

**IS INTEGRATED CATCHMENT MANAGEMENT NOW A POSSIBILITY  
IN NEW SOUTH WALES?**

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# 1. EXECUTIVE SUMMARY

In 2003, New South Wales (NSW) legislative reforms delivered the framework for regionally-based integrated catchment management – a long-held objective in Australian natural resource management policy. In December 2010 the NRC released *Progress towards healthy resilient landscapes – implementing the Standard, Targets and Catchment Action Plans* (2010 Progress Report) which provided an update on the NSW arrangements and also delivered recommendations for further reform. An important practical part of the evidence base for the 2010 Progress Report was the project *Alignment of water planning and catchment planning* (Alignment Project), which the NRC participated in and which successfully trialled NRM collaboration at the regional level. These recent analyses suggest that NSW now has the potential to realise the full benefits of integrated catchment management.

However, the NRC noted in the 2010 Progress Report that there is still work to be done to fully implement the regional model and made a number of recommendations for future government priorities.

The NRC's presentation will therefore:

- Outline the vision of integrated catchment management and its importance in the context of increasing climatic and population pressures
- Describe the history of integrated catchment management (including the regional model) in NSW
- Reflect on how the model can deliver better economic, social and environmental benefits, based on the findings of the 2010 Progress Report and the Alignment Project and
- Highlight the priorities for building on the successes so far and the encouraging future of integrated catchment management in NSW.

## 2. VISION OF INTEGRATED CATCHMENT MANAGEMENT

The pressures on natural resources and landscape management are increasing (in NSW, Australia and globally) through the impacts of climate shift, water variability, population growth, urban development and the need for increased food, fibre and minerals. Within this context, it is important to address what society's environmental goals and natural resource targets are. Once those outcomes are established, the question becomes one of implementation through regulation, planning, land use, infrastructure and natural resource management.

My vision is for integrated catchment management to deliver:

*integrated action, based on sound science, to manage water in the landscape for all users, for now and the future.*

The role of science is essential in integrated management. Science is required to attempt to predict the consequences of proposed regulatory and planning actions, in delivering the intended outcomes. It is extremely difficult science, within the context of extremely difficult social and institutional arrangements. There are however two critical elements that will contribute to the success of integrated management – monitoring and audit. It is essential to audit the progress towards NRM goals, based on planned actions – which is only possible through adequate monitoring and measurement. When audit and monitoring is effective, it feeds back to inform regulation, policy and planning, so that they may better deliver the agreed targets.

## 3. INTEGRATED CATCHMENT MANAGEMENT AND THE REGIONAL MODEL IN NEW SOUTH WALES

### *A. The history of integrated catchment management in NSW*

The basic principles of integrated catchment management are to:

- take a holistic approach to the management of land, biodiversity, water and community resources at the water catchment scale

- involve communities in planning and managing their landscapes, and
- find a balance between resource use and resource conservation.

Integrated approaches to water management gained increased international exposure in the 1990's. Notably, one of the four guiding principles developed at the 1992 Dublin Conference on Water and Environment was "Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels" (Hooper, 2006).<sup>ii</sup> Within the Australian context, the former Murray-Darling Basin Ministerial Council (one of the entities that formed Australia's longest standing basin management organisation in one form or another - now the Murray-Darling Basin Authority) described 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."<sup>iii</sup>

As the 2010 Progress Report notes, integrated catchment management is based on the idea that issues are best managed by the most devolved level of authority that has the capacity to do so satisfactorily. Interestingly, while researching its 2010 Progress Report, the NRC became aware of one of the first catchment management boards to be recommended in Australia. In 1948 the then NSW Department of Conservation released the *Report of Hunter River Flood Mitigation Committee*<sup>iv</sup> which recommended forestry and soil conservation measures to complement engineering solutions. They proposed integrated solutions over 20 years to manage the floodplain. The report also recommended the establishment of a body under statute to manage the works, funded through the collection of a management levy.

By the 1980's the concept of integrated catchment management had developed in NSW through NRM policy to the point that it was the first Australian state to formally institutionalise total catchment management. The *Catchment Management Act 1989* (NSW) created 18 catchment management committees, overseen by a state catchment management coordinating committee. The *Catchment Management Act 1989* (NSW) defined total catchment management as the:

“co-ordinated and sustainable use of land, water and vegetation and other natural resources on a catchment basis so as to balance resource use and conservation.”

The regional model from 1989 created a longstanding policy of integrated catchment management, however it did not deliver to the extent that had been expected. Therefore in 2003 when native vegetation reforms were being developed, the NSW Government used that opportunity to re-invigorate the issue.

