about changes in the way we manage natural resources requires more focus on setting targets or goals, integration of knowledge, better predictive tools and most importantly understanding people and what motivates them.

The health of individual catchments underpins our ability to draw economic and social benefits from the Basin. We know that in many instances we should radically change the way we manage and use the Basin's natural resources to keep our catchments healthy. The choices and changes will not be easy.

The choices and tradeoffs made should be informed by science but will none the less be a reflection of the prevailing societal values at the point in time decisions are taken. The more people from diverse perspectives that are able to influence and participate in the decision making the more likely it will be that there will be commitment to achieving the outcomes agreed.

All of these ideas and more are contained in the Integrated Catchment Management Policy for the Murray-Darling Basin (MDBMC, 2001). Released in June 2001, it is the first policy under the *Murray-Darling Basin Agreement* to be jointly signed by the 'peak' government and community bodies – the Ministerial Council and its Community Advisory Committee.

It defines Integrated Catchment Management as a process through which people can develop a vision, agree on shared values and behaviours make informed decisions and act together to manage the natural resources of their catchment.

It requires a professional and business-like approach to delivering the goals of - healthy rivers, ecosystems and catchments, while supporting innovative, competitive and ecologically sustainable industries that are essential to underpin thriving regional communities.

Over a 10 year period the ICM policy requires the establishment of targets at the Basin and catchment scale for:-

- water quality (salinity, nutrients, algae etc)
- water sharing, including surface water and groundwater (The Living Murray)
- riverine ecosystem health
- terrestrial biodiversity, including native vegetation

The policy states that in setting targets, assets should be identified and the degree to which they should be protected agreed, taking account of the costs of intervention, and knowing the consequences of not intervening. .

The policy also acknowledges that there are many other matters for which targets could/should be set and that they should all be integrated in a way that will paint a picture of overall catchment health.

The policy states that in order to bring about sustained change we must:

- focus on making the ***difficult choices*** about the balance between the use of resources for production and the need to protect environmental health
- have stronger ***institutional arrangements*** for catchment management, with clear roles and responsibilities, and ***increased accountability***
- ***integrate land use planning and catchment planning***

- make more use of ***market based mechanisms*** to drive change
- ***have credible accreditation*** processes for catchment strategies and plans
- ***be able to report*** to the Murray-Darling Basin Ministerial Council and the Australian public on outcomes achieved.

The decision to manage our natural resources on the basis of water catchments reflects the primary importance of water quantity and quality to the environment, to the people who work and live in those catchments and to those who rely on the food and fibre produced with that water.

For the most part it is increasingly becoming the responsibility of new and emerging catchment management organisations to adopt the ICM policy as their way of doing business. In theory and hopefully practice – working at the catchment scale to benefit the Basin.

For some things in the policy the Ministerial Council can be held accountable (salinity registers and cap) at the Basin scale but for others responsibility and accountability rests with catchment management organisations and State governments. Only time will tell if this new model will produce outcomes that add up to a healthy Basin?

2.3 Cap On Diversions

Possibly the most controversial and courageous decision taken to address threats to consumptive water use and the environment was the 1995 cap on diversions.

Amid growing concerns about the changes to the flow regimes in rivers within the Basin and their consequences, the Ministerial Council in June 1993 initiated an audit of water use in the Murray-Darling Basin. The Audit, which was completed in 1995, showed that if the volume of water diversions continued to increase, this would exacerbate river health problems, reduce the security of water supply for existing irrigators in the Basin, and reduce the reliability of water supply during long droughts.

In response to the findings of the Audit, a limit was imposed on the volume of water which could be diverted from the rivers for consumptive uses. An interim Cap was imposed in June 1995. Following an independent review of equity issues a permanent Cap was implemented from 1 July 1997 for New South Wales (NSW), Victoria and South Australia. For these states the cap is defined as "The *volume of water that would have been diverted under 1993/94 levels of development."* For Queensland, (a moratorium on further development in place since September 2000) and the Australian Capital Territory which together divert less than 7% of total water being diverted in the Basin, the Cap arrangements are still being worked out.

