

Understanding the capacity of catchment organisations to make decisions about natural resource management in Australia

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Introduction

In Australia, there are 56 regional catchment management organisations (CMOs) (<http://www.nrm.gov.au>) planning and implementing natural resource management (NRM) based on the practice of Integrated Catchment Management (Seymour and Ridley 2005). CMO structures in each State are quite varied (Pannell et al. 2007) although all have the responsibility for working with the community to plan and prioritise investment of public funding. The planning task faced by these CMOs is complex. A feature of planning is the need to use technical information effectively to make decisions about how and where to spend public funds for environmental protection or improvement. The ability to integrate information from a range of sources is important for decision-making. In this study we qualitatively analyse phone interviews of a sample of CMOs to identify areas where their capacities for the use of information in decision-making could be improved.

Methods

Structured telephone interviews were conducted with senior staff members from 18 CMOs across Australia between December 2006 and March 2007. All 56 catchment management organisations throughout Australia were contacted, with 18 agreeing to participate (five CMOs in New South Wales, six in Victoria, three in Queensland, two in South Australia and one each in Tasmania and Western Australia). The CMOs were asked about:

- the types of technical information used by the organisation to make decisions and how well economic and social data were integrated,
- the processes used by the organisation (if any) to assess the quality of information,
- who within the organisation had the role of interpreting technical reports and integrating different types of information for decision-making; and
- processes in place (if any) to evaluate past natural resource management (NRM) decisions.

The interviews were recorded on tape and later transcribed. Commercial qualitative analysis software (N Vivo 2.1) was used to code the data into nodes to reveal major trends and outlying issues. Data was analysed to reveal common responses and contrasts between organisations and States.

Results

Current use of technical information for decision-making

Technical information used by CMOs is largely biophysical in nature and is used mainly for assessing resource condition of natural assets (e.g. land, water, biodiversity), for monitoring purposes and for informing management actions. For most CMOs, 'grey literature' (unpublished internal reports or consultancy reports) appear to be the major source of technical information. Only three CMOs reported making any use of scientific or peer-reviewed literature. Spatial approaches such as Geographic Information Systems (GIS) are used to varying degrees. Some CMOs are only just beginning to use spatial approaches and recognised the need to improve staff skills in this area.

Only three CMOs have used economic information to help make decisions about the desirability of on-ground works (using benefit-cost analysis). Four others have been involved in piloting the use of “market based instruments”. Economic skills are not usually available in-house so consultants are often engaged. Few CMOs explicitly consider the level of landholder benefits from adopting the new “sustainable” practices in order to assess the likely adoptability of these practices. Eleven regions report no or very low use of economic data, with two CMOs attributing this to difficulties in accessing data.

Use of social information is extensive in some CMOs, with consideration of demographic information mentioned specifically in six CMOs and additional more extensive social information (social profiling and information about attitudes and values) in a further six. The information is used for decision-making, service delivery and as general market research to better target communications and activities.

CMOs appear to have strong relationships with state government agencies and universities:

‘We bring the skills in if we need them. We are the facilitator and it’s all based on partnerships with agency staff and other networks across the catchment. We don’t need an empire; the skills are already out there’.

Seven CMOs preferred to rely on their own internal expertise or the knowledge held within their own region.

CMO processes to assess the quality of technical information

Half of the surveyed CMOs rely on internal expertise to assess the quality of technical information and to ascertain whether it meets the requirements of the project brief:

‘I think we are pretty capable here and can make that assessment ourselves. That happens with the people in-house who manage those projects and understand what the quality is’.

Four CMOs reported the use of technical committees/groups to specifically perform the task of interpreting technical information. One participant reported that sometimes they just have to use the information that they have available, even if it is not the best quality:

‘You can’t just not take action, just because you don’t have the data’.

Interpreting and integrating technical information

In all cases, project officers, senior management staff or a specific technical committee (or a combination of these options) have the responsibility for interpreting technical information for decision-making. No participating CMOs outlined a formal process for interpreting information; reporting that it mostly happens opportunistically:

‘It depends on who gets it, as far as what is decided to do with it. Then the senior management team or project team decides what to do with the information, how to act on it and whether it’s credible or not. It comes back to technical expertise and senior staff – it’s opportunistic’.

In the majority of cases (14 out of 18) integration of information for decision-making is carried out by senior staff or project officers with specialist technical skills (e.g. managers, catchment coordinators, theme leaders) but it mostly does not occur within a formal process or using a formal decision framework. It was acknowledged that integration is important but difficult to do in practice:

‘NRM and catchment management is a relatively young area and people still tend to provide their specialist expertise. It’s very hard to get people to think across disciplines’.

