Reviewing the Monitoring and Evaluation Practices and Perceptions of Australia's Regional Natural Resource Management Organisations

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Abstract

Established under a joint venture between the Australian Government and the individual state and territory governments, Australia's regional natural resource management (NRM) organisations have been the primary structures for delivering NRM investment programs across Australia. The quantity of investment devolved through these organisations places significant accountability pressure on them and requires them to evaluate the impacts of their programs. Despite the increasing volume of literature about these NRM bodies, no previous review has established a baseline of the regional bodies' evaluation practices and capabilities on a national scale.

This research reviews the monitoring and evaluation drivers, barriers and practices of these regional bodies. Findings include the identification of two main driver factors (improvement and maintenance), two barrier factors (skills and resourcing, and technical) and three practice factors (monitoring and evaluating intermediate outcomes, appropriateness of investment aspects, and need and benefit). The majority of regional bodies were operating within the higher level expanded contextual (25 percent) and constitutive and bounded rationality (58 percent) evaluation model groups. The results suggest that very few regional bodies are operating within the more narrowly focused organisational excellence (11 percent) and political and symbolic (6 percent) evaluation model groups. Evaluation capabilities and culture were also high across the regional bodies in line with the high level evaluation models generally being applied.

A review of the influence of the statutory status of the regional bodies, which applies in some states, identified statistical differences between the evaluation barriers and models of statutory and non-statutory regional bodies but not between their drivers, practices, capability, culture, satisfaction levels or partnerships.

Important relationships of relevance for the future evolution of this sector were also identified through the analysis and include links between the presence of corporate strategic planning and organisation size and the higher level evaluation models.

Certification of Dissertation

I certify that the ideas, experimental work, results, analyses and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award.

Signature of Candidate Date

ENDORSEMENT

Signature of Supervisor Date

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1 Introduction

This thesis is an investigation of the evaluation practices of Australia's regional natural resource management (NRM) organisations, especially focussing on their approaches to monitoring and evaluation, their current practices and their drivers for evaluation. There is an overview of the theoretical and contextual background and issues surrounding monitoring and evaluation activities. Methods to review relationships between various characteristics and the organisations' self-reported perceptions are developed in order to develop some benchmarks of their evaluation models, capability and cultures. There is also a discussion of the drivers and barriers perceived by these organisations as influencing their monitoring and evaluation practices to identify areas that are affecting a majority of the sector, which could benefit from collaborative consideration and solutions.

To establish some general context around the content of this thesis, this first chapter includes a brief introduction and overview of the content, providing background for the following chapters by outlining the issues leading to the research problem, the methods applied and the thesis structure and aims.

1.1 Context

Australia's regional NRM organisations operate in a highly complex environment to implement community NRM plans/catchment action plans for their individual regions. While some of the regional bodies were formed from pre-existing groups or entities, most of the 56 regional bodies were created specifically for the purpose of managing National Action Plan (NAP) and Natural Heritage Trust (NHT) investment in their region. The regional bodies started with vastly different situations, needs and structures. Some States adopted statutory models (i.e. Victoria, New South Wales and South Australia) for their regional bodies and other States/Territories opted for not-for-profit, private company and community Board models. In addition, there are highly variable regional characteristics across Australia (including population, area, landscape types, and historical and current development). The regional bodies in Australia have developed hybrid governance structures (Kooiman 2008), carrying out government policy through private and mixed ownership arrangements, which places these bodies on the borderline between the state, markets and civil society and adds another level of complexity to their programs and their evaluation requirements and capability.

Evaluation across this sector is especially difficult because of the extent and diversity of stakeholders, from the Federal Government to the regional community involved in setting local priorities. In addition, the outcomes from regional NRM investment can be long term and difficult to measure. So while a core responsibility associated with the investment of the Australian and State/Territory funds through these regional bodies is the monitoring and evaluation of the impact, appropriateness, effectiveness,

efficiency and legacy associated with the investment of these public funds (Australian Government NRM Team 2009a), their individual contexts provide a complexity that is not easily addressed.

1.2 Policy problem

The relatively young age of NRM in Australia and in general across the globe has required NRM evaluation to be developed through the transference and contextualisation of evaluation theory and methods from more established sectors such as education and health and so NRM organisations may not yet have the sophistication and experience required to fully address the needs of stakeholders. A decade of national audits of the regional delivery of the Australian and State/Territory Governments' funding under the first and second rounds of the NHT, and under the NAP each highlighted a lack of validated data on the impacts of these programs, such that their progress towards outcomes could not be assessed (Australian National Audit Office 1997; Hassall & Associates 2005; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b).

With such diversity among the regional bodies in such a young sector, and with a clear need to provide support to increase the investment impact evidence base through improved monitoring and evaluation, at the commencement of the *Caring for our Country Program* in 2008, the Australian government set clear goals for the program and highlighted performance measurement as a high priority (Department of Environment Water Heritage and the Arts & Department of Agriculture Fisheries and Forestry 2008b, 2008a). The *Caring for our Country Monitoring, Evaluation, Reporting and Improvement Strategy (Australian Government 2011a)* (the MERI strategy) prepared for the *Caring for our Country* program's five years of investment, stipulates that projects contracted through the program will include monitoring, evaluation and reporting against the outcomes of the investment and provides measures for these against relevant program targets. The MERI strategy does not provide standard condition/health indicators for the targeted natural resources or associated protocols for measurement.

While previous funding programs focused their investment primarily through the regional bodies for management and distribution throughout their respective regions towards investment targeted through the regional plans (Attorney-General's Department 1997; Natural Resource Management Ministerial Council 2005), the *Caring for Our Country* program opted for a reduced nominal base funding investment to the regional bodies and a competitive devolvement of the majority of program funds opening up this funding to a wide variety of eligible groups and organisations. This change towards a highly competitive funding model challenged many of the regional bodies as they were not structured for, or used to, such a system and were thus not prepared to cope with the significantly reduced base funding (Australian Government NRM Team 2009b). It could be expected that responses to these changes might include increasing promotion of 'commercial arms' and consultancy frameworks among the regional bodies

as they attempt to stabilise their funding away from such a heavy reliance on government funding as had occurred under the previous funding models.

Contrary to this expectation, however, the regional bodies have remained highly reliant—at least in the shorter term—upon their State/Territory governments and the Australian government to fund their investment programs (between 65 and 71 percent of regional bodies reported government funding as the source of more than 80 percent of their total income in 2007-08, 2009-10 and 2010-11). These high proportions of government expenditure through the regional bodies raise expectations of public accountability and control over the outcomes by the governments, which in turn raise the importance of evaluation across these investments and across the regionally diverse implementation approaches.

Without a clear baseline of the monitoring and evaluation status, approaches, capability and culture among the regional bodies, however, it will be difficult to track improvement and to identify any areas where joint effort may provide sector-wide benefits.

1.3 Research problem

Investigations of, and recommendations about, the regional NRM organisations are relatively recent with reviews focussing on a range of business aspects including:

- Governance (Bellamy & Brown c2009; Davidson et al. 2008; Dean & Bush 2007; Griffith et al. 2009; Lockwood 2009; Robins & Dovers 2007; Vogel & Zammit 2004)
- Evaluation issues (Bellamy 2005; Fenton & Rickert 2006; National Monitoring and Evaluation Symposium Steering Committee 2005; Reeve & Brunckhorst 2007)
- Evaluation of specific funding programs (Australian National Audit Office 1997; Hassall & Associates 2005; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b)
- Development of indicators for performance evaluation (Chudleigh et al. 2007; Fenton & Rickert 2006, 2008; Zammit & Cockfield 2000)

Of these, only the governance reviews conducted by Vogel and Zammit (2005) focused on establishing industry-wide benchmarks for these organisations against standardised criteria and no reviews empirically considered whether or not there were different needs and capabilities amongst the organisations, where capability refers to the enabling aspects of organisations and individuals to effectively deliver on their responsibilities (Lockwood 2009). That is, a uniform approach to evaluation might help with sectoral standardisation and comparisons but might not be easily implemented for some organisations as for others. This suggests the first research problem to be considered in this thesis.

RESEARCH PROBLEM ONE: It is unclear how regional bodies differ and what relationships might exist, if any, between their characteristics and their capability and inclination for monitoring and evaluation.

Nor did any of the studies and reviews try to classify the organisations according to how they do or should undertake evaluations. Evaluation 'models' provide a theoretically based description of the nature of evaluation of an organisation based on the priorities and purposes driving the evaluations. The analysis of evaluation practices and capabilities on a national scale and using models as a framework—as this research will do—would improve understanding of the breadth of activity amongst the organisations and provide practitioners with a means of self-reflection. This leads to the second research problem to be addressed.

RESEARCH PROBLEM TWO: It is not clear within which evaluation models regional bodies operate.

This lack of research into the evaluation models of Australia's regional bodies is compounded by a lack of information available about their perceptions of their own capability and evaluation culture. While there is some literature providing descriptions of the perspective of external parties on the evaluation capability of the regional bodies (Bellamy 2005; Fenton & Rickert 2006; McVay et al. 2001; Robins & Dovers 2007; Seymour et al. 2008), these do not provide a collective picture of these organisations against a hierarchy of capability and do not take such an analysis from the regional bodies' own perspectives on the component aspects of their capability. Capability and culture are linked aspects that jointly impact on how monitoring and evaluation is perceived and undertaken. An evaluation culture recognises that the findings of internal evaluation regimes provide meaningful internal learning and improved organisational effectiveness (Owen 2003). This drives the examination of the third research problem.

RESEARCH PROBLEM THREE: It is not clear how Australia's regional bodies perceive aspects of their evaluation capability and culture.

While institutional theory has tended to assume standardised governance structures across their 'fields' of analysis (i.e. sector) (Delbridge & Edwards 2007), this is not the case among the regional NRM field in Australia. In Scott's (2008) discussion on these institutional fields, he raises the point that the structures provide an ongoing context within which action transpires and these only exist because they are reproduced or changed through time to meet contextual needs (i.e. they are to some extent both the result and cause of how action happens). Without a clear understanding of how these different structures influence or are influenced by the evaluation models and capability of the regional bodies, it is not possible to consider what future changes and challenges might result over time.

RESEARCH PROBLEM FOUR: It is unknown what relationships exist, if any, between regional bodies' evaluation drivers, models, capabilities, cultures and governance structures.

There are likely to be many factors affecting and affected by the evaluation models, capability and culture of Australia's regional bodies. Barriers are one such factor. Not only are they likely to affect the evaluation model applied by an organisation, but also their evaluation capability. While no research was found that isolated the specific regional body barriers to adoption of evaluation, there has been research on these barriers within the education and health industries and local government and also focusing on the role of voluntary and community organisations in public service delivery. Other reviews around the wider context of NRM also suggest potential barriers. The four main categories of barriers identified in the literature, include: uncertainty barriers, validity barriers, organisational ownership barriers and support barriers. The lack of research into regional body barriers to evaluation identified the final research problem.

RESEARCH PROBLEM FIVE: The barriers to monitoring and evaluation and their effect on regional bodies' practices and models have not been identified.

1.4 Methods of analysis

Various aspects or characteristics of organisations and individuals involved in evaluations affect the approaches implemented. A number of studies have developed and categorised these (Bogt 2001; Hopwood 1972; Kluvers 1998; Osborne et al. 1995; Owen 2003; Sharp 2005). The approaches that incorporate the key aspects of the influence of political accountability and evolution across whole organisations as well as the interdependent levels of organisational evaluation, include theories around evaluation models, evaluation capability hierarchies and evaluation culture. Approaches to understanding these models, capabilities and culture and selected factors that may influence them (i.e. drivers, barriers, practices, partnerships and improvement processes) were developed from the literature.