While the Cap restrains further increase in water diversions, it does not constrain new developments provided the water for them is obtained by using water more efficiently or by purchasing water from existing developments.

A review of cap operation in 2000 concluded among other things that:

- the Cap has provided benefits through ensuring security of supply at a valley level and providing a framework within which water trading and related reforms could be developed;
- the Cap has been an essential first step towards achieving a balance between environmental needs and consumptive use, although there is no certainty that the current level of the Cap represents a sustainable level of diversions;

It is possibly time to review the operation of the cap again now that there is an increased focus on event based management to achieve particular outcomes at particular assets. Both the Living Murray and the Condamine Balonne Water Resources Plan have adopted this approach. Relatively minor changes to cap implementation may enable better use of the available water for both consumptive and environmental use.

State governments will retain responsibility for cap implementation and the Independent Audit Group will continue to report on progress and compliance to the Ministerial Council.

2.4 The Living Murray

From the time that the cap was agreed the MDBC focused its efforts on bringing together the knowledge required to properly inform decisions in regard to environmental flows in the Murray. The Ministerial Council agreed in 2002 that the available science demonstrated compelling evidence of the decline in health of the River Murray.

A stakeholder survey undertaken in 2001 in the Basin indicated that 95 per cent of those surveyed strongly supported the principle of improving the health of the Murray River system, through increased environmental flows. However, it also showed that this support level dropped to 40 per cent if the community were not included in the decision-making process.

In August and November of 2003 two key decisions were taken:-

1. Recognising the declining health of the River Murray system in particular, COAG noted that member jurisdictions of the southern Murray-Darling Basin had agreed to provide new funding of $500 million over five years to address water over allocation in that part of the Basin.
2. The Living Murray First Step decision taken by the Murray Darling Basin Ministerial Council with the following elements:
    - an initial focus on maximising environmental benefits for six significant ecological assets with specific ecological objectives and outcomes agreed for each
    - recovered water being built up over a period of five years to an estimated average 500 GL/ year of 'new' water after five years, with the volume to be used each year depending on a range of factors such as droughts and flood events
    - the water for this First Step to come from a matrix of options with a priority for on-farm initiatives, efficiency gains, infrastructure improvements and rationalisation, and market based approaches, and purchase of water from willing sellers, rather than by way of compulsory acquisition

- an adaptive management approach ("learning by doing")
- communities to be involved in planning and arrangements for implementing the First Step including water recovery and finalisation of the environmental objectives

These two decisions signalled a number of things to the Basin community:

1. That protecting the health of the Murray is critical to underpin the long term social and economic well being of communities dependent on the river.
2. That governments are prepared to pay to reverse past decisions – they will purchase water from 'willing sellers'. There should not be losers anymore.
3. That policy decisions will be informed by the best available science.
4. That there will be a focus on achieving specific outcomes at particular sites through innovative use of all of the available water.
5. That a 'learning by doing' approach which respects the highly variable and complex nature of the River Murray System will be adopted.
6. Those communities will be involved in a meaningful way in the implementation of the First Step Decision.
7. That there would be further steps taken should this effort be insufficient to achieve a 'healthy working river'.

Any reasonable person could interpret these decisions as having set a precedent for how governments now intend to deal with over allocated river systems

The CoAG meeting of 26 June 2004 resulted in the National Water Initiative and an Intergovernmental Agreement on addressing water over allocation and achieving environmental objectives in the Murray-Darling basin.

The IGA assigns responsibility for overseeing the implementation of the Living Murray to the Murray Darling Basin Ministerial Council. Each state will determine appropriate arrangements within their respective statutory / institutional frameworks for sourcing, ownership and application of water to the significant ecological assets.

It is proposed that Catchment Management Authorities in Victoria and NSW will be given responsibilities in relation to community engagement and the sourcing and management of water and the significant ecological assets. The extent of that responsibility is unclear at this stage.