### ***B. 2003 reforms***

In 2003 the NSW Government passed legislation that established the current regional model, at the same time as it legislated to end broad scale land clearing. The reforms included new legislation, new organisations and innovative assurance and accountability mechanisms that were designed to empower regional communities. The main elements of this reform were:

- **CMA**s - establishing 13 regionally-based CMAs to work with their communities to deliver regionally relevant NRM.
- **Targets and Standard** - establishing 13 state-wide targets outlining the goals for NRM, and the Standard describing how they should be achieved.
- **Catchment action plans (CAPs)** - making CMAs responsible for developing and implementing catchment action plans (CAPs) that set out their region’s strategic priorities for investment and action, promote the targets and comply with the Standard.
- **Natural Resources Commission** - establishing the NRC to undertake independent audit and review of CAPs and their implementation for accountability and continual improvement.
- **Government involvement** - clarifying the role of agencies such as the Department of Environment, Climate Change and Water, NSW (DECCW) and Industry and Investment, NSW (I&I) as lead policy and technical organisations, and establishing the

Natural Resources Advisory Council (NRAC) as a conduit for stakeholder views to the government.

The NSW Government also adopted a long-term, aspirational goal to achieve:

“Resilient, ecologically sustainable landscapes functioning effectively at all scales and supporting the environmental, economic, social and cultural values of communities.”

It enacted legislation (*Native Vegetation Act 2003*, *Catchment Management Authorities Act 2003* and the *Natural Resources Commission Act 2003*) and created new organisations to manage natural resources and the relationship between government and private landholders at a regional scale. As the Second Reading Speech noted, the key objectives underpinning the reforms were:

- to move away from the traditional conflict between conservation and production that had previously characterised the natural resources debate
- to develop a professional, outcomes-based approach to NRM
- to ensure clear articulation of roles and responsibilities
- to encourage greater involvement of communities in managing their landscapes
- to establish targets so that we can track progress and know when we have achieved our goals, and
- to audit progress so that good practice can be supported and problems can be identified and fixed early.

One of the key reform elements of the model is the development of CAPs, which set out the strategic priorities for investment and action within a CMA region, promote the targets and comply with the Standard. There are 13 CAPs in place across the entire state – having been approved by the NSW Cabinet (upon the NRC’s recommendation) in 2007 – and 2009 for the Sydney Metro CAP.

### *C. Evaluation and accountability*

A unique feature of the NSW model is the institutionalised mechanism for continual improvement and accountability to investors. On-going evaluation is central to the model adopted for NRM, as it is designed to drive adaptive management and provide greater confidence to government investors and the community. The model is grounded by the Standard, which defines good practice and has institutionalised evaluation and reporting.

This model seeks to balance centralised government management with regional and community responsibility, through more flexible governance and accountability frameworks that promote innovative and experimental solutions that can be readily adapted in response to new information.

This is moving NSW away from a prescriptive rules-based system towards an accountability framework that is flexible enough to manage complexity and uncertainty.

### *D. The role of the Natural Resources Commission*

The evaluation and accountability model is unique from a national perspective, as it tasks an independent statutory body to define good practice, conduct evaluations and publicly report progress. The NRC's role more generally is to provide independent advice to the NSW

Government in managing the state's natural resources in an integrated manner. The NRC reviews CAPs and recommends whether they should be approved and audits how effectively these plans are being implemented to meet the Standard and Targets. Additionally, the NRC completes reviews of complex scientific and policy issues under legislation or as requested by the NSW Government.

## **4. THE ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS**

The NRC has developed evaluation approaches and gathered evidence through reviews and audits over six years – the most recent findings of which are in the 2010 Progress Report and the Alignment Project.

## ***A. The framework to deliver benefits***

Before reflecting on the benefits of the regional model, it is important to consider the current status of the model. The NRC's 2010 Progress Report found that:

“... NSW now has institutional arrangements and maturing organisations that are giving us the best chance we have had to truly implement an integrated approach to catchment management, where all components of the landscape are managed together in partnership with the community. This has been a policy aim of governments for several decades, but the previous governance arrangements and institutions have not been able to truly realise this aspiration.

Now, with well established regional organisations, a growing culture of collaboration at the state-wide scale and a commitment to whole-of-government and community planning, I think we are well on our way. Of course it is not yet perfect, but we have established strong foundations and it is headed in the right direction.”

## ***B. Benefits stated in the 2010 Progress Report***

In summary, the 2010 Progress Report made the following findings about the NSW regional model, which reveal some of the main benefits that the model is delivering:

1. The model for NRM is an effective mechanism for supporting land managers to voluntarily manage their land better for both public and private benefit.
  - Giving regional communities a more direct say in the complex task of reconciling community needs with ecosystem health is succeeding where previous top-down approaches have failed.
2. The NRC's audits verify that good projects are being delivered across NSW.
  - These projects are well designed which gives confidence that they are likely to produce good results in the longer term.
    - Over 90% of all audited projects had achieved their expected short-term outputs.



