

Local solutions at a local level: community-based natural resource management within the Queensland Murray-Darling Basin

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Abstract

The communities of the Queensland Murray-Darling Basin, like many in Australia, have entered a new era of community-based natural resource management. There is an extreme reliance on inland rivers at a local, regional and national level hence creating a complex web of social, economic and environmental expectations. This reliance, coupled with the inherently scarce nature of inland water resources, necessitates community involvement and ownership when managing these precious commodities. The cornerstone of this involvement for the Queensland Murray-Darling Committee is sub-catchment planning—land managers working with the community to address local natural resource management issues. As we enter this new era, we bring with us some of the old challenges of initiating and sustaining community involvement in natural resource management. In this paper we identify the local challenges we face in our region, the Queensland Murray-Darling Basin, and present both lessons learned and strategies that ensure successful community participation in, and ownership of, local riverine, wetland and water management within a complex system.

Keywords

Community partnership; natural resource management; riverine management; sub-catchment planning.

INTRODUCTION

Driving the implementation of natural resource management (NRM) in the Queensland Murray-Darling Basin (QMDB) is the community's vision, as stated in the Regional NRM Plan:

'The community working together to build healthy, sustainable, attractive and profitable regions, through the effective management of our natural resources' (QMDC, 2004).

From this basis, the NRM Plan demonstrates 'bottom-up' community planning and 'top-down' institutional planning actions that integrate elements of both. It recognises the necessity and importance of other plans and strategies, including policy and legislative frameworks. While dealing with regionally significant natural resource assets, issues and processes, the NRM Plan supports catchment and sub-catchment group planning processes that address more localised problems.

During the development and extensive community consultation phases for the NRM Plan, key organisations were consulted and encouraged to contribute to the content. These organisations have in turn provided their continued commitment to, and direct involvement in, NRM in the region by becoming partners through cash, in-kind and logistical support to the range of activities. Working with its stakeholders, the Queensland Murray-Darling Committee (QMDC) has developed several mechanisms for resource management within a region of diverse human and physical landscapes.

QMDC'S APPROACH TO NRM

Regional planning is predicated on the basis that 'The doers must be the planners—people don't implement other people's plans anymore' (Davidson, 1995). In this context, QMDC have embarked on several pathways to ensure that local land managers develop and own the activities that aim to maintain 'sustainable, productive landscapes and rivers'. The four key implementation pathways are: pilots and demonstrations; incentives selection (Dalton, 2003); Priority Investment Areas (Prentice, 2005); and sub-catchment planning – the principal mechanism through which QMDC links the NRM Plan targets with on-ground activities, and the focus for the remainder of this paper.

Sub-catchment planning process

Sub-catchment planning (SCP) reflects the community's desire to be both the 'planners and the doers'. Sub-catchment plans are submitted by contiguous and socially-entwined public and private landholders whom all wish to affect certain aspects of their catchments. The process supports both existing Landcare groups as well as assisting new groups to form. These groups embark on an information exchange cycle to identify common issues and gain access to information about NRM and opportunities for sustainable production. SCP is also used as a tool to help landholders achieve requirements for an Environmental Management System (EMS) or industry self regulating activities. QMDC set essential criteria for sub-catchment plans and coordinate a technically-strengthened assessment panel to review applications.

Through SCP, QMDC has developed a range of key extension, assessment and planning tools. These ensure that groups are made aware of NRM issues in their catchment before developing and submitting Action Plans for funding, and demonstrate the integrated nature of these resources. These include:

Group mapping meetings – property scale maps enable landholders to highlight and discuss a range of land, water and vegetation issues. Maps are digitised for landholders to keep and provide an important tool for future planning.

Simple action learning tools – basic props are used to discuss NRM issues such as cover, erosion, infiltration and deep drainage (Webb, 2005). These are the ultimate in the 'KISS' principle.

On-ground property visits – site assessments enable technical staff to determine the current condition, and risks and threats to these resources, and assist planning of integrated on-ground works. These also form the basis of ongoing monitoring to assess change of condition with implementation of works.

Group field days – these are often an opportunity to use one theme as a focal point for integrated management. For example, water quality is often used as a springboard to discuss riparian protection, ground cover and land management throughout the sub-catchment.

Groups are assisted to develop plans and budgets to implement on-ground activities over a three year period. Landholders provide cash and in-kind support including a commitment to monitoring, and are reimbursed for works according to funding ratios established for specific NRM outcomes.

