

Sustainable river management in the Queensland Murray Darling Basin

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Abstract

Various natural resource management issues affect rivers in the Queensland Murray Darling Basin (QMDB). Overall land use has changed significantly in parts of the QMDB. This development has significantly increased economic productivity but has resulted in biophysical changes considered detrimental to waterways and broader landscape. Such changes are beginning to have an impact which, if not addressed, will ultimately undermine the economic gains made. To reduce the impacts, the Queensland Murray Darling Committee is undertaking sub-catchment planning (SCP) with community groups. This process recognises issues are interlinked and that there is a need to look at the bigger picture to achieve the desired long term outcomes. SCP involves groups identifying their natural resources issues. From here gatherings may incorporate specialist field days or information sessions as required to assist with determining actions. Mapping of issues is an important part of SCP. This assists in documenting issues and actions the group are going to undertake. Finalising the plan is not the end. Groups are encouraged to view the process as one of continuous improvement to learn more about their resources and build their knowledge.

Key words: Community involvement

1. INTRODUCTION

The Condamine-Balonne-Maranoa, Warrego, Paroo and Border rivers form the upper reaches of the Murray Darling Basin, one of Australia's important agricultural regions along with having diverse wetland and riverine ecology (Figure 1) (QMDC 2004). This area will be referred to as the Queensland Murray Darling Basin (QMDB).

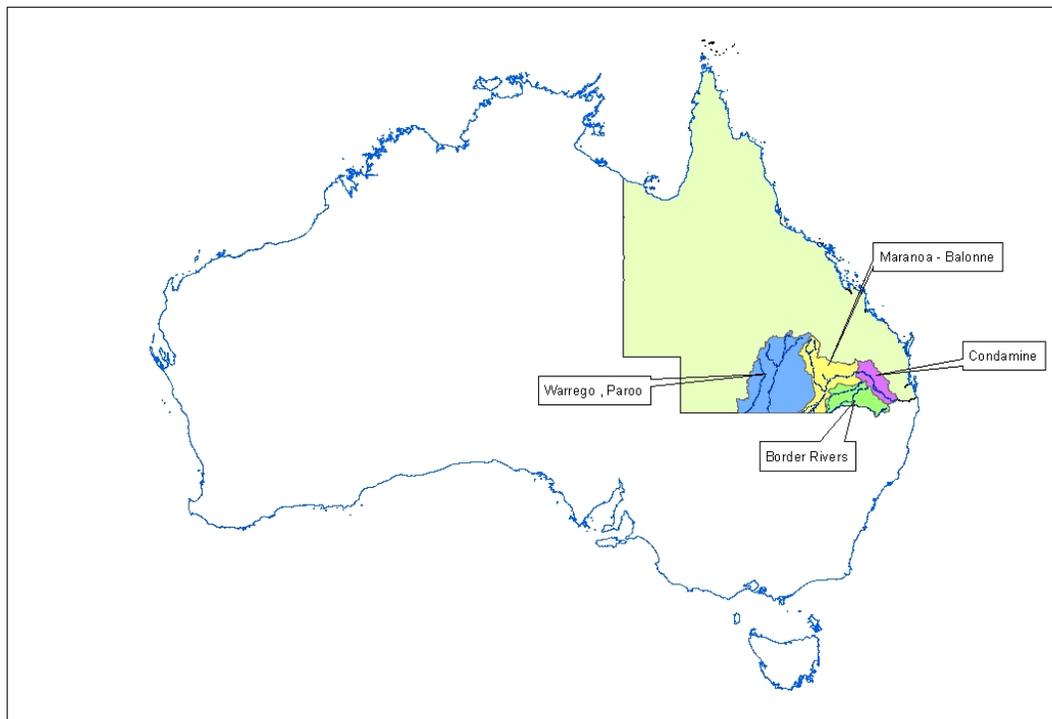


Figure 1 – Location of the Queensland Murray Darling Basin

Various natural resources management (NRM) issues are affecting QMDB landscapes. The extent and presence of issues varies across the region. Water quality and riparian issues include:

- Elevated pesticide concentrations;
- Increasing phosphorus and nitrogen levels;
- Declining aquatic macro-invertebrate communities and associated habitats;
- Raised salinity levels;
- Altered flow regimes reducing nutrients deposited on floodplains due to impoundments;
- Modified riparian vegetation;
- Erosion leading to increased turbidity and siltation; and
- Declining native fish populations (QMDC 2004).