The basic statistical approaches to organisational categorisation used in this research include:

- Cluster analyses based on demographic characteristics to develop regional body groupings
- Factor analyses of aspects potentially affecting evaluation (drivers and barriers) to identify common issues and aspects of evaluation and their relationship with other characteristics
- Factor analyses of monitoring and evaluation practices to identify common themes of practice that allow for analysis of their relationships with other characteristics

The frameworks developed as part of this research will link primary survey data with the evaluation theory and allow for the determination of:

- The evaluation models under which each regional body operates based on their reported drivers

- The evaluation capability of each regional body based on their reported practices
- The evaluation culture of each regional body based on a combination of aspects of their reported monitoring and evaluation partnerships, the nature of changes proposed to their monitoring and evaluation, presence of dedicated monitoring and evaluation staff members, selected monitoring and evaluation practices, and selected drivers.

These approaches provide a baseline of the status of monitoring and evaluation, and the factors affecting this across Australia's regional bodies for use in future trend or evolution comparisons. Preliminary baselines for evaluation capability and culture are basic assessments within the limitations of this research. Further research will be required to build depth into the understanding of these aspects of evaluation within the regional bodies.

1.5 Scope of the study

This research includes and considers all 56 regional NRM organisations across Australia and adopts a similar benchmarking approach to establish a baseline of evaluation drivers, practice, barriers, perceptions and plans. It provides a point of comparison for potential future in-depth case study work or further whole-of-sector updated benchmarks for on-going assessment of sector evolution.

1.6 Overview of this thesis

This thesis describes the theoretical and contextual background and issues surrounding monitoring and evaluation activities undertaken by Australia's regional NRM organisations and analyses of their evaluation models, capability and culture and the drivers and barriers that affect these. Chapter two summarises the literature review undertaken in developing the research. It outlines the origins and evolution of both evaluation and natural resource management, with specific focus on how these have been drawn from the global context over time to meet Australia's specific needs. It outlines how the natural resources management sector has drawn its evaluation theory and practice from other more established sectors and discusses the issues that face this unique sector regarding effective implementation of evaluation within the confines of their funding, governance and natural environments. This review leads to explicit research problems that are investigated in later chapters.

Chapter three describes the methodology used to undertake the research and address the identified research problems. It provides detailed descriptions of the methods for data collection, for applying the theoretical categorisation frameworks identified through the literature and for establishment of a baseline of the monitoring and evaluation approaches of Australia's regional bodies. Chapter four details the results of the analyses undertaken as outlined in Chapter three. It explains the nature of the demographic and survey data collected about the regional

bodies and presents the results of a range of analyses aimed at grouping the regional bodies and reviewing the status of regional body evaluation in terms of practices, models, capability and culture.

Chapter five is a discussion of the results from Chapter four. It develops responses to the identified research problems and provides insight into the nature and extent of relationships between the characteristics and regional body groupings, the status of regional body evaluation, the evaluation culture and capability of these organisations and the relationships between these and organisational governance structures. It raises possible causal relationships and implications for future evaluation in the NRM sector in Australia and identifies several areas for future research. These are then summarised in Chapter six, which provides the conclusions and key findings of the thesis, recaps on the methods and limitations of the research, and brings together the implications for policy and practice that are identified in earlier chapters.

Appendix A contains the detailed results behind the summarised data reported in the body of the thesis. There are complete tables and charts relating to survey and demographic data, grouping categorisation analyses, relationship analyses results yielded by correlation tests, and reliability and sampling adequacy tests.

Appendix B provides a copy of the survey form used for data collection from the regional bodies.

2 Literature Review

This chapter outlines the origins and evolution of both program evaluation and natural resource management, with specific focus on how these have been drawn from the global context over time to meet Australia's specific needs. It outlines how the natural resource management sector has drawn its evaluation theory and practice from other more established sectors and discusses the issues that face this unique sector regarding effective implementation of evaluation within the limitations presented by their funding, governance structures and natural environments. The review of literature on theory and practice leads to explicit research problems that will be investigated in the remainder of the dissertation. The chapter starts with a brief introduction to the concept of natural resources management.

2.1 Natural Resources Management

The Earth is at considerable risk with the impact of centuries of development by humans affecting all aspects of the global environment (Department of Economic and Social Affairs of the United Nations Secretariat 2008; United Nations Environment Programme 2007; World Health Organisation 2003; WWF c2009). Australia is tackling the issues through various initiatives addressing climate change, energy use, ecosystem and species decline and losses, water availability and quality, and sustainable development (Australian Government 2008b, 2009, 2010b, 2011b; Commonwealth of Australia 2004; Department of Climate Change and Energy Efficiency 2011; Department of Environment Water Heritage and the Arts 2009; Murray Darling Basin Authority 2011).

Many of these areas of concern can be included in the arena of natural resource management, which has been defined by the Australian Government in the Natural Heritage Trust Act 1997 (NHT) as:

> (a) any activity relating to the management of the use, development or conservation of one or more of the following natural resources:
>
> (i) soil;
>
> (ii) water;
>
> (iii) vegetation; or
>
> (b) any activity relating to the management of the use, development or conservation of any other natural resources for the purposes of an activity mentioned in paragraph (a). (Attorney-General's Department 1997, p. 10)

In the context of regional natural resources management (NRM) specifically, the Australian Government (DEWHA & DAFF 2009) has expanded this definition to include the management of human, social, natural, physical and financial assets, reflecting the triple-bottom-line of 'sustainable development'. Australia's natural resources are strongly linked to the wellbeing of society and future generations of Australians (Attorney-General's Department 1997; National Natural Resource Management Task

Force 1999) and with our national identity as these resources are the source of food and clothing production, and provide overseas tourism income of $35 630 million (2008-09) and agricultural (rural) exports worth over $25 543 million (2008-09) (Australian Bureau of Statistics 2011).

Australia's natural resource management programs started with soil-erosion legislation in some states in the 1930s, but enforcement was limited. Following concern about salinity and wind erosion in the late 1970s, the Australian government started to develop and fund the Landcare movement. Integrated regionally based natural resource management was brought to the political forefront in Australia with the inception of the *Natural Heritage Trust* (NHT) in 1997 on the grounds that:

> There is a national crisis in land and water degradation and in the loss of biodiversity.
>
> There is a need to conserve Australia's environmental infrastructure, to reverse the decline in Australia's natural environment and to improve the management of Australia's natural resources. (Attorney-General's Department 1997, p. 1)

This political drive was reinforced with the development of the *National Action Plan for Salinity and Water Quality* (NAP) in 2000 (COAG c2000), in 2004 with the introduction of the *National Water Initiative* (NWI) (COAG 2004) and again in 2008 with the introduction of the Australian Government's *Caring for our Country* program (Australian Government 2008b) — a consolidation of the NHT, NAP and Landcare programs. Degradation problems however, cannot be tackled in isolation (National NRM Task Force 1999). Consideration must be given to the wider environment in which the issues occur — to how these interconnect and their relationship with the economic, social and biophysical factors that influence natural resource decision making (National NRM Task Force 1999): an integrated approach.

2.2 Regional Arrangements in Australia

There are four broad trends that have shaped the development of regional NRM arrangements in Australia. First, there is the rise of environmentalism during the 1960s and 1970s that eventually contributed to a greater focus on sustainable systems in agriculture. Second, there is the increasing power of the Australian (national) Government. While the state and territory governments have primary constitutional responsibility for land and water management, the Australian Government retains powers to secure the delivery of international obligations such as those under various environmental and biodiversity conventions (e.g. RAMSAR Convention 1971, JAMBA 1974, CAMBA 1986, ROKAMBA 2006). In addition, the Australian Government has acquired considerable fiscal power through control of the major growth taxes (income, company and goods and services). Third, and somewhat in contradiction to the previous point, another layer of governance has developed on the periphery of the public services to deliver

programs. The devolution of responsibility for management of natural resources from the various levels of government, in some cases to private companies and individuals and non-government organisations requires the involvement of many contributors and strategic coordination for best effect (Australian Government 2008b; Bammer 2005; Imperial 1999; Kerr 2007; National NRM Task Force 1999; Reeve & Brunckhorst 2007; Valentine et al. 2007; Whelan & Oliver 2005).

Finally, there is the development of a rather weak form of bioregional administration, whereby some decision-making and funding is based on the characteristics and NRM priorities of particular regions. Bioregionalism offers an approach to natural resource governance that supports a mixture of science, landscape ecology, ecosystem management, sociology and policy development aimed at transforming the social and institutional cultures around NRM (Brunckhorst 2000). While bioregionalism can be defined under a range of criteria including biotic shift, landform, watershed, cultural/phenomenological, spirit presences and elevation (Dodge 1999), in the Australian regional NRM context, the watershed criterion has been the basis for bioregional differentiation (Australian Government Land and Coasts 2011).

The bioregional approach of managing river basins at the lowest appropriate level has been promoted internationally, particularly since 1992 when the International Conference on Water and the Environment postulated that "centralized approaches to river basin and water resources management had not achieved expected performance outcomes" (ICWE 1992 in Blomquist et al. 2005, p. 4). This bioregional approach has since been implemented for various natural resource management issues in Canada, Spain, Poland, Costa Rica, Brazil, Europe, USA, New Zealand and Indonesia (Blomquist et al. 2005; Imperial 1999; Rauschmayer et al. 2009; Tang 1991; Whelan & Oliver 2005). Across these jurisdictions, a range of different mechanisms and levels of devolution of authority have been applied. In the case of Australia's regional approach to NRM, the model could be described as 'weak' bioregionalism because the authority for management remains with the conventional political entities for most States and Territories except Victoria, New South Wales and South Australia, which adopted a statutory model for these organisations, although even for those jurisdictions there is strong central oversight. In all cases, the bodies are highly dependent on their State/Territory and Federal governments — especially the latter.

The Australian and State and Territory governments initially adopted a regional model for delivery of funding for NRM to promote an integrated approach through the development and implementation of strategic NRM plans for each of the 56 regions across Australia (Attorney-General's Department 1997; Australian Government 2008a; NRMMC 2005). The regional delivery approach in Australia started with the NHT in 1997 (Paton et al. 2005) and was further expanded and refined with the introduction of the NAP in November 2000 because the regional delivery approach was seen as offering:

> … a framework for NRM planning and action that suited the specific circumstances of different regions and allowed the social, economic and environmental dimensions to be considered in an integrated way. Further, a regional focus was also considered to be the most suitable for determining priorities, sharing investment arrangements and for coordinating actions over a large area involving many people. (McVay et al. 2008b, p. 14)

A joint venture between the Australian government and the individual state and territory governments, the NAP was delivered through agreed regional NRM organisations via approved plans and supporting regional investment strategies (COAG c2000; McVay et al. 2004). This expanded regional framework was also the mechanism adopted for delivery of the second round of the NHT (Department of Agriculture Fisheries and Forestry et al. 2004) and again through the 2008 *Caring for our Country* program (Australian Government 2008b, 2011b). Marshall (2007) posits that by retaining self-organised nested levels of bioregional management for common-pool resources, the problems of vertical assurance—or trust that each level will deliver what is needed to the other levels—can be minimised as each level places greater trust in organisations they have helped create. By allowing Australia's non-statutory regions to self-organise each regional body from within their communities and existing organisations where desired, the Australian government also promoted vertical assurance from the perspective of the community. The vertical assurance in the statutory model is more difficult to assess but the presence of community representatives on their Boards is likely to promote this assurance to some degree.