- Nearly 90% had strong, logical links between activities undertaken and expected outcomes.
  - Significantly, even though the NRC audited CMAs during the recent drought, almost half of the audited projects showed observable resource condition improvement at the site scale.
3. The NRM institutions are well established and have provided relative continuity over the last six years, in a field that has typically changed regularly.
- CMAs have had time to build their own capacity and that of their communities.
  - NSW is now seeing the benefits of sustained and relatively consistent efforts to encourage private land holders to manage their land, water and soil resources more sustainably for their own and others long term benefit.
4. CMAs are maturing into credible, regional organisations that are allowing adaptive management to work. This is exemplified by:
- the results of Murray CMA's second audit which shows significant improvement over a two year period, and
  - the innovative draft upgraded CAPs recently developed by Central West and Namoi CMAs.
5. There is a shift occurring in the way we think about and manage natural resources.
- The theory and practice of NRM is moving away from the conservation-based thinking of restoring landscapes to pre-1750 conditions and there is a growing understanding that landscapes are made up of human communities and biophysical processes that interact and shape each other and are constantly changing.

- CMAs are trialling resilience thinking as a new frame for helping communities understand how their catchments are working and where and how they should intervene to keep landscape systems operating in harmony.
  - Resilience thinking aims to identify the few most important things that influence how complex landscape systems are behaving and how they can best be managed to support increased environmental, economic and social values over the longer term.
  - This thinking has the potential to better inform how we can reconcile different societal values across landscapes in upgraded CAPs, where we should target our interventions to make our landscapes more resilient, and what we should monitor to demonstrate results and test our assumptions about how natural systems will react to management.
6. The experience of the last six years shows the value of giving local communities a more direct say in how natural resources are managed.
- Environmental, social and economic challenges that frustrate national and international policy efforts are being addressed and solved at the local and regional scale.
  - The lessons from these new methods can be shared to inform how we can design policy settings from the local through to the international level in ways that better harness the inherent creativity of citizens, land managers, non-government organisations industry and governments.
  - Given sufficient flexibility, all these parts of the community can contribute to reconciling the needs and expectations of society with the biophysical realities of our natural systems.
  - If rigorous audit processes are in place to ensure learning and improvement, top-down rules and directions can be scaled back so that regional innovation can flourish.

With this framework in place for the past six years, the benefits are becoming apparent. In addition to the benefits outlined by the NRC in the 2010 Progress Report above, a number of more specific and novel economic and policy benefits are emerging, which are explained below.

### ***C. Connecting policy and investment – regional solutions***

One of the most interesting and exciting developments has been the work at the regional level to bring together areas of policy that are currently disconnected at state wide scales. The regional model has allowed solutions to be developed at regional scales. A particularly successful example is the Alignment Project, which was published in January 2011 by the National Water Commission. All Australian states and territories have planning processes in place for:

- the management and sharing of surface water and groundwater resources through regulation and investment, and
- the maintenance and improvement in the condition of land and water resources and ecosystems through investment incentives and regulation.

However these actions are usually conducted under parallel and disconnected management processes, as is the case in NSW, with the separate *Water Management Act 2000* and the *Catchment Management Authorities Act 2003* – which weren't specifically drafted to operate together (in fact one of the barriers to proper integrated catchment management is the limited control CMAs have over water). Therefore, the National Water Commission (a Commonwealth Government entity) negotiated and funded a project for state and regional entities to explore the benefits and barriers to water planning and catchment planning processes working together. The NRC, in partnership with the Hunter Central Rivers CMA and two former NSW Government Departments:

Environment, Climate Change and Water (DECCW) and Planning (DoP) trialled a process through which both plans could be based on a common values and risks assessment of aquatic assets.

Encouragingly, this regionally delivered project, based on Commonwealth funding found that a strong 'alignment' of CAPs and NSW water sharing plans (WSP) was possible within current resources and with current institutional structures.

The project trialled a process of aligning water sharing plans and catchment action plans in the Hunter Catchment Management Area (CMA) region and found that strong alignment was possible. The trial demonstrated that the following actions are likely to make the biggest difference to future alignment:

- There should be jurisdictional policies and objectives to manage freshwater aquatic ecosystems that apply to both water allocation and catchment plans.
- There should be governance arrangements supporting ongoing coordination between agencies at state and regional levels. This would assist in developing plans and implementing actions that contribute to shared objectives.
- Freshwater aquatic ecosystem condition, value and risk assessments should be done in a single, shared process.
- Spatial representation of assessments should be sufficiently detailed to inform within-region prioritising decisions for both types of plans.
- A paired program logic map should be developed for both planning processes in each region. It should include shared freshwater aquatic ecosystem objectives that are aligned through shared, spatially defined priorities to protect and restore freshwater aquatic ecosystems.