Broad scale clearing for agricultural production has occurred throughout the QMDB, having a considerable impact on native vegetation. Overall land use has changed significantly in parts of the QMDB over the last 30 years with a shift from extensive grazing to more intensive cropping, mixed enterprises and irrigation. This development has significantly increased economic productivity but has also resulted in many biophysical changes considered detrimental to these waterways and broader landscape (QMDC 2004).

Examples of broader landscape concerns include salinity or waterlogging through altered hydrology, weeds, feral animals and erosion among other issues. QMDB waterways have also seen increased water extraction, building of dams and weirs as well as the floodplain development and deterioration of riparian habitat. This has led to significant changes in the way these systems would have previously functioned (QMDC 2004).

Such changes are beginning to have an impact on water quality and overall riverine health among other issues which, if not addressed, will ultimately undermine the economic gains that have been made over the past 30 years (QMDC 2004). To reduce the impacts on these river catchments, the Queensland Murray Darling Committee (QMDC) is undertaking an integrated approach using sub-catchment planning (SCP) with interested community groups. This process recognises that issues such as land, water, vegetation and weed are interlinked and there is a need to look at the bigger picture to achieve the desired outcomes for the long term (QMDC/Landcare and Catchment Management 2004). Within the QMDB, SCP is used within the Border Rivers, Maranoa-Balonne and Nebine Mungallala catchments as other regional bodies are responsible for the other catchments.

2. SUB-CATCHMENT PLANNING METHODOLOGY

Across the catchments there are numerous groups at various stages undertaking SCP over a wide array of landscapes, see (Figure 2).