CHARACTERISTICS OF THE QUEENSLAND MURRAY-DARLING BASIN

The Queensland Murray-Darling Basin (QMDB) covers an area of about 260 000 km², comprising the Condamine, Border Rivers, Maranoa-Balonne and Warrego-Paroo catchments. The total river length in

the QMDB and Bulloo catchments is close to 5500 km, and there exists more than 10 000 wetlands of greater than 5 ha each (Kingsford et al, 1997). The region has a high diversity of physical environments, spanning artesian and riverine systems, significant wetlands and rangelands, and expansive floodplain country. Rainfall is summer-dominant and highly variable, with average annual records ranging from more than 1000 mm in the east to less than 250 mm in the west.

The size of the catchment, with its climatic and geographical variability, and diversity of enterprises and people, presents many challenges. In a social study of catchment planning in the QMDB, Byron *et al* (2004) found that the suitability of soils and the capacity for water storage are believed by landholders to be significant constraints to adopting current recommended practices. Water availability and water quality, in an ephemeral river basin, are issues which are compounded during times of drought. Of further relevance to community engagement is landholders' knowledge of, and attitudes towards, a range of NRM issues. The only NRM topic where most respondents had sound knowledge was the benefits of ground cover on grazing and cropping paddocks to maintain and improve soil health. Approximately half of landholders in the QMDB are involved in property planning and about a third of these had a completed or ongoing property plan (Byron et al, 2004). It is expected that the region's population base of 54 600 will decline by approximately 9% by 2020 (OESR, 2003) and of note is the typical rural 'youth gap' experienced through much of inland Queensland.

CASE STUDY

The following case study demonstrate how SCP promotes NRM awareness and more sustainable production, whilst funding projects that align with the NRM Plan.

Maranoa River rehabilitation - Building on past projects

The Maranoa River Landcare group, established in 1995, includes twelve landholders and their families. This group manages approximately 100,000ha of land along 70 km of the Maranoa River north of Mitchell, Queensland. The businesses involved are primarily cattle grazing properties, with two farming enterprises for both stock and grain.

In 2001, the group received NHT funding to erect 70 km of riparian fencing on the Maranoa River. As Parthenium weed (*Parthenium hysterophorus*) was of particular concern for the group at the time, riparian fencing became a key management strategy for controlling stock access, soil erosion, and ultimately weed seed spread along the river.

Following on the completion of the NHT project, the group added to existing on-ground works through their participation in SCP. By combining experience and knowledge within the group with information received from the QMDC technical staff, additional priorities for the Maranoa River were identified. In 2005, QMDC approved funding for another 27 km of riparian fencing, 40 watering points to reduce the impact of cattle padding, 5030 ha of waterway stabilisation and 108 258 ha of land fenced to minimise a range of impacts. What began as an initiative focused on Parthenium management has grown to include a range of river improvement initiatives.

To measure the impact of their works on in-stream water quality, the Maranoa River group and QMDC technical staff have now established five monitoring sites in the sub-catchment. Additionally, eight members of the group have received accredited water quality training to ensure this information has

known quality assurance and quality control values. The group is excited to begin linking their on-ground works with data related to sediment, nutrient, and chemical loads in the river.

RESULTS

The results of NRM funding, planning, extension and on-ground work activities have been widespread. As a result of countless hours of community and staff involvement in the planning, design, and training, over 500 landholders across 646 properties in 50 sub-catchment groups (**Figure 1**) have become involved in SCP in the past nine months (to July 2005). This equates to 2.4 million ha (27% of Border River and Maranoa-Balonne catchments) covered by a sub-catchment plan.