The Federal Coalition governments (1996-2007), through their initiation of and involvement in the creation of Australia's regional bodies, maintained their vertical assurance in these organisations through on-going commitment and support throughout their term in office. When a Labor government took over (2007), however, this historical initiator-initiated relationship may have been disrupted by the change of government to one which did not have the same connection to this initiative as had the originator. This disconnection also removed the previous level of assurance—it was no longer certain that the regional bodies would meet the needs of the new government. This new relationship required time and testing to build trust within both regional bodies and government for each party to see if and how the other party could meet their needs. Further on-going involvement and engagement was required to re-establish vertical assurance within the system.

The hybrid nature of the governance of the regional bodies in Australia—the private or mixed ownership of previously State/Territory government roles (Kooiman 2008)—places these bodies on the borderline between the state, markets and civil society and adds another level of complexity to their programs and their evaluation requirements and capability. Evaluation is especially difficult because of the extent and diversity of

stakeholders, from the Australian Government to people involved in setting local priorities. In addition, the outcomes from regional NRM investment can be long term and difficult to measure.

With more than $630 million allocated through the *Caring for our Country* program as base funding for the nation's regional bodies over the five years ending 30 June 2013 (Australian Government NRM Team 2008b), performance measurement was seen as a high priority in enabling the achievement of the program's goals (Australian Government NRM Team 2008b; McVay et al. 2008a). Evaluation in the form of impact assessment was to form an important part of organisational performance monitoring and evaluation for regional bodies, providing an opportunity to improve program design and delivery (Australian Government NRM Team 2008a) and to promote further community involvement through evidence of success. The 2008 audit of the NHT and NAP programs identified that the capability of regional bodies to report on their impacts was impeded by the lack of agreement on performance indicators (McVay et al. 2008b). This need for agreed indicators was raised by the Australian National Audit Office (ANAO) at the commencement of the NHT program in 1997 (ANAO 1997) and in each subsequent audit of the NAP and NHT programs (ANAO 1997; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b). Subsequent audits of these investment programs also identified that appropriate structures were not in place to provide validated data on the impacts of investment (ANAO 1997; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b). To address this, the *Caring for Our Country* program highlighted an intent to address these concerns (Australian Government 2008b) and various supporting documents and contractual requirements were developed or refined to promote the monitoring and evaluation of program impacts (Australian Government 2010a; Australian Government NRM Team 2009a).

While there were 91 indicators recommended by the National Land and Water Resources Audit (National Land and Water Resources Audit 2008b) prior to the commencement of the *Caring for our Country* program—primarily indicators of biophysical condition, but also including some governance and social/capacity aspects of relevance to natural resource management—methodologies for making assessments against these indicators were not addressed and the problem of consistent, appropriate monitoring and evaluation methods for identifying program impact against these indicators remained of some concern. Many jurisdictions (especially state and territory governments) had previously adopted their preferred methods—often variants on similar concepts such as the Habitat-Hectares and BioCondition multi-criteria field assessment methodologies for assessing terrestrial habitat condition adopted by the Tasmania and Queensland governments respectively. In addition to these methodologies there was high variability in the size of the programs and projects rolled out among the regions, and varying capability among the project implementers (including community groups and land managers). This complexity led to a reluctance within the Australian Government program managers to impose specific methodologies against the agreed indicators at that time (Pers. Comm. A. McGrath and G. West, 1 November 2011). A

subsequent call for tenders for the development of a standard method for assessing impacts of *Caring for Our Country* program investment activities on terrestrial remnant vegetation patches (DSEWPaC 2011) includes consideration of alignment with state and territory methodologies in the development of a new approach to apply across all future Australian government funded projects—aiming to provide a consistent approach across program investments that is not entirely incompatible with existing processes.

As well as the existence of varying State adopted methodologies for impact assessment, the regional bodies had varying structures, resources, processes and regional contexts (both community and biophysical) which may have affected their chosen approaches. While some of the regional bodies were formed from pre-existing groups or entities, most of the 56 regional bodies were created specifically for the purpose of managing NAP and NHT investment in their region. The decision of some States to adopt statutory models (i.e. Victoria, New South Wales and South Australia) for their regional bodies and other States/Territories opting for not-for-profit, private company and community Board models, along with the wide range of regional characteristics across Australia (including population, area, landscape types, and historical and current development) meant that the regional bodies started with vastly different situations, needs and structures.

The non-statutory regional bodies have no authority over the natural resources they are mandated to help protect and improve (Attorney-General's Department 1997; COAG c2000). While the statutory bodies are backed with some authority, it does not include authority over the natural resources which they are required to improve (New South Wales Government 2003; Victorian Government 1994). This "partial and conditional devolvement" of authority (Lockwood & Davidson 2010) effectively puts the regional bodies forward as service deliverers without corresponding domain power. This lack of statutory authority over the management of the land, nature and water upon which the regional bodies are trying to have an impact requires these organisations to develop a different form of legitimacy as this is a critical factor for the success of the regional arrangement's goal of collaborative and integrated natural resource management.

Meyer and Scott (1983 in Scott 2008), in their discussion of the development of institutional theory, highlight that where organisational fields (such as Australian NRM) contain competing requirements and prescriptions (such as those posed by the different priorities and reporting requirements of the regional community, internal management personnel, and funding organisations) there is enhanced administrative complexity, increased decoupling between structures and activities, destabilisation of offices and programs, hybrid structures produced (as discussed above), and diminished organisational legitimacy.

Legitimacy can take several forms, from legal sanction (i.e. statutory authority) to moral authorisation (i.e. being respected and thus sought out for guidance) or cultural support (i.e. being accepted as part of the culture; as the organisation that plays their specific role in society) (Scott 2008). Counteracting the lack of statutory authority over the natural resources is the strong priority placed on community consultation in the Australian NRM sector—for both statutory and non-statutory regional bodies. This consultation can enhance the legitimacy of the organisations in the eyes of the natural resource managers that do have authority over the land, nature and water being targeted through the NRM programs. In the case of the non-statutory regional bodies this regionally derived legitimacy and partially devolved authority introduces potential for high variability among the structures and resources of the bodies as they evolve, which could be expected to lead to considerable variation in approaches to, and capacities for, evaluation. Hence the inclination to, and capacity for, evaluation is expected to vary across organisations.

While previous funding programs focused their investment primarily through the regional bodies for their respective regions targeted through regional plans (Attorney-General's Department 1997; Natural Resource Management Ministerial Council 2005), the *Caring for Our Country* program opted for a reduced nominal base funding to the regional bodies and a devolvement of the majority of program funds open to competition from a wide variety of eligible groups and organisations. This change towards a highly competitive funding model challenged many of the regional bodies. The regional bodies were not generally structured for, or used to, such a system and were thus not prepared to cope with the significantly reduced base funding (Australian Government NRM Team 2009b). It could be expected that responses to these changes might include increasing promotion of 'commercial arms' and consultancy frameworks among the regional bodies to gain non-government income as they attempted to stabilise their funding away from such a heavy reliance on government.

Contrary to this expectation, as illustrated in **Table 2.1** and **Table 2.2**, the majority of regional bodies have remained highly reliant—at least in the shorter term—upon their State/Territory governments and the Australian Government. While the number of regional bodies for which the data was available was lower for the later years, there appears to be a somewhat diminishing reliance of the statutory regional bodies upon government funding due to increases in landholder levies, and a continuing strong reliance among the non-statutory regional bodies. Most of the non-government revenue for the statutory regional bodies was from catchment contributions through landholder levies and in some cases these levies made up as much as 25 percent of the regional body's total revenue.

Table 2.1: Government funds for regional bodies as proportion of total revenue

STATISTIC	2007-08	2009-10	2010-11
n	49	34	23
Minimum	53.4 percent	48.0 percent	52.0 percent
Maximum	97.6 percent	98.0 percent	96.0 percent
Mean	85.4 percent	84.1 percent	79.7 percent

Sources: Based on regional body annual reports obtained from their websites.

Table 2.2: Proportion of regional bodies with Government funds over 80% of total revenue

CATEGORY	2007-08	2009-10	2010-11
Proportion of all regional bodies with Government funds over 80% of total revenue	71 percent (n=49)	71 percent (n=34)	65 percent (n=23)
• Statutory regional bodies	90 percent (n=31)	41 percent (n=22)	24 percent (n=18)
• Non-statutory regional bodies	89 percent (n=18)	92 percent (n=12)	100 percent (n=5)

These high proportions of government expenditure through the regional bodies likely increase expectations of public accountability and control over the outcomes by these governments, highlighting the importance of evaluation across these investments and across the regionally diverse implementation approaches. This leads to the first research problem.

RESEARCH PROBLEM ONE: It is unclear how regional bodies differ and what relationships might exist, if any, between their characteristics and their implementation of, and inclination for, monitoring and evaluation.

The introduction of the *Caring for Our Country* program triggered a change in the NRM investment approach of the Australian government that required the regional bodies—which were not generally structured for, or acculturated to, a competitive environment—to compete against other groups including government agencies, community groups, conservation NGOs and any other organisations desirous of delivering NRM outcomes for any funds over a nominal (reduced) base funding amount (Lockwood & Davidson 2010). As well as this change in the delivery partnership with the regional bodies, the new program changed the focus of their delivery away from the regional NRM plans to a suite of national priorities not directly related to the NRM plans. While not all funding was previously invested through regional bodies, the investment had been largely targeted through the regional NRM plans (Attorney-General's Department 1997; COAG c2000; New South Wales Government 2003; Victorian Government 1994) with project proponents being required to indicate the alignment of their project with the relevant regional NRM plan. The shift away from regionally derived priorities, while providing focus to the *Caring for Our Country* program's investment processes, resulted in areas of disagreement between national and regional investment priorities.

A critical aspect of the previous programs' investment through the regional bodies was the vertical assurance between these organisations and the funding bodies. This assurance embodied the belief that each party could

meet the needs of the other (Marshall 2007) (i.e. funding bodies trusted the regional bodies to deliver the programs as required and the regional bodies trusted the funding bodies to target these programs appropriately and deliver the required funds for implementation). This assurance also engendered an open political opportunity structure (Eisinger 1973) where the regional bodies' feedback was considered likely to be able to influence the priorities of the funding bodies (i.e. through the approved NRM plans, investment strategies and reporting mechanisms). With a disconnect of the national program and its priorities from the regional bodies and the regional NRM plan priorities, this structure could be expected to shift to a more closed opportunity structure where the regional bodies had a reduced expectation of responsiveness from the Australian government. This could then be expected to lead to the regional bodies undertaking evaluations according to government requirements without the opportunity to tailor or expand those evaluations and increase their upward influence through the reported outcomes and feedback on priorities.

The relatively young age of NRM in Australia and in general across the globe has required NRM evaluation to be developed through the transference and contextualisation of evaluation theory and methods from a wide range of more established industries—such as education and health—and may not yet have the sophistication and experience required to include the influencing aspects required to increase vertical assurance and to re-open the political opportunity structure. In addition, any evaluation will be in the context of a partly devolved, partly centralised system, with the Australian regional NRM organisations highly dependent on government funding and associated government direction on monitoring and evaluation.

2.3 Evaluation

This section describes the history and evolution of evaluation internationally. Evaluations are undertaken by a wide range of sectors for a variety of purposes, including: policy making and knowledge development (Coe 2004; Mark & Henry 2006); performance management and accountability (Kusak & Rist 2001; Osborne et al. 1995); impact assessment (Economics and Research Department 2006; Gorard 2002; Independent Evaluation Group 2006); and organisational learning and continuous improvement (Sharp 2005; Whitmore et al. 2006). Evaluation is an important component of human society since without evaluation, "[s]ociety and individual clients are at risk to the extent that services, products, and other objects of interest are poor" (Stufflebeam & Shinkfield 2007, pp. 4-5). While one of the earliest and still common definitions of evaluation is that it is an assessment of the achievement of objectives, this approach doesn't allow for assessment of the worth of the objectives themselves (Stufflebeam & Shinkfield 2007). Definitions that focus on the methods being applied are also limiting as not all evaluations can be best undertaken by any one approach or method. The definition of evaluation must encompass this requirement for flexibility in implementation, and also represent the holistic context of evaluation.