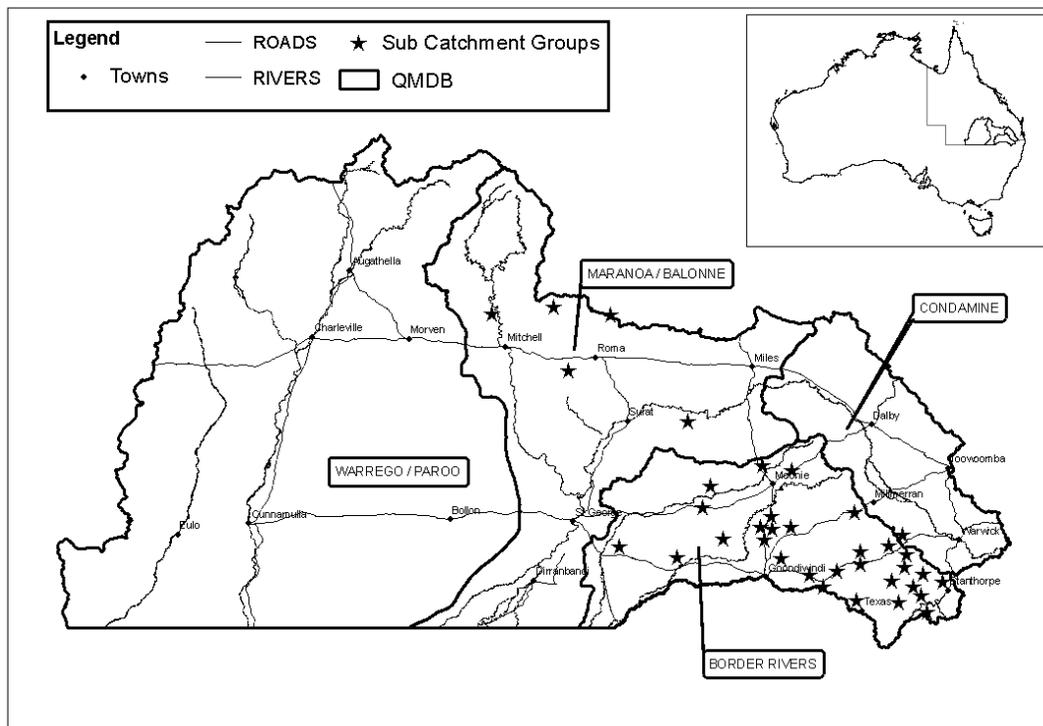


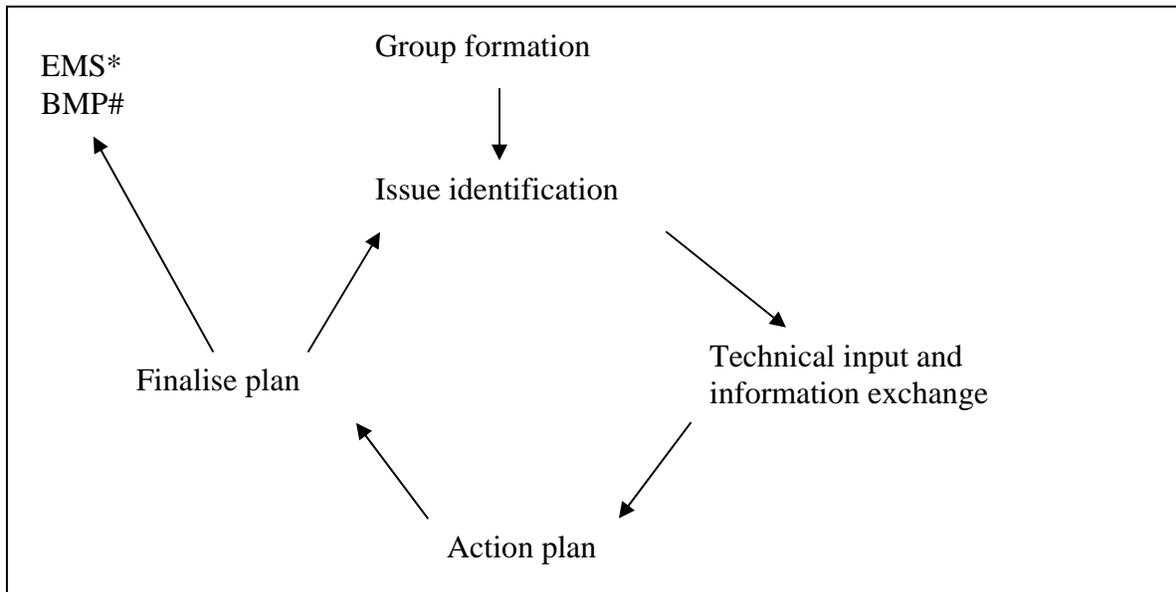
Figure 2 – Sub-catchment groups across the QMDB.

QMDC staff (Landcare Coordinators, Technical Officers and Managers) have developed a framework for SCP.

The methodology involves groups undertaking a series of steps where groups identify issues and resources considering:

- Natural resources;
- Human; and
- Capital elements (QMDC/Landcare and Catchment Management 2004).

Figure 3 outlines the SCP process in broad steps.



* Environmental Management Systems

Best Management Practices

Figure 3 – Sub-catchment planning process

Once a SCP group has formed, the first step in Figure 3 is to identify the issues and resources relevant to the sub-catchment group. The broad categories that a group may identify issues within include:

- Nature conservation;
- Riparian vegetation;
- Water quality;
- Land management;
- Weeds and pests; and
- Salinity (QMDC 2004).