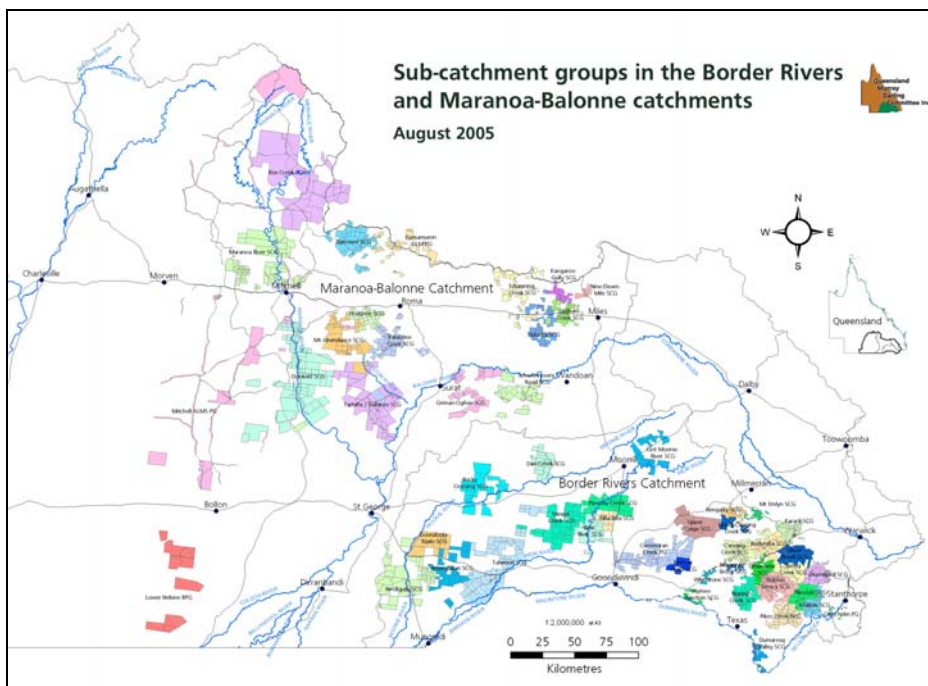


Figure 1. Sub-catchment groups in the Border Rivers and Maranoa-Balonne catchments formed by August 2005 (Map by Brett Coppard, QMDC).

The following key achievements relate to riverine management outcomes this year:

- 7 sub-catchment plans developed incorporating 12 water quality/riverine technical investigations
- 16 water quality and riverine management field days attracting a total of over 120 landholders
- 6487 ha of riparian vegetation protected by fencing, encompassing a total stream length of 76 km
- approximately 50 000 ha of native pastures established to reduce soil erosion and previously cultivated lands
- 41 off-stream (alternative) watering sites installed specifically to alleviate grazing pressure in the riparian zone.

REFLECTIONS

Sub-catchment planning has been a significant learning curve for the QMDC in engaging regional communities in the NRM process. The following are some of the key lessons learned.

Production links to NRM

The initial focus on NRM extension has shifted to a message increasingly focused on production in recognition that ecology and production are not completely antagonistic. While some rivers will never be pristine in a production landscape, it is still possible to work towards more sustainable production systems, and this can only occur if landholders are supported in their businesses. Highlighting links between best management practices and sustained productivity encourages uptake of these practices, as does discussion of eco-services provided by land, water and vegetation resources.

Integration

Natural resource issues and themes, agencies, industry bodies, and NRM organisations, and research and extension information do not exist in isolation. There needs to be a concerted effort for integration in order to produce clear and consistent messages about NRM to the community. Working with these bodies is important in order to utilise extension tools developed and achieve the best results possible with landholders' time and efforts.

Simple tools work

Simple action learning activities are effective in communicating key NRM messages. They can be delivered on tables or in the paddock, are valuable in demystifying technical NRM jargon, and are an effective means of highlighting the links between land use, water, vegetation and productivity in a limited time frame.

Getting out in the paddock

There is no substitute for getting on-ground with landholders in the paddock. Property visits help to identify risks, threats, and opportunities, acknowledge previous work, enable condition assessments and benchmarking of resources and assist in developing trust. Desktop assessments that rely on broad scale studies or mapping cannot account for the variability that occurs between sub-catchments and even at the property scale. Anecdotal evidence is often the best source of information.

Monitoring

Trust in community-collected resource condition data and anecdotal evidence, in parallel with detailed studies, is beginning to improve in the scientific community. Integrating this information into decision-making has the potential to heighten trust and help overcome barriers to community engagement. Monitoring has the potential to be a powerful engagement tool in itself, however, it is of most value as an adaptive management tool when implemented early in the NRM process as opposed to as an add on activity at the end.

Adaptability

SCP is an ever evolving process and this is one of the keys to its success. Each group is different in its social structure, experience, and requirements. Personal contact helps to determine the fundamentals of each group, to ask what it is that they want, and to tailor messages to suit, delivering current information in the knowledge exchange cycle. Determining what works and what doesn't, and communicating this is critical for the adaptive learning process.

CONCLUSIONS

The learning gained through implementation of SCP has been immense, and is of value to other organisations facing similar challenges with NRM. Community capacity building is important, as the

success of NRM planning and implementation depends on the initiatives of the community. On-ground extension requires a large commitment of time as well as a multi-disciplinary and skilled extension team to deal with the complexity of NRM issues.

Integrated NRM plans are never perfect, but that should not stop careful planning and risk assessment. Messages promoted about NRM must have sustainable production outcomes to effectively engage industry, individual landholders and local government. Adaptive management, continual improvements, and integrated messages are all still key mechanisms to influence changes in practice.

The significant footprint we are working with is just the beginning. Now we are faced with ensuring that the visions and targets set out in the plan are achieved in the right locations. With continuous improvement principles, the standard of integrated planning rises and research can be targeted to areas of willing landholders or priority locations. Of primary importance is the need to involve the community in all stages of NRM and recognise the value of applying local solutions at a local level.

ACKNOWLEDGMENTS

We would like to thank the Maranoa sub-catchment group for assistance with their case study. Thanks go also to the QMDC Communication team and Dave Gardiner for their support writing this paper.

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