The IGA required the MDB Ministerial council to agree a Business Plan for TLM by 25th September 2004. It will contain:-

- Detailed business rules for sourcing, accounting for and managing water.
- Packages of measures put together by the States to source water to achieve the ecological objectives for the six significant ecological assets.
- Environmental watering plans for each of the six significant ecological assets and the Basin-wide environmental watering plan.

Although the Living Murray process is presently confined to the southern Basin, it seems sensible to extend the boundaries over time and identify ecological assets across all of our rivers and manage the available water resources to achieve clearly defined objectives for each.

2.5 Water Trade

The Cap on diversions restrains further increase in water diversions. It was not intended to constrain new developments provided the water for them is obtained by using water more efficiently or by purchasing water from existing developments. Not to develop water markets would be a significant risk to agriculture and economic growth in the Basin. While there are challenges to be addressed in relation to stranded assets and communities it is a critical management tool for the irrigation industry.

The ability to trade water is important for a number of reasons. Provided it is socially, physically and ecologically sustainable, water trading is one way to reallocate the use of water to maximise its contribution to national income and welfare.

Of particular importance is the fact that water trading allows water to move to sites where it can be used for higher value uses. This, and the fact that irrigators will be able to financially benefit from the sale of water they do not need, should lead to greater water use efficiency. The resulting economic benefits to water users will have a positive effect on the sustainability of irrigation production.

The MDB has been conducting a pilot interstate trade project for a number of years. The learning's from this and the recent National water Initiative commitment to providing secure water access entitlements and the removal of impediments to trade will enhance the opportunities for growth in many communities and will hopefully see water moved from land that is unsuitable for irrigation and representing high salinity risk.

2.6 Future Threats

As discussions about the Living Murray progressed a number of significant risks to the shared water resource in the Murray-Darling Basin were identified (MDBC, 2004). These are yet to be fully evaluated and a determination made as to the need for policy responses by the Ministerial Council or others.

- climate change – global warming is likely to increase temperature and evaporation and reduce rainfall with consequent impacts on water availability

- reforestation – plantations utilise significant higher volumes of water than other forms of land use and have implications for interception and reduction of returns flows to river systems traded off against potential positive salinity, biodiversity and land stabilisation effects
- farm dams – growth in the capacity of farm dams harvesting run-off has the potential to impact on downstream stream flow
- increasing use of groundwater – current groundwater allocation arrangements allow for further growth in usage even though there is already significant over-allocation
- impact of the 2002-03 bushfires – a reduction in water yield affecting run-off over a 50 year period
- understanding the changes to return flows resulting from improved water systems, recycling systems, reduction in channel escapes and increased diversions – as water use efficiency improves the volume of water returned to river systems from run-off is reduced

The Murray-Darling Basin Commission has quantified the potential impact of these factors as a reduction in systems inflows of around 2,500 GL/annum by 2023 (MDBC, 2004).

In addition to these biophysical risks I see three other areas for concern:

- Across the Basin the hydrologic and hydraulic modelling capacity is barely adequate to address current needs. It is completely inadequate to support any predictive capability which will be essential if we are to use water in real time to best effect.
- The capacity (financial, regulatory, knowledge, courage) of Catchment Management Authorities and the like to stop focusing on maintaining the status quo and take difficult decisions which in the long term will protect the water resource. If we stand still we will go backwards.
- Inadequate investment in monitoring and research

3.0 Catchment management.

Each of the Basin states have taken different approaches to the establishment of catchment management organisations. As the table below illustrates all jurisdictions except Qld and ACT are in the process of providing various levels of statutory responsibility to their regional bodies.