Once this has been completed, the sub-catchment group may identify which issue/s they would like to deal with initially. From here the relevant technical staff are involved in:

- Investigating what is known about the area and the issues;
- Identifying gaps in existing knowledge; and

- Sourcing relevant information that may assist, among other questions that may be raised.

Landholder knowledge is an important component in issue identification and what management options may be available. Information exchange between technical staff and landholders may take place in a workshop or on a field day. The latter may be used as an opportunity to source information to fill gaps in current knowledge and/or skills. Where a gap is identified, the sub-catchment group may choose to undertake research or trials to fill it. Such investigations can assist in defining activities or trial/s that the group may include later in their action plan (QMDC/Landcare and Catchment Management 2004).

During this step, other issues that the landholders have not identified may be raised by technical staff. Throughout the SCP process, information and outcomes are documented to become background information for the group's current SCP and any further investigations or actions. This process of information exchange is repeated as necessary to ensure all components are covered to create an integrated SCP (QMDC/Landcare and Catchment Management 2004).

Part of this step also involves mapping. The end product is a property scale map indicating attributes and actions to be undertaken by the landholder.

Once all issues (nature conservation, water quality, salinity etc) have been investigated landholders then work out what they want to target. This step can be a challenge depending on what the issue is. Groups also need to determine what is feasible to undertake over the next 12 months, some projects may be on-going due to their nature. This may require groups to prioritise what is to be done and in turn define objectives and targets for those activities to be undertaken within the action plan (QMDC/Landcare and Catchment Management 2004).

From here, the group develops a draft action plan both for the sub-catchment group and individual properties. Groups are assisted by technical officers with monitoring and evaluation and other components as required to finalise the plan(s). This is essential in helping illustrate the effectiveness of implementing changes in land, water or vegetation management. This step also involves identifying what skills the group has and where gaps may exist that may require training/up skilling. The plan is submitted to be assessed for funding (QMDC/Landcare and Catchment Management 2004).

SCP is a part of a continual improvement cycle. Groups are encouraged to look at other issues or forms of accreditation or quality assurance such as EMS, BMP's. The group may also choose to look at other issues identified in the initial process and explore actions to address these (QMDC/Landcare and Catchment Management 2004).

3. DISCUSSION

QMDC is using SCP as one of a number of approaches to achieve integrated NRM outcomes. The SCP framework is assisting in achieving increased integration of issues and providing a technical grounding on which these plans and subsequent actions are based. To achieve this it may also mean sourcing staff from government agencies or other organisations where ever the expertise exists to answer the questions raised.

Another important part of the SCP process involves building group dynamics between landholders as well as building partnerships between technical staff and landholders. This process is assisted by the Landcare Coordinators who play an important role in:

- Facilitating the group to identify issues;
- Introducing other issues that the group may not have thought of or have much knowledge about;
- Assisting the group with undertaking mapping of issues and existing infrastructure; and
- Coordinating activities between technical staff and landholders (QMDC/Landcare and Catchment Management 2004).

The final point above is critical as each group is different so exactly how the information exchange between technical staff and landholders occurs can vary. For example as there are gaps in existing knowledge for numerous issues, landholders may be asked a series of questions prior to a meeting or other gathering to assist technical staff in looking at what has been done elsewhere that could an option. This may also be used to “break the ice” about some issues.

4. CONCLUSION

SCP process provides the opportunity for further skill development, knowledge and strengthening partnerships between both landholders and technical staff throughout the Border Rivers, Maranoa-Balonne and Nebine Mungallala catchments while achieving NRM outcomes outlined within the Regional NRM plan for the QMDB/Bulloo areas.

5. REFERENCES

Queensland Murray Darling Committee, (2004). *Regional NRM Plan*, Toowoomba.

Queensland Murray Darling Committee/Landcare and Catchment Management, (2004). *A guide to sub-catchment planning for Facilitators/Coordinators*, Toowoomba.