This alignment is a crucial first step to the full integration of water and catchment planning that would improve regional resource management through reduced duplication and better coordination. Upgraded CAP pilots were developed to test the process of aligning plans and further alignment will be encouraged in all future CAPs.

#### ***D. Benefits of integrated management***

The Alignment Project was an important piece of evidence for the NRC's findings in the 2010 Progress Report. It is a recent and compelling example of the benefits of:

- the use of a common information base to plan from, and

- agreement on values so that different organisations can go about their business confident in shared objectives.

The project was an important practical example of breaking down traditional planning silos, and to start seeing and managing landscapes as complex and connected systems. The management process itself is critical, as it promotes collaboration, institutional efficiencies and more cost effective work programs. The process requires time, effort and commitment, and may struggle initially through differences in data, language and targets. However it is the alignment of these differences that ultimately contribute some of the greatest benefits.

Encouragingly, following this NSW-based trial, the National Water Commission recommended that the alignment framework be rolled out nation-wide. Within NSW, the benefits of this alignment have been promoted through the pilot CAP upgrades undertaken in the Namoi and Central West CMAs recently.

### ***E. Catchment action plans and investment in NRM***

The NRC's 2006 report – *Progress of catchment action plans* noted that CAPs:

“should become the primary vehicle for public and private investment in NRM and provide the continuity and stability needed to make investing in the natural resource assets that underpin the health of our economy, our communities and our environment mainstream.”

This role of a CAP highlights the need for integrated management, not just in policy and planning, but also in investment. The approximate NRM funding that is currently available is:

- \$3 billion – Australian Government
- \$1 billion – NSW State Government
- \$1.7 billion – Local Government in NSW

In comparison, there is currently approximately \$130 million available directly through CAPs – which is 2% of the \$5.7 billion total of government funding above. Despite being only a small percentage of the total available NRM funding, CAPs should play an increasing role in aligning

and directing investment, particularly as they are the only vehicle subject to independent review, a quality standard, audit / accountability mechanisms and are charged with taking a holistic view of socio-economic and ecological systems.

## **5. PRIORITIES FOR THE FUTURE SUCCESS OF INTEGRATED CATCHMENT MANAGEMENT**

The regional model has progressed towards integrated catchment management and has created benefits for NRM and investment in NSW. While important institutional reforms have been made, there is much to be done to fully implement integrated catchment management. Among the NRC's recommendations for improvements in the future, the three most relevant to the focus of this paper are:

1. Implement whole-of-government and community catchment planning
  - That the NSW Government prioritise development of upgraded, whole-of-government and community CAPs, so the new CAPs are in place by the end of 2012.
  - That the NSW Government seek greater coherence among state-wide plans and policies, focusing within NRM initially and working with other government policy areas in the longer term.
2. Match funding to landscape need
  - That the NSW Government better co-ordinate and increase funding in the health of NSW biodiversity, water, land and communities.
3. Design sound policy to complement stewardship
  - That the NSW Government promote design of regulatory and other policy tools to complement voluntary landscape stewardship.

## 6. CONCLUSION

The regional model that has been developed in NSW over the past decade has set the state on the path to integrated catchment management – a long sought after goal. The vision and implementation of accountable, regionally based NRM investment is something that NSW can be proud of. The model, the CMAs and others involved have matured and achieved some significant NRM outcomes – not least in terms of aligning policies.

However, the good work of the CMAs and communities needs to continue, and also needs to be supported by other programs and regulatory settings at state and national levels. The process of implementing integrated catchment management is difficult, even now that the legislative framework is in place as it requires collaboration and a sense of co-ownership – both of which are time consuming and need to be adequately funded (both major issues at a time of increasingly contested government resources).

This paper has reflected the findings of the 2010 Progress Report and the Alignment Project, which demonstrate the positive steps that are being taken in NSW towards integrated catchment management. For our societies which are confronted by both very high climate variability and the anticipated impacts of climate change on this variability, it is critical that future catchment management be reformed and the institutional arrangements to facilitate authentic integrated catchment management.

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<sup>ii</sup> Hooper, B (2006) *Key performance indicators of river basin organisations*, Institute for Water Resources, August 2006

<sup>iii</sup> Murray-Darling Basin Ministerial Council (2001) *Integrated Catchment Management in the Murray-Darling Basin 2001-2010; delivering a sustainable future*, Murray-Darling Basin Commission, June 2001, Canberra [[http://www2.mdbc.gov.au/\\_\\_data/page/107/3624\\_ICMPolStatement.pdf](http://www2.mdbc.gov.au/__data/page/107/3624_ICMPolStatement.pdf) ]

<sup>iv</sup> NSW Department of Conservation (1948), *Report of Hunter Valley Flood Mitigation Committee*