Table 2: MDB - Natural Resource Management Governance

Organisation	Legislated role	Powers/TOR	Appointment
Victorian Catchment Management Authorities (CMAs)	Yes under *Catchment and Land Protection Act* 1994	Development of strategic direction for land and water management through setting priorities, evaluating the effectiveness of outcomes, monitoring the external and internal environment and identifying opportunities	Ministerial by open application
NSW Catchment	Yes statutory	Assess clearing applications and make	Ministerial by open

Organisation	Legislated role	Powers/TOR	Appointment
Management Authorities (CMAs)	authorities under *Native Vegetation Act* 2003	consent decisions for on-farm activities from 2005. Initial role focuses on catchment action plans, managing incentives programs, education and training	application
SA Integrated Natural Resource Management (INRM) Groups	Proposed under Natural Resource Management Bill 2004 establishing regional NRM Boards	*NRM Bill* - 2004 - NRM planning, investment and delivery including compliance activities and providing NRM advice to local communities, amalgamating function of current INRM groups with those of pest and soil advisory bodies	Ministerial appointment
Qld catchment committees	No	None – role is to deliver agreed components under the NHT/NAP bilateral agreements between Queensland and the Commonwealth	Self-selected according to a process signed off by the Qld Government
ACT	No	None – role is to deliver agreed components under the NHT/NAP bilateral agreements between Queensland and the Commonwealth	Selected through representatives from sub-catchment groups

Sources: Mike Bradby (Qld Dept NRM)
David Olsson (SA Dept WLBC)
http://www.dse.vic.gov.au/web/root/domino/cm_da/nrenlwm.nsf/frameset/NRE+Land+and+Water?OpenDocument
DIPNR (nd)
DWLBC (nd)

In the environment that catchment management organisations operate, there are two given's – the rate of change and complexity of problems and opportunities are increasing.

As I said earlier we are in a period of transition from a government policy focus on economic development to one focused on repair, maintenance and improvements of natural resources to support current and future economic activity.

This can be threatening to those on the receiving end of these new policies which are often almost the reverse of previous approaches i.e. 'from clear it or lose it, to clear it and you will lose it'.

Many individuals will tell you that they would like to do more than they currently are if only they knew what and how.

They will also tell you that the more governments, external interests and the media paint them as 'uncaring vandals' the more difficult it is to be motivated and motivate others. It is not difficult to understand why the feelings of confusion, frustration, anger, and fear emerge when people are blamed and made to pay for the consequences of policy decisions taken by governments in the past – decisions which required land managers to do what they are now doing.
The Living Murray represents a turning point.
The new CMA's in NSW are now tasked with having to deal with the unintended consequences of well intentioned but poorly informed public policy decisions including:-

- Many groundwater systems are over allocated and in decline
- Many surface water systems are over allocated and degrading
- Biodiversity is in decline and species are being lost at an unacceptable rate
- The scientific process is not integrated – (disciplines and organisations compete).
- The management and regulatory process's are not integrated (agencies and organisations compete)
- Individuals and communities are directly or indirectly in conflict/competition with each other and with government and scientists.

In addressing these issues and making decisions the CMA's will have to consider the consequences for:

- Individual livelihoods,
- the prosperity of rural centres,
- the quantity and quality of water resources needed by downstream users,
- meeting the expectations of taxpayers who will be called on to fund the change
- the health of Basin ecosystems, and a host of other issues.

A task that governments have struggled with despite their resources and powers!

Information, who has it and how it is used, is the key to moving forward.

In promoting change there will always be a need to provide evidence and proof (the science) of the need for alternative approaches.

'The science' is not restricted to the biophysical sciences. We have a history of ignoring or abusing the use of both economic and social science in complex natural resource management decision making.

Where the process of decision making lacks opportunities for genuine involvement, negotiation and delivery of the outcome the consequences of this approach are conflict and lowest common denominator decision making or as in may cases in the Basin today – 'no decision'.

The only 'defence' left to people without due process or fair process is to work actively to undermine the credibility of the biophysical sciences. The science will always be easy to attack because it is contestable and rarely complete – environmental science will never be as certain as medical science.