Current use of evaluation processes by CMOs

The level of evaluation, and interpretation of what evaluation involves, is quite different across the CMOs interviewed. All CMOs acknowledged the importance of evaluation, although evaluation is at

various stages of development in different regions. Three CMOs had no evaluation processes and seven were at the stage of developing processes. Evaluation is seen as challenging when CMOs are busy implementing projects. They feel that they lack access to good guidance on evaluation methods and processes.

Evaluation is largely interpreted (nine CMO responses) as being based on outputs and tracking progress towards management action targets, which is about activities, not outcomes. Only a minority (five) consider that evaluation includes reflecting on and learning from past decisions and processes and it appeared that none yet systematically evaluate NRM outcomes.

Discussion

The complex nature of regional NRM decision-making should not be under-estimated. Many types of information (expert and community knowledge) require integration and interpretation in order to plan, prioritise and evaluate possible investments. Regional NRM decision-making also occurs across a range of both spatial and temporal scales. Further to this, CMOs must also contend with information gaps and politically-motivated constraints. Given this background, it is evident that CMOs would greatly benefit from various types of assistance to support their decision-making processes. This research has highlighted a number of key areas where the existing level of assistance and support offered to CMOs would appear inadequate.

Use of technical information for regional NRM decision-making requires more than just an ecological and biophysical perspective. Equally important is the consideration of economic and social science perspectives. This research revealed a low-level of consideration of economics, especially farm-level economics as a key driver of farmer decisions (Pannell et al. 2006). No CMO had clearly considered trade-offs between environmental and economic outcomes.

Social information was more widely used, however this varied between CMOs and it was also unclear how this fed into decision-making. There may be benefits in providing guidance to CMOs about the different sorts of social information that may be relevant. Information about community values and attitudes, as well as demographics, may reveal important trends about community capacity for NRM or willingness to participate in CMO programs.

A minority of CMOs accessed information from a variety of sources, whereas many relied on their own local contacts. While local information is very important, an over-reliance on it can lead to narrow and out-of-date advice. CMOs also face the issue of having to sort through too much information. Being able to ask the right questions of research is an important capacity issue. The use of comprehensive decision frameworks can help piece information together to make decisions (e.g. Ridley and Pannell 2005; Sparks et al. 2006). Further to this, a study into the capacity-building perspectives of regional NRM Board members reported the need for more rigorous and cost-effective decision-making processes (Robins 2008).

One of the biggest challenges for CMOs is that of integrating different types of information for decision-making. By 'integration' we mean bringing together disparate types and sources of information together for planning and prioritisation. This study, and others (Paton et al. 2004; Johnson and Campbell 1999), have highlighted integration as a challenge for many CMOs in Australia and other parts of the world. We believe that integration requires some formal analysis that can combine and weigh up different types of information, such as an economic framework.

Finally, this study has revealed a capacity gap in CMO evaluation of their programs. Most CMOs recognised the importance of evaluation. In many cases however, evaluation is perceived as secondary to planning and implementation and there is a sense of just wanting to 'get on with the job' (Allan and Curtis 2005). Current CMO evaluation is largely based on tracking the progress of on-ground activities. This perception is probably not a weakness of the CMOs themselves, but rather as a consequence of the monitoring and reporting requirements of funding bodies. A study by Allan and Curtis (2005) of two major NRM projects in south eastern Australia reported similar findings

regarding evaluation. Promising is the use in NSW of the Natural Resources Commission Standard (NRC 2005) which promotes a broad approach to evaluation. This Standard also sets out guidelines for procurement and use of technical information.

A government shift away from outputs-based programs to outcomes-based NRM may set up a better framework that utilises good decision-making frameworks, better integration of information and more extensive evaluation processes.

Conclusions

- CMOs would benefit from the adoption of more systematic decision approaches to help with integration of information, identification of knowledge needs and adoption of outcome-oriented evaluation. Governments should help CMOs develop such processes but in a way that meets regional needs and doesn't add to reporting requirements.
- There are already a number of efforts underway nationally, and in some States to develop improved standards and systems. The NSW Natural Resource Commission standard is one such example (NRC 2005).
- The focus of project funding bodies on 'outputs' rather than 'outcomes' lies at the heart of many issues that have emerged in this study. A focus on outcomes rather than processes, expenditure and activities would lead to a requirement for stronger decision frameworks, better integration of best-available information and better evaluation processes. A government shift to outcome-oriented programs would seem a sensible way forward.

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