The World Food Programme and UNICEF treat evaluation as an exercise in accountability and learning (Executive Board of the World Food Programme 2008) using overarching evaluation questions such as: "Is the right thing being done? Is it being done well? Are there better ways of doing it?" (United Nations Children's Fund 2008, p. 6) The definition for evaluation provided by the Joint Committee on Standards for Education Evaluation in their evaluation standards for students is that "Evaluation is the systematic assessment of the worth or merit of an object." (1994 in Stufflebeam & Shinkfield 2007, p. 9) For the purposes of this research, this definition of evaluation will be adopted. It encapsulates the focus on outcomes or end results and assumes that evaluation is a systematic approach. This research is limited to an assessment of the formal processes of program evaluation, using a framework that encompasses everything from inputs to outcomes.

These reasons for evaluation have evolved over time in conjunction with the evolution of evaluation itself to meet the needs of a changing world and changing accountabilities. Ideally, evaluations focus on outcomes and whole programs, though costs, complexity and uncertainty over causal relationships can constrain them. Also, ideally evaluations are systematic, following the theory or logic of the original program design.

2.3.1 The evolution of evaluation

Program evaluation—through the application of program theory or causal logic—has developed over many decades. It developed primarily through the education field and its development has been described by Stufflebeam and Shinkfield (2007) as progressing through five different ages:

- The *pre-Tylerian period* before 1930 — where some systematic evaluation was undertaken, but there was no 'movement', as such.
- The *Tylerian age* from 1930 to 1945 — where the concept of evaluating against pre-determined objectives was developed by Ralph W Tyler, creating a systematic framework.
- The *age of innocence* from 1946 to 1957 — was the post-war period where evaluation was much discussed but society was highly focused on expansion rather than evaluating new programs, so reflection on outcomes or efficiency was limited.
- The *age of realism* from 1958 to 1972 — commenced with large-scale, national, standardised evaluations of national curricula and the beginning of acknowledgement of limitations.
- The *age of professionalism* from 1973 to the present — brought evaluation into sharp focus, acknowledged the variety of roles within evaluation and saw the formation of professional organisations of evaluators and professional evaluation journals.

In the spirit of the age of professionalism this thesis focuses on organised, planned evaluations rather than ad hoc, opportunistic evaluations with the aim of program improvement.

While Stufflebeam and Shinkfield's (2007) discussion of the evolution of program evaluation focuses primarily on the field of education, program

evaluation has been adapted for many other fields including community development (Kusak & Rist 2001; Shaw et al. 2006), health (Donaldson & Gooler 2003; Finn 2007; Sheahan et al. 2007), local government (Kluvers 1998; Nader et al. 2008) and natural resource management (Bellamy & McDonald 2005; Blackett 2008). Evaluation has become a symbol of the status and legitimacy of modern organisations (Dahler-Larson in Dahler-Larsen 2006), becoming an important part of inter-organisational relationships and often focusing on structures, procedures, and control systems (Power in Dahler-Larsen 2006). These structured evaluations, although often described as 'outcomes' focused, generally apply performance indicators that concentrate on managerial qualities rather than actual client outcomes (Tilbury in Dahler-Larsen 2006; Hockings 2005). This managerial focus is evident in previous reporting requirements of the regional body programs (Australian Government NRM Team 2006, 2007) but there is a recent trend toward outcomes evaluation, which focuses on determining the impacts/benefits achieved through the program (Bellamy et al. 2005; Bowker 2002; Cottingham et al. 2004; Datta 2006; English & Kaleveld 2003; Fitzpatrick et al. 2004; Hockings 2005). These evaluations are often based on program theory or the underlying causal relationships of programs and are aimed at identifying *how* the program effects were achieved (Mark & Henry 2006), not just if they were achieved.

Program theory presumes that every program is explicitly or implicitly based on assumptions of causal relationships. Therefore, a particular application of inputs (resources) will result in desired outputs and ultimately, outcomes. A program evaluation can, amongst other things, check if these assumptions hold. The design and implementation of evaluations may, however, depend on the characteristics of the groups and individuals involved, including both personal and organisational levels of understanding and skills, and perspectives on evaluation purposes. Understanding differences in characteristics allows for comparison across organisations, individuals and varying contexts.

2.3.2 Evaluation Characteristics of Individuals and Organisations

Various aspects or characteristics of organisations and individuals involved in evaluations affect the approaches used. Various studies have identified and categorised these to include:

- Evaluation styles (Bogt 2001; Hopwood 1972)
- Evaluation models (Kluvers 1998; Osborne et al. 1995)
- Evaluation capability (Sharp 2005)
- Evaluation culture (Owen 2003)

The evaluation models, culture and capability categorisations generally provide insight into organisational scale characteristics and relate more strongly to the organisational approach and its implementation. Evaluation styles, in contrast, relate primarily to an individual's perspective of evaluation and while they could be used to describe an organisational approach, the description would provide little depth of detail on the evaluation processes themselves.

Evaluation Styles

The evaluation styles proposed by Hopwood (1972) for the private sector were adapted to the public sector by Bogt (2001), and are classified as: output-constrained, outcome-conscious and operations-conscious:

- *Output-constrained* evaluations focus on quantitative budgets of outputs. While these are not necessarily financial outputs, they usually involve numbers or quantities (e.g. kilometres of road repairs, or the number of persons participating in a pest control program).
- *Outcome-conscious* evaluations focus more on the effects of the outputs (e.g. the impact of the pest control program on native fauna in a National Park). Outcomes are likely to be closely linked to an organisation's goals.
- *Operations-conscious* evaluations are more about the activities of managers and the processes of their organisations (e.g. how well are the programs functioning?).

These styles can be used to indicate the skew of an individual's or perhaps organisation's evaluation approach towards one or other of these three aspects (outputs, outcomes or methods) but only provide a limited description as they do not allow for categorisation of varying levels of integration of these towards a more holistic approach to evaluation. Nor does a styles-based approach cover aspects such as the intended use or value placed on the resultant information from the evaluations. As the aspects covered by evaluation styles are not considered critical to the assessment of evaluation in this research, these aspects of evaluation styles are not assessed.

A second characteristic of evaluation styles is the type of control applied within the styles. Bogt (2001) outlines two types of control: Action control and Results control.

- *Action control* utilises rewards and sanctions to encourage specific behaviours desired by the controller (e.g. funding organisation) and results in evaluations that focus on providing evidence that the actions were completed as required rather than necessarily focusing on the outcomes achieved.
- *Results control* allows individual discretion in implementation provided good results are achieved within certain general operational rules and focuses much more on the results achieved. It should be noted, however, that these results may be in the form of the associated outputs rather than necessarily focusing on outcomes.

For example, a focus on evaluating programs solely through a report of outputs and outcomes at the end of a funding cycle would be categorised as results control. It is a black box and the outcomes could have been achieved in numerous ways, ignoring questions about efficiency. In contrast, however, requiring outputs and outcomes to be completed using specific, pre-defined methods or through engagement with specific, defined stakeholders would be categorised as action control. This form of control involves no consideration of whether or not the same result could

be achieved in a different and cheaper way. As above, these control aspects of the evaluation styles provide two contrasting paradigms without room for a continuum of integration and do not clearly account for the variety of purposes for evaluation (e.g. program improvement).

The external control of evaluation requirements that might be placed upon a regional body by a funding organisation, increases the probability of a conflict of styles and controls—external with internal. This could result through the desire of a regional body to focus on investment outcomes towards the regional NRM plan's biophysical condition targets, while the funding organisation may wish to focus on the outputs of their investment in terms of length of fences and number of participants. The control placed by a funding organisation focused on outputs may also require action control where these outputs form the contract, whereas the regional body implementing the investment may wish for flexibility in implementation to achieve the results they prioritise more highly than the outputs themselves. This potential for conflict also increases with the breadth of stakeholders involved in defining evaluation requirements (e.g. for programs with multiple funding organisations or with different requirements by community and participants from those of the funding organisation or even the regional body itself). The resulting conflict could have potentially significant negative impacts on the implementing organisations' evaluation capability.

While these characterisations provide insight into the individual styles and the control methods of the instigators of evaluations, they do not adequately characterise the breadth of areas of evaluation to which they might be applied by an organisation. While this study is outcomes-focussed, not just outcomes-conscious, 'styles' provide limited scale of characterisation of evaluation and are thus not sufficient to categorise organisational evaluation in a way useful for this study and are not considered an appropriate method of characterisation for this research.

Evaluation models

Evaluation models provide a theoretical description of the nature of evaluation of an organisation based on the priorities and purposes driving the evaluations. There has been a body of work describing organisational approaches to evaluation (Keeley 1978; Kluvers 1998; Markiewicz 2005; Osborne et al. 1995; Whitmore et al. 2006), covering a wide range of categorisations from goal-based models, to participant satisfaction models, to social justice models. While many of these models provide frameworks for characterising organisations' evaluation approaches, most do not adequately incorporate the key aspects of the influence of political accountability and evolution across whole organisations as are faced by Australia's regional bodies. These bodies are heavily reliant on government funding and support and have been required to evolve across changing government imperatives and funding program directions.

One approach that does incorporate these aspects and has been applied to date in both public and non-profit sectors categorises evaluation approaches using models based on political context. Osborne et al. (1995) identified five models of performance evaluation of complex public programs: the political model, the symbolic model, the organisational excellence model, the constitutive model and the bounded rationality model. These models were considered by Kluvers (1998) in his study of performance indicators in Victorian local government, and loosely align along a continuum of effectiveness (**Figure 2.1**) within the definition of evaluation adopted for this research from the political model (least effective and most narrowly focused) to the bounded Rationality model, which is more effective but with its own limitations.

The political model of evaluation is primarily a public relations exercise in which performance evaluation is explicitly subjective. This might involve evaluating, or at least reporting on, those program elements most likely to yield positive responses from the political decision-makers. Regional bodies operating within the political model of evaluation would be likely to regularly refocus their evaluation and reporting on any aspect of their programs (to the exclusion of others) which aligns most with whatever issue is politically current, in order to highlight their relevance and promote their further funding. For example, concern about climate change might result in reporting on the impact of a program to sequester carbon dioxide with deliberate exclusion of other factors such as cost-effectiveness and socio-economic impacts which might not paint so rosy a picture for political uptake.

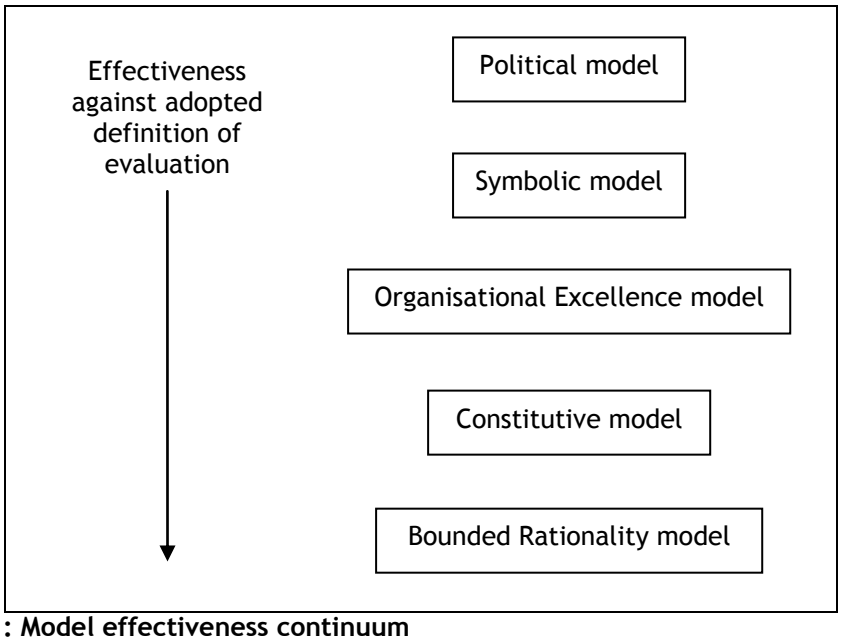


Figure 2.1: Model effectiveness continuum
(Source: Based on Kluvers (1998))

The symbolic model applies performance assessments in a ritualistic manner to shape the image of the organisation rather than through a need or desire for improvement. This model "reinforces the 'myth' that public sector organisations have strategic direction and logical rationale for their

actions" (Kluvers 1998, p. 67). For example, a regional body with a symbolic model of evaluation might undertake regular reviews that focus primarily on a single aspect of community involvement in their NRM programs (to the exclusion of other aspects) to promote an image of community focus and social license.

The organisational excellence model focuses on critical success factors that have worked in the past and could be expected to ensure success in the future. This model requires organisations to continually and consistently produce these critical factors of success. A regional body with an organisational excellence model of evaluation might focus on reviewing projects against critical aspects that made past projects successful (e.g. comparison of incentive mechanisms), without recognising that the markets had changed and those aspects might not be appropriate for future projects.

The constitutive model highlights some aspects of the organisation's performance, but makes others 'invisible' depending on which aspects are selected for evaluation. The evaluation focus of organisations operating within this model will naturally focus on the areas of their greatest technical strength and interest. A regional body tending to a constitutive evaluation approach might focus solely on their investment's water quality improvement benefits, which align with their technical strengths, while ignoring economic impacts for example.

The bounded rationality model assumes that the decision makers "have cognitive limitations and only partial access to the performance information required" (Kluvers 1998, p. 66). It imposes the demands of one stakeholder/decision maker for knowledge, upon others who have that knowledge but perceive little value in the reporting. The information flow requirements can become prohibitive. For example, a regional body with a bounded rationality approach to evaluation might ask field staff to report output information such as number kilometres of riparian area fenced to assist with high level output reporting to government, while field staff may see little value in such data if their focus is on outcomes. This model is similar to the constitutive model, but where the constitutive model selects some aspects to monitor based on the organisation's areas of skill and expertise without necessarily consciously considering the wider aspects and the organisation's limitations, the bounded rationality model recognises that not everything can be measured and evaluated and so there is deliberate selection of some aspects to monitor while ignoring others. An organisation applying a constitutive approach to evaluation will focus knowingly or unknowingly on their areas of expertise, while an organisation applying a bounded rationality approach will knowingly select aspects that are deemed to be within the bounds of practicality and primary purposes. Each approach addresses only a selection of aspects within their evaluations, but the selection approaches differ.

Each of these evaluation models has inherent barriers to their effectiveness for performance measurement in public sector organisations, leading

Osborne et al. (1995) to propose an expanded contextual model of performance assessment as a more effective approach (refer to **Figure 2.2**). This expanded contextual model builds on the rationalist tradition of decision-making where the decision-making process is subdivided into simpler stages to enable assessment of each stage in a hierarchical approach that is mindful of bounded rationality. It adds contextual assessments that expand on the traditional performance assessment indicators of economy, efficiency, equity and effectiveness by considering the different structural levels within an organisation and the information needs of each level of decision-making.

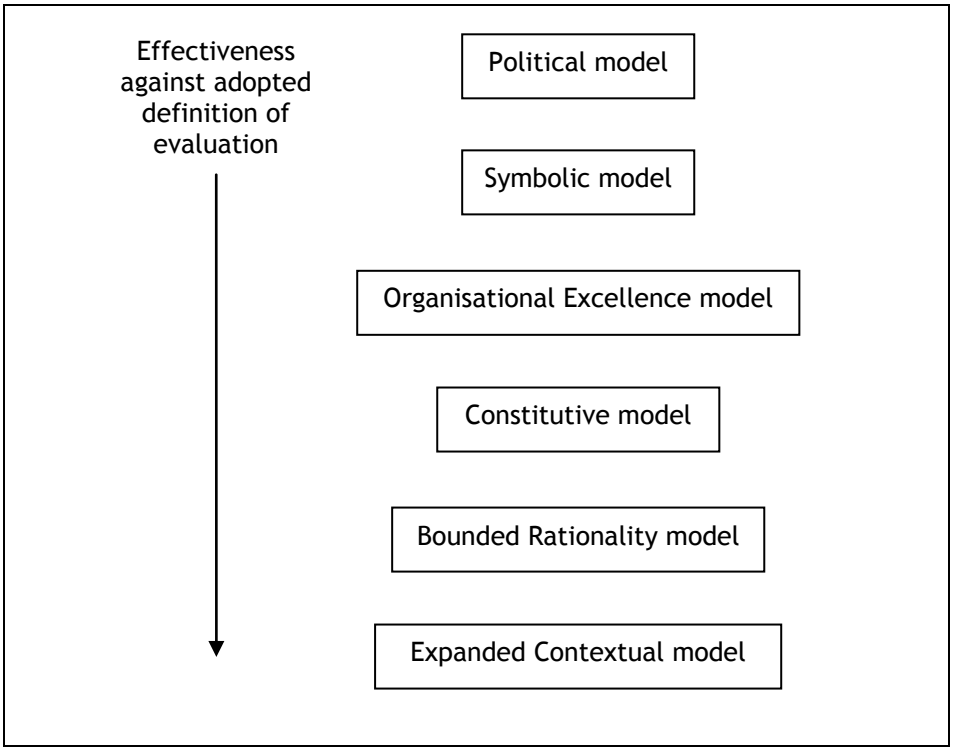


Figure 2.2: Expanded model effectiveness continuum
Source: Based on Osborne et al. (1995)

The performance prism model more recently developed and applied by Neely et al. (2001) provides a framework for developing a business success factors map that describes the business strategies, processes and capabilities required to meet stakeholder needs. While this provides a good structure around which a business might evaluate its processes, the emphasis on stakeholder satisfaction and internal business processes, in a regional body context, could pull the focus away from the natural resource condition outcomes, which are much less easily monitored than internal processes. Trying to balance the needs of all stakeholders through this framework also raises potential issues where conflicting priorities and timeframes arise between stakeholders. In the case of regional bodies, the funding organisation's evaluation timeframes and expectations for program evaluation may not match those of landholders or the scientific community, and the potential exists for instances where none of the stakeholders' timeframes and expectations match the natural resources' timeframes for change.

Assuming that these stakeholder expectations can be balanced using the performance prism approach, the contextual aspects of the operating environment that are included in the expanded contextual model proposed by Osborne *et al*. (1995) are not clearly addressed except in a secondary way through their impact on strategy successes etc. In Scott's (2008) discussion of field-level (i.e. sector scale) institutional theory, he highlights these contextual aspects (i.e. local and distant actors and forces) as having potentially high influence on organisational capability and should, therefore, not be excluded from an effective evaluation approach. This deficiency distinguishes the two models, despite their other similarities. This close resemblance, however, has led to the decision not to include the performance prism approach as a separate model for the purposes of this research.

The models illustrated in **Figure 2.2** provide a method of characterising an organisation's evaluation approach at an aggregated, holistic level that lies outside the various pressures (including styles and control approaches of external and internal stakeholders) and provides staged progression against which an organisation's evaluation processes could be benchmarked. While these models provide an overview of the overall organisational approach to evaluation, they do not clearly indicate/incorporate a measure of how embedded the evaluation practices are within the organisation's processes and systems and do not identify the extent of capability of the organisation to implement evaluation. These gaps will be addressed in the following sections on **Evaluation culture** and **Evaluation capability hierarchy** respectively as additional categorisations complementary to the evaluation models. With these additional key aspects addressed, the categorisation provided evaluation model approach is considered suitable for use in this research.

Evaluation capability hierarchy

According to Lockwood:

> Capability refers to the systems, plans, resources, skills, leadership, knowledge and experiences that enable organisations, and the individuals who direct, manage and work for them, to effectively deliver on their responsibilities. (Lockwood 2009, p 11)

The program evaluation capability of organisations can be located in the hierarchy shown in **Figure 2.3** (Rossi et al. 2003). This hierarchy details each level as the foundation for design and implementation of the next level. That is, the needs assessment provides the design criteria for a program, the design assessment then dictates the processes required, the processes dictates the outcomes, and the cost-efficiency rounds out the assessment hierarchy.

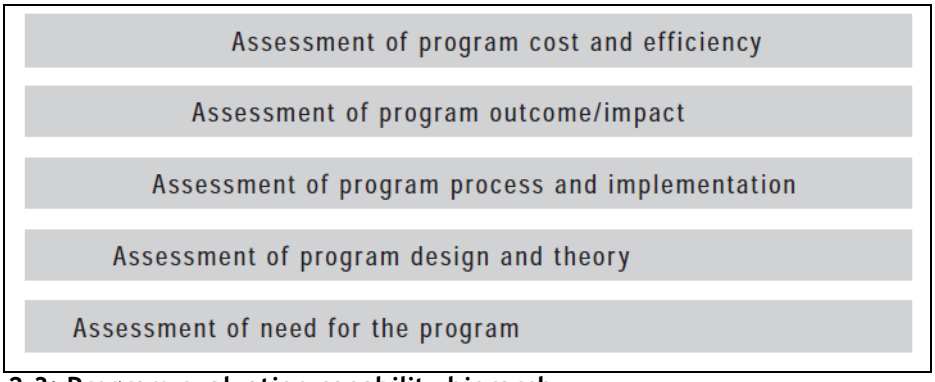


Figure 2.3: Program evaluation capability hierarchy
Source: Rossi, Lipsey and Freeman (2003) in Sharp (2005, p. 28)

Sharp (2005) identified, however, that the interdependent levels of this hierarchy do not sufficiently address the organisational governance or strategic evaluation aspects of organisational evaluation requirements. Sharp, therefore, integrated capability maturity model theory, as used in software developments, with the program evaluation capability hierarchy to arrive at his proposed organisational evaluation capability hierarchy as illustrated in **Figure 2.4**.

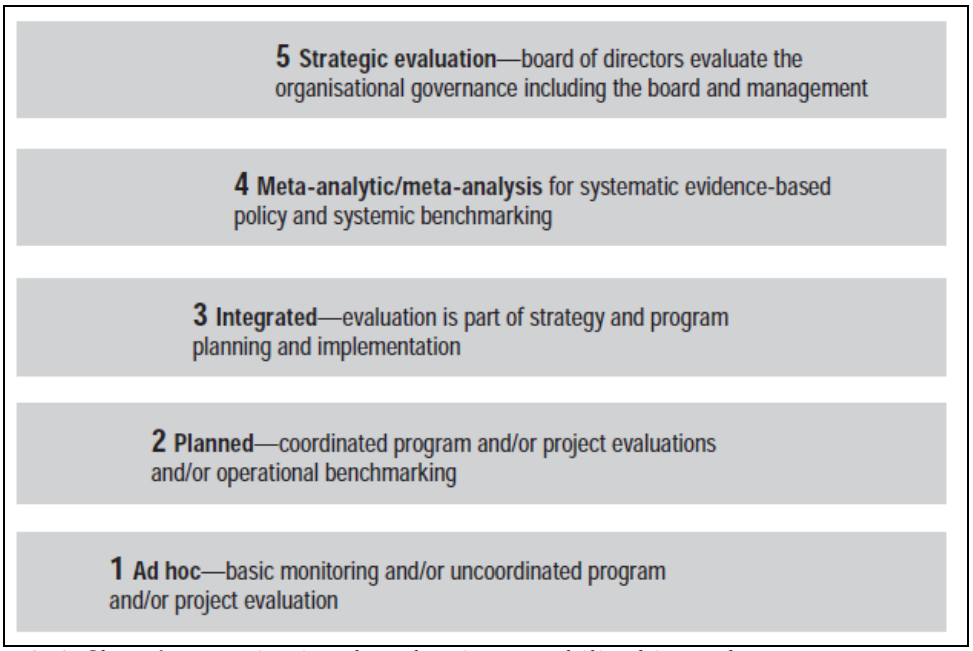


Figure 2.4: Sharp's organisational evaluation capability hierarchy
Source: Sharp (2005, p. 30)

This research considers both the planned and integrated monitoring and evaluation of Sharp's hierarchy (levels two and three in **Figure 2.4**) through the practices of the program evaluation hierarchy, but excludes ad hoc monitoring and evaluation as not providing the level of support required to inform on-going program and business needs. The meta-analytic and strategic levels of monitoring and evaluation (levels four and five in **Figure 2.4**) are outside the scope of this research but would be a logical subject for later research.

The program evaluation capability hierarchy provides a method of characterisation of an organisation's program evaluation capability at an aggregated, holistic level that lies outside the various pressures (including styles and control approaches of external and internal stakeholders) and provides a potential progression against which an organisation's evaluation processes could be benchmarked. This approach to characterisation is suitable for use in this research. The organisational culture within which this capability exists, however, could be expected to influence how the capability manifests and thus the level of importance placed on each level of the hierarchy.

Evaluation culture

For an organisation to reach the heights of the capability hierarchy, it must foster an evaluative culture. Such a culture recognises that the findings of internal evaluation regimes provide meaningful internal learning and improved organisational effectiveness (Owen 2003). Owen identifies 11 key factors which can contribute to the establishment of an evaluation culture. These factors (refer to **Figure 2.5**) relate to: commitment at all levels of management; obtaining expert advice; establishing dedicated evaluation teams; training of staff in collection, analysis and integration of results into organisational processes; identification of barriers to evaluation; and periodic reviews of these cultural changes. The evaluation model within which an organisation operates is expected to be influenced by the culture of the organisation through links between the values of the culture and the drivers of evaluation.

The evaluation models, capability frameworks and culture concepts discussed in this section were developed in the context of the private and public sectors. As highlighted in **Section 2.2** Australia's regional NRM bodies do not neatly fall into either sector, but have adopted evaluation theory and practices from both. While this adoption is only recent in the overall scale of evolution of evaluation, the NRM sector has taken steps to tailor these theories and practices to their own context. This is evident through the frameworks developed by the Australian and State governments to guide regional evaluation practice (Australian Government 2003c; DEWHA & DAFF 2009; Queensland Government c2003) and the many training opportunities offered to regional bodies for improving their expertise in this field. Conley-Tyler (2005) proposed that encouragement of internal evaluators will promote the growth of acceptance of evaluation, which is an important part of creating an evaluation culture. This acceptance provides a basis for the development of two important factors identified by Owens (2003): organisational leaders who both see the benefits of long-term commitment to evaluation and who will commit the resources and expertise required to realise these benefits.

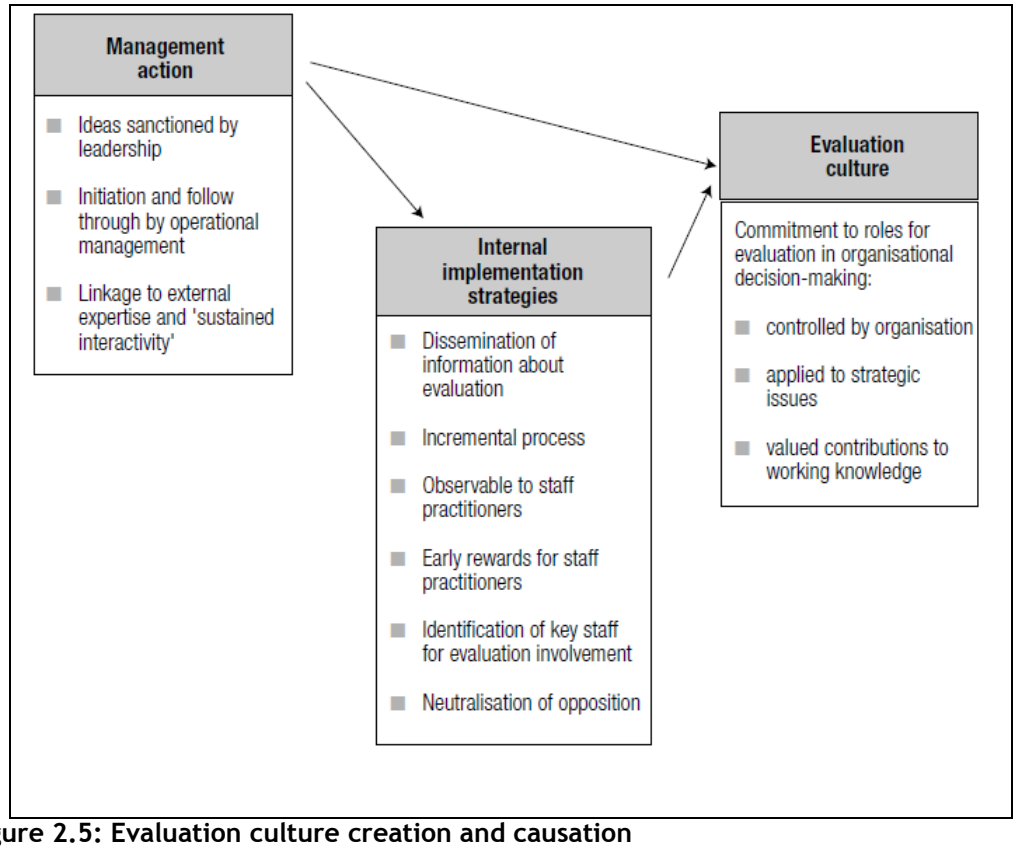


Figure 2.5: Evaluation culture creation and causation
Source: Owen (2003, p. 47)

Evaluation culture characterisation provides an aggregated, holistic view of the organisation's progression or evolution that can be benchmarked and tracked over time. A basic application of this approach to characterisation is suitable for exploratory research such as in this thesis, but detailed analyses of organisations would be required to develop a comprehensive benchmark of their culture. No such review has yet been undertaken on Australia's NRM bodies, although a variety of other aspects have been addressed in the literature.

2.3.3 Reviews of Natural Resource Management in Australia

A variety of reviews have been undertaken of aspects of Australia's regional NRM organisations, including both the areas of governance (Bellamy & Brown c2009; Davidson et al. 2008; Dean & Bush 2007; Griffith et al. 2009; Lockwood 2009; Robins & Dovers 2007; Vogel & Zammit 2004) and evaluation (Bellamy 2005; Fenton & Rickert 2006; National Monitoring and Evaluation Symposium Steering Committee 2005; Reeve & Brunckhorst 2007). Other studies have included the evaluation of the larger programs that have provided funding for the regional bodies (Australian National Audit Office 1997; Hassall & Associates 2005; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b) and the development of indicators for evaluation of the performance of these bodies (Chudleigh et al. 2007; Fenton & Rickert 2006, 2008; Zammit & Cockfield 2000). Of these, only the governance reviews conducted by Vogel and Zammit (2005) focused on establishing industry-wide benchmarks for these organisations against standardised criteria.

While the study by Fenton & Rickert (2006) assessed regional bodies against draft management, program capacity, environmental controls and contextual indicators, this assessment was undertaken only on a sample of Queensland's regional bodies (six organisations) and was more an attempt to establish an expanded contextual model framework for external implementation of performance assessment of the regional bodies by their funding organisations, than a review of the evaluation models or capabilities of the regional bodies. None of these reviews have yet established a benchmark of the regional bodies' evaluation models and capabilities on a national scale as this research aims to provide, although significant effort has been applied to the development of evaluation within this sector over time.

2.3.4 Evaluation in Australian natural resource management

The Australian government has invested significant public funds in programs to better manage Australia's natural resources. In addition to more than $2.8 billion invested between 1997 and 2008 through two rounds of NHT and the NAP (McVay et al. 2008b), approximately $630 million base funding has been committed through the Australian Government's *Caring for our Country* program for the five years from 2008 to 2013 (Australian Government 2008a). The earlier programs (i.e. NHT and NAP) and a proportion of the *Caring for our Country* program were devolved through the regional NRM organisations (Australian Government 2003c, 2008a; McVay et al. 2004). If however, the outcomes of the funds invested through regional bodies were unable to be demonstrated commensurate with the level of spending then future funding would be qualified, if not discontinued. The evaluation of government programs in general, however, is inherently difficult given multiple goals, lag effects, complex policy and biophysical environments and scarce resources. Natural resources programs are additionally difficult to evaluate because of the openness and dynamism of natural resources systems and the long timelines required for outcomes from conservation and restoration projects.

A decade of audits of the regional delivery of funding under NHT and NAP each highlighted a lack of validated data on the impacts of these programs, such that their progress towards outcomes could not be assessed (Australian National Audit Office 1997; Hassall & Associates 2005; McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b). With the commencement of the *Caring for our Country* program in 2008, the Australian government set clear goals for the program and highlighted performance measurement as a high priority (Department of Environment Water Heritage and the Arts & Department of Agriculture Fisheries and Forestry 2008b, 2008a). The *Caring for our Country Monitoring, Evaluation, Reporting and Improvement Strategy* (Australian Government 2011a; Australian Government NRM Team 2008a) (the MERI strategy) prepared for the *Caring for our Country* program's five years of investment, stipulates that projects contracted through the program will include monitoring, evaluation and reporting against the outcomes of the investment. The MERI strategy does not

provide standard condition/health indicators for the targeted natural resources or protocols for measurement of resource condition. It does, however, provide indicators and measures at intermediate outcome level against the program's targets. This provides support for individual project monitoring, evaluation and reporting, but little support for the collective impact evaluation of multiple projects over time.

The flexibility of monitoring and evaluation options for regional NRM organisations within this MERI framework is in the detail of the required outcome statements and the supporting project-specific logic hierarchies and theories of change that guide their investment design. While the MERI strategy proposes standard indicators and measures against each of the program's targets, it does not provide these for broader resource condition aspect *per se*. These target indicators do not support the longer term monitoring and evaluation of resource condition change due to cumulative project impacts, leaving regional bodies to choose (or not) and somehow resource appropriate methods and tools for resource condition impact evaluation of their programs over time and tailor these to their individual context, perhaps with limited experience of, or skills in, specific evaluation areas.

While there is much literature on policy evaluation within State, Australian and, to a lesser extent, Local governments, the Australian regional NRM arrangements are one aspect of more devolved forms of governance with less representation in the literature. Certainly, programs delivered through non-government organisations such as charities are often evaluated using the same techniques as within government, yet the breadth and complexity of the work of the regional NRM bodies is unusual. The structure is really a series of quasi-government departments of natural resources, at least in terms of scope and expectation, yet with some degree of input from the community, giving them some of the characteristics of non-government organisations. The task of regional NRM organisations to invest in projects that will improve the condition and condition trends of Australia's natural resources requires a complex interaction of evaluative tasks including identification of physical changes, adaptive management approaches, learning and capacity building by individuals, groups, institutions and review at policy level. While evaluation is central to all these tasks, "… these new regional governance approaches challenge conventional thinking about success and failure and policy or program effectiveness and appropriateness." (Bellamy 2005, p. 1)

Regional NRM organisations are required to monitor, evaluate and report on the impacts of their investments through their contracts with funding organisations such as the *Caring for our Country* program (Australian Government NRM Team 2008a; Department of Environment Water Heritage and the Arts & Department of Agriculture Fisheries and Forestry 2008b, 2008a). These contracted arrangements are further complicated by the diversity of regional NRM planning and institutional arrangements across Australia. While the regional delivery approach was endorsed by the Australian, State and Territory governments, the implementation of this

approach varies between states with some regional NRM organisations having statutory standing and others based primarily on community membership. This mix raises the potential for competing objectives and interests within and across the regions (Bellamy et al. 2005) and varying organisational constraints associated with these different organisational models. Thus, regional bodies vary by structure, legal status, funding, human resources, stage of development and, by virtue of location, resources focus. Hence their evaluation requirements and capacities also vary.

Several common issues have, however, been identified that impede the development of a strong foundation of evaluative culture within regional NRM bodies. Common impediments include the urgency of development of the NRM plans and investment strategies (required to access early funding through NHT and NAP), lack of adequate resource condition data in some regions, the large scale of regional projects and the historical twelve to eighteen month timeframes covered by investment strategies—compared with the one to five year management action target timeframes of the NRM plans (McVay et al. 2008b) and the even longer timeframes for resource condition change to become measurable (Department of Environment Water Heritage and the Arts & Department of Agriculture Fisheries and Forestry 2008b; Hassall & Associates 2005; McVay et al. 2004; McVay et al. 2008b). These factors also restricted the ability of the regional NRM organisations to incorporate long-term rigorous evaluation processes in their programs. While the *Caring for our Country* program has introduced options for somewhat longer investment timeframes (3 years or so), these remain insufficient when compared with the decades that might be required for changes in some of the targeted resource condition aspects to be measurable.

A lack of consistent guidance on what to monitor and how to monitor at a regional scale also delayed the development of appropriate evaluation systems within the regions. The *National Natural Resource Management Monitoring and Evaluation Framework* (Australian Government 2003b) provides a series of Matters for Target (and associated monitoring indicators) that form the minimum set of issues that were to be addressed in the early NRM plans. While, conceptually, this approach should have provided appropriate guidance for the regional NRM organisations to build their monitoring and evaluation plans, there were several issues that stalled the process, including lack of agreement on roles and responsibilities, lack of resources to fill gaps in resource condition data, time lags expected for some natural resources to show changes in condition, the number of indicators proposed and a lack of guidance on appropriate methodologies and quality standards. The imperative to evaluate the impact of regional investment from one funding organisation in isolation from investment by other individuals acting within a region or site (Adey 2004; Australian Government 2003c; Australian Government NRM Team (n.d.); McVay et al. 2008b) in order to promote the image of the funding organisation and the program's individual successes, further compounded this issue.

Australia's NRM funding programs were set up as initiators, motivators and enablers of improved resource management rather than as sole funding sources for such activities (Attorney-General's Department 1997; Australian Government 2007; Natural Resource Management Ministerial Council 2005). The *Caring for our Country* program also emphasises a focus on public benefits and value for money in funding proposals (Australian Government 2007). While each program recognised the historical and continuing work of the Australian community, businesses and governments, their evaluation focus has always been on the impact of their program's investment on natural resources in isolation from other investment and effort. The focus on leveraging funds and the 'seed' nature of the funding highlight the programs' desire to achieve flow-on-effects from their funding—outcomes above and beyond what are directly paid for by the programs—but the temporal flow-on effects (i.e. those that occur over time after the project activities have been completed) have not been part of the funding organisation's evaluation and reporting requirements and thus are not funded.

A series of audits of the different funding programs that supported the regional delivery model have been undertaken, each highlighting a lack of information to assess progress towards outcomes (McVay et al. 2001; McVay et al. 2004; McVay et al. 2008b). Over recent years, the Australian Government NRM Team has put various support mechanisms in place to assist the regional NRM organisations to improve their skills in, and understanding of, monitoring, evaluation, reporting and program improvement, including provision of training for regional NRM staff, provision of a guide to the development and use of program logic (Roughley 2008) and a single, logic-based *Australian Government Natural Resource Management Monitoring, Evaluation, Reporting and Improvement Framework* (DEWHA & DAFF 2009) to replace the previous two frameworks—the *National Framework for Natural Resource Management Standards and Targets* (Australian Government 2003a) and the *National Natural Resource Management Monitoring and Evaluation Framework* (Australian Government 2003c).

While regional bodies in Victoria, New South Wales and South Australia are statutory bodies and thus theoretically clearly public sector organisations, as was the focus of the research by Osborne et al. (1995) and Kluvers (1998), they could more conveniently be considered along with the non-statutory regional bodies of the other States and Territories as hybrid organisations that are guided by community-based Boards of directors, but tempered by government imperatives determined by funding programs. Irrespective of their legislative standing, most regional bodies receive significant support through public funds (Australian Government 2008a) and operate in political environments similar to those studied by Osborne *et al.* (1995) and Kluvers (1998). They therefore require information for decision-making at a range of levels from ground-level project implementation to high-level policy guidance for the funding organisations' strategic direction, making the expanded contextual model proposed by Osborne *et*

al. a valid and suitable model for performance assessment and decision-making. No research has yet been undertaken, however, to categorise the evaluation models of the regional bodies, meaning that little is known of these key characteristics, which leads to a second research problem.

RESEARCH PROBLEM TWO: It is not clear within which evaluation models regional bodies operate.

This lack of research into the evaluation models of Australia's regional bodies is compounded by a lack of information available about their perceptions of their own capability. While there is some literature providing description from the perspective of external parties on the evaluation capability of the regional bodies (Bellamy 2005; Fenton & Rickert 2006; McVay et al. 2001; Robins & Dovers 2007; Seymour et al. 2008), these do not provide a collective picture of these organisations against a capability hierarchy and do not take such an analysis from the regional bodies' own perspectives on the component aspects of their capability. In the absence of any externally collected empirical data on evaluation capability and practices, it may be possible to start with self-assessment of some aspects by the NRM organisations, which highlights a third research problem.

RESEARCH PROBLEM THREE: It is not clear how Australia's regional bodies perceive aspects of their evaluation capability and culture.

The different governance structures of Australia's regional bodies provide a unique challenge and opportunity for understanding monitoring and evaluation in this sector as institutional theory has tended to assume standardised governance structures when analysing any field or sector (Delbridge & Edwards 2007). The governance structures within a field or sector are seen to provide an ongoing context within which action transpires and only exist because they are reproduced or changed through time to meet contextual need (Scott 2008) (i.e. they are to some extent both result and cause of how action happens). The different governance models among Australia's regional bodies, however, challenge this assumption. Without a clear understanding of how these different structures influence or are influenced by the evaluation models and capability of the regional bodies, it is not possible to fully understand monitoring and evaluation in this sector or consider what future changes and challenges might result in this area over time, leading to a fourth research problem.

RESEARCH PROBLEM FOUR: It is unknown what relationships exist, if any, between regional bodies' evaluation drivers, models, capabilities, cultures and governance structures.

Drivers for regional body evaluation

Reasons for undertaking evaluations vary considerably as can be seen by the various characterisation frameworks discussed in **Section 2.3.2**. A wide

range of drivers for evaluation have been identified by researchers, generally falling into the following categories: external funding requirements; internal organisational requirements; and community requirements. External funding requirements include the need to satisfy funding organisations that are desirous of assessing accountability and outcomes for spent public funds (Hickey et al. 2007; Osborne et al. 1995), and the provision of information to support policy-making (Abma 2005; Robins & Dovers 2007). Internal organisational requirements include internally driven performance improvement and tracking of program outcomes for success measurement (Conley-Tyler 2005; Eilat et al. 2008) and managerial control of performance (Greenberg & Nunamaker 1987). Community requirements include a need for empowerment or participatory evaluation to increase community participation and ownership of the program and evaluation processes (Fetterman 1997), and a need to satisfy the wider community that are desirous of assessing accountability and outcomes from public funding (Osborne et al. 1995; Wells & Rickwood 2006), and to provide the legitimacy or social licence required for delivery of the Regional NRM Plans as discussed in **Section 2.2**.

An organisation will operate under a specific evaluation model due to a particular combination of drivers. While these primary drivers will be consistent among organisations operating under the same model, other secondary drivers may affect each organisation differently depending on the context of the organisation's history, operating environment and the individuals formulating the evaluations. These secondary drivers will generally have lower importance than the primary drivers. Over time, however, should the importance of secondary drivers increase or that of theprimary drivers decrease (e.g. through a new CEO with a different perspective on the usefulness of evaluation), the organisation will shift to a different evaluation model.

In summary, the drivers identified above through the literature form a suite of possible primary drivers for the regional bodies' evaluation models including:

- Accountability to funding organisations (Hickey et al. 2007; Osborne et al. 1995)
- Highlighting project success (Conley-Tyler 2005; Eilat et al. 2008)
- Improvement of staff and community involvement in projects (Fetterman 1997)
- Internal program improvement (Conley-Tyler 2005; Eilat et al. 2008)
- Providing information to support policy decisions (Abma 2005; Robins & Dovers 2007)
- Reporting progress to the regional/catchment community (Fetterman 1997; Osborne et al. 1995; Wells & Rickwood 2006)
- Sourcing future funding (Hickey et al. 2007; Osborne et al. 1995)
- Tracking achievement of project outcomes (Conley-Tyler 2005; Eilat et al. 2008; Greenberg & Nunamaker 1987)

By themselves, the drivers tell only part of the evaluation story, however. The relationships between these drivers and other aspects surrounding

monitoring and evaluation are required to provide insight into the depth of complexity of the evaluation context of organisations.

The evaluation models and program evaluation capability hierarchy are inversely related, as the models with narrower scope (i.e. political and symbolic models) focus more heavily on the higher/later implementation levels of the evaluation capability hierarchy (i.e. cost-efficiency and outputs) rather than the earlier design-focused levels.

Two causal factors linked with evaluation culture are management action and internal implementation. The former relates to management sanction, follow-through and sustained expert support, while the latter includes approaches to maximise uptake across the whole organisation. Together, these two factors lead to an evaluative culture. While they relate to the more integrated and strategic levels of the organisational evaluation capability hierarchy, they are above or outside the program specific capability hierarchy due to its subcomponent nature within organisational evaluation. These relationships are illustrated in **Figure 2.6**.

There are likely to be many factors affecting and affected by the evaluation models, capability and culture of Australia's regional bodies. Barriers are one such factor. Not only are they likely to affect an organisation's evaluation model, but also their capability. The capability and culture of an organisation are also likely to affect the level of impact experienced by, and method of addressing barriers implemented by, each organisation.

Barriers to regional body adoption

While no research was found that isolated the specific regional body perception of barriers to adoption of evaluation, there has been research on these barriers within the education and health industries and local government, with some researchers also focusing on the role of voluntary and community organisations in public service delivery within these and other industries. Although there are differences between the NRM sector and these others, there are sufficient similarities and precedents of the transferability between these industries (such as the transfer of approaches to program evaluation and program logic) and service delivery approaches to support such prior research being considered in the development of this research.

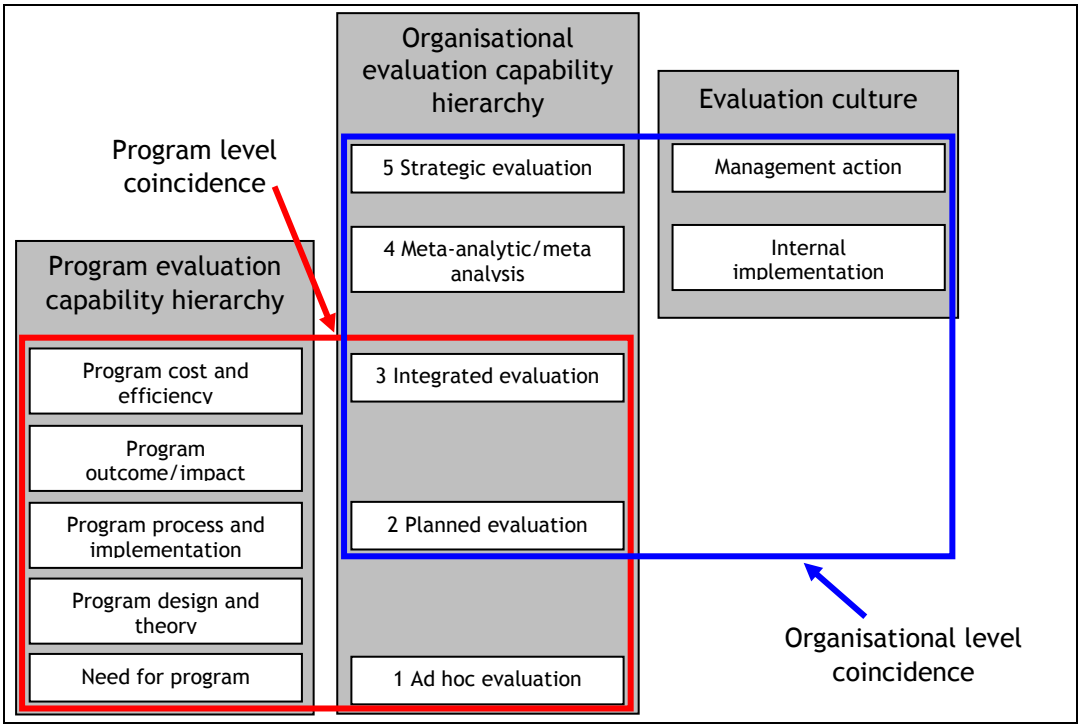


Figure 2.6: Evaluation capability and culture
Adapted from: Rossi, Lipsey and Freeman (2003) in Sharp (2005, p. 28), Sharp (2005, p. 30) and Owen (2003, p. 47)

In his research into performance evaluation in Victorian local governments, Kluvers (1998) identified four main categories of barriers:

- Uncertainty barriers
  - uncertainty about what is being measured
  - causal relationships between activities and outcomes
- Validity barriers
  - validity of indicators
  - isolation of effects/impacts
  - assignment of causality
- Organisational ownership barriers
  - usefulness of the evaluation information and it's manner of reporting
  - method of introduction of the performance indicators
  - staff involvement in the evaluation process
- Support barriers
  - level of training and support provided
  - reporting fears associated with negative evaluation results

The Victorian Catchment Management Authorities are statutory bodies (as are those in New South Wales) that work in a similar context to the local governments of their area. The main barriers identified by Kluvers (1998) for the Victorian local governments could thus be expected to also apply to regional bodies.

Barriers identified across the literature that fit within these categories, include:

- Uncertainty barriers relating to language (Adily & Ward 2005; Dupuy & Grinbaum 2005); contradictory policy and competing agendas (Adily &

Ward 2005); and political, scientific and environmental uncertainties (Dupuy & Grinbaum 2005)
- Validity barriers relating to: temporal and geographic variability (Australian National Audit Office 1997; Bellamy 2005; NLWRA 2008; Thackway et al. 2005); investment timeframes (Kluvers 1998; McVay et al. 2008b; Little 2005, in Moxham & Boaden 2007); the impracticality of an evaluator achieving complete objectivity (Vestman & Conner 2006; Watling & Arlow 2002)
- Organisational ownership barriers relating to the top-down direction of evaluation requirements (Australian Government 2003c; Bellamy 2005; McVay et al. 2008b)
- Support barriers relating to: contradictory policy and competing agendas (Adily & Ward 2005; English & Kaleveld 2003); poor knowledge and information management (Greening Australia 2003; McCullough 2005; McDonald et al. 2006; Socio-Economic National Coordination Committee 2007); insecure, short-term contracts and inefficient and bureaucratic procedures within the funding bodies (Little 2005, in Moxham & Boaden 2007)

It is unclear how many, if any, of these barriers from other sectors, scales and contexts may apply to the regional bodies, which highlights a fifth research problem.

RESEARCH PROBLEM FIVE: The barriers to monitoring and evaluation and their effect on regional bodies' practices and models have not been identified.

2.4 Conclusions from the literature

Established under a joint venture between the Australian government and the individual State and Territory governments, Australia's regional NRM organisations have been a primary mechanism for delivery of these governments' NRM investment programs. While some of the regional bodies were formed from pre-existing groups or entities, most of the 56 regional bodies were created specifically for the purpose of managing the government's NRM program investment in their region. The hybrid nature of the governance of these organisations—the private or mixed ownership of previously State/Territory government roles (Kooiman 2008)—places these bodies on the borderline between State, market and civil society. The decision of some States to adopt statutory models (i.e. Victoria, New South Wales and South Australia) for their regional bodies and other States/Territories opting for not-for-profit, private company and community board models adds further complexity. When added to the wide ranging regional characteristics across Australia (including population, area, landscape types, and historical and current development), this complexity led to regional bodies with vastly different situations, needs and structures, but this diversity has been little investigated in relation to monitoring and evaluation.

Historically, the literature shows that evaluations are undertaken by a wide range of sectors for a variety of purposes, including: policy making and

knowledge development performance management and accountability; impact assessment; and organisational learning and continuous improvement. The extensive government investment through these organisations placed significant accountability pressures on the regional bodies to evaluate the impact of their programs in addition to pressures from internal and community drivers for evaluation. Categorisations of organisations and the individuals involved in evaluations have taken various forms within the literature, including the key approaches selected for this research: evaluation models, capability and culture. These categorisation approaches were developed in the context of the private and public sectors and are expected to be suitable for application in this research due to the hybrid nature of Australia's regional NRM bodies and the sector's history of adopting evaluation theory and practices from both sectors.

Despite the expanding volume of literature about Australia's regional NRM bodies, none of the previous reviews of these organisations have established a baseline of the regional bodies' evaluation models and capabilities on a national scale. A review of each of the approaches to categorisation mentioned above identified evaluation models, program evaluation capability and evaluation culture categorisations as suitable for developing a baseline across the regional bodies through this research due to their strategic focus and their potential staged progression against which an organisation's evaluation processes could be benchmarked. The lack of research into the evaluation models of Australia's regional bodies is compounded by a lack of information available about their perceptions of their own capability. While there is some literature providing description of the perspective of external parties on the evaluation capability of the regional bodies (Bellamy 2005; Fenton & Rickert 2006; McVay et al. 2001; Robins & Dovers 2007; Seymour et al. 2008), these do not provide a collective picture of these organisations against a hierarchy of capability and do not take such an analysis from the regional bodies' own perspectives on the component aspects of their capability.

The impact of governance structures on the evaluation capability and models of the regional bodies is another area not covered in the literature. While institutional theory has tended to assume standardised governance structures across their 'fields' of analysis (i.e. sector) (Delbridge & Edwards 2007), this is not the case among the regional NRM field in Australia. In Scott's (2008) discussion on these institutional fields, he raises the point that the structures are the context within which action transpires and only exist because they are reproduced or changed through time to meet contextual need (i.e. they are to some extent both result and cause of how action happens). Without a clear understanding of how these different structures influence or are influenced by the evaluation models and capability of the regional bodies, it is not possible to consider what future changes and challenges might result over time.

Evaluation in general and within the NRM sector has evolved over time and the reasons for undertaking evaluations can vary considerably. A wide range of drivers for evaluation have been identified in the literature, but

generally fall into the following categories: external funding requirements; internal organisational requirements; and community requirements. An organisation will operate under a specific evaluation model due to specific drivers, with these primary drivers likely to be consistent among organisations operating under the same model. In addition to drivers, there are likely to be many factors affecting and affected by the evaluation models, capability and culture of Australia's regional bodies. Not only are barriers likely to affect the evaluation model under which an organisation operates, they are also likely to affect their evaluation capability. While no research was found that isolated the specific regional body perceived barriers to adoption of evaluation, there has been research on barriers within the education and health industries and local government and also in research focusing on the role of voluntary and community organisations in public service delivery. The four main categories of barriers identified in the literature, were: uncertainty barriers, validity barriers, organisational ownership barriers and support barriers. The barriers to monitoring and evaluation and their effect on regional bodies' practices and models have not been identified.

This literature review has established five research problems surrounding the monitoring and evaluation approaches of Australia's regional bodies and identified frameworks by which aspects of these approaches can be categorised to form a baseline against which future research may be compared.

3 Methodology

The previous chapter identified the research gaps in relation to monitoring and evaluation and some particular research problems. This chapter outlines the proposed approaches for addressing those problems. It provides detailed descriptions of the methods for data collection, for applying conceptual categories identified through the literature and for the establishment of a baseline of the monitoring and evaluation approaches of Australia's regional bodies. These methods include analysis of the regional bodies' monitoring and evaluation practices, drivers, barriers, partnerships, planned improvements and satisfaction levels within the categorisation frameworks and will focus on identifying relationships between these characteristics and against a selection of key demographic aspects.

3.1 Scope of the Research

The establishment of whole-of-sector benchmarks within Australia's regional NRM bodies has been undertaken for governance performance Excellence (Vogel 2011; Vogel & Zammit 2005). The establishment of an initial baseline was undertaken with a survey completed by individuals on behalf of the organisation. This approach provided a baseline for future comparison and allowed later follow-up research by case studies to obtain more depth into temporal progression by organisations on this topic. This research adopts a similar benchmarking approach to establish a baseline of evaluation drivers, practice, barriers, perceptions and plans. It will provide a point of comparison for potential future in-depth case study work or further whole-of-sector reporting.

3.1.1 Target population

This research includes and considers all 56 regional NRM organisations across Australia as mapped in **Figure 3.1** and listed in **Appendix A**.

3.1.2 Sampling

With 56 regional bodies across Australia forming the total population, it was decided to try and test the full population using the survey, aiming for at least a 50 percent response rate that would yield a sample that represented various geographic and demographic mixes. The response rate was 64 percent (36 organisations). As the process of response is self-selecting, it was important to confirm that no key demographic was excluded from the analysis. The key demographic factors that were tested for skew in the sample compared with the total population, were State/Territory representation, statutory status, aspects of remoteness (area, population density and distance of head office from state/territory capital city), age, organisation size, and income (*Caring for our Country* program 2009-10 base funding and proportion of government funds in total 2007-2008 revenue). A comparison of the sample against the total population for each of these demographic factors is provided in **Table 3.1**.

Note: the region names in the map do not directly match the regional NRM organisation name as they are region names not organisation names. In many cases, however, the names of the region and the organisation are quite similar and provide a good indication of which organisation operates in each region.

Figure 3.1: The 56 NRM regions of Australia
Source: Department of Environment, Water, Heritage and the Arts (2008)

Comparisons indicate that the survey sample provided adequate representation of the total population. At a state/territory scale, however, the two largest (by area) regional bodies (Northern Territory and Western Australian Rangelands as shown in **Figure 3.2**) were unable to participate. Hence, the very remote areas may be under-represented. While other Western Australian regional bodies were able to participate as representatives of their state, it should be noted that the Northern Territory is supported by only one regional body for the whole area and thus that Territory was not represented in the sample. South Australia and Tasmania are slightly over-represented in the sample but through only an extra one or two organisations in each state