On the other hand it is always possible in an emotive sense to argue against change by attributing all of threats to social and economic security to the particular change being proposed rather than evaluating which challenge/pressure is causing economic hardship or social threat.

The move to devolve implementation responsibilities to a regional level is a recognition of the complexity and diversity of landscapes that exist – approaches must be tailored for different communities and different catchments. The challenge for those setting policy and initiating reform at the State, Commonwealth and MDB levels is to enable different approaches through adopting an outcomes focus and auditing catchment management organisation's on what they have achieved rather than how they have achieved it.

The new catchment management authorities in NSW have been established to deal with the complexity of implementation of government policy at the regional scale and offer a tremendous opportunity to overcome at least some challenges if the following conditions are met:-

- The boards act in the interests of the Murray Darling Basin
- They are given stability for a minimum of 10 years
- Their responsibilities are clear
- Government retains responsibility for water resource management primarily because water flows across catchment boundaries.
- They have sufficient powers or can call on government to act to require land management that will maintain or improve the quantity and quality of water available.
- They have a sustained commitment to knowledge generation and monitoring and evaluation
- On ground investment is focused on those activities which will maintain or improve the quantity and quality of water available.
- They can be held accountable for the achievement of improvements in biophysical, social, cultural and economic conditions (measurable outcomes) with external audits at 5 yearly intervals.
- They can be held accountable to the communities across which they operate and impact, for the way in which they involve people in decision making.

The real test of this experiment in regionalising catchment management will be the quality and quantity of water the Murray and the level of regard in which the institutions are held in 20 years time.

3.1 Where does Cotton Fit?

I don't expect to see the cotton and rice industries being replaced by anyone else as the 'whipping boys' in natural resource management in my lifetime.

Despite or in spite of this both industries are being increasingly recognised for the significant progress they are making to address serious problems.

The cotton industry will only ever make up a very small percentage of each catchment. Where cotton growers (particularly irrigation) sit in most catchments means that they will be a sink for other people's pollutants (salt) and may see reduced reliability of supply with growth in farm dams and increasing revegetation activities in upper catchments.

It is in your interests to promote change.

There are a number of extremely positive observations that can be made about the cotton industries approach.

1. The adoption of BMP right across the industry cannot fail to impress. It is the only example of an environmental management system that is fully integrated into the farm business – its just good business and will keep you in business.
2. The emerging work on Area Wide Management together with BMP is an exemplary example of integrated catchment management at work. A process through which people can develop goals, build trust and respect, agree on shared values and behaviours, make informed decisions and act together to solve problems and manage resources.
3. The industry works together to solve problems.

There has not been a better time for the industry to counter the critics by working closely with CMA's and other industries to ensure that the new arrangements succeed.

CONCLUSION

Competition for water, our most precious resource, will only increase over time – between rural and urban users, between upstream and downstream users, between neighbours and between consumption and the environment.

We don't have enough to satisfy all of our needs.

The value of water in the Basin is reflected by the focus the Ministerial council has on those matters which threaten its quality and quantity. If catchment management organisations and individuals adopt the same priorities our industries and communities will prosper.

Catchment management organisations are the key to managing our national heritage – they must understand people, place and relationships, be forward looking, share their knowledge widely, use their powers wisely and take difficult decisions.

In 2002, Asa Wahlquist commented – '*never before, in the long history of people and the Murray-Darling Basin, have we known so much about it……...today we can easily travel the length of the Basin, well assisted by a pile of maps……...a series of reports…a plethora of scientific studies ……..provide us with ample data……but none of this is enough to answer the questions ……...how do we live in the Basin and manage its resources.*

We have to do that

In the final wash up I can't help thinking that there is some wisdom in this old Chinese proverb:-

If you are planning for one year, grow rice (or cotton)
If you are planning for 20 years, grow trees
If you are planning for centuries, grow people.

The cotton industry has already demonstrated a willingness to learn and change - it is people like you who will continue to grow and make a difference for the Basin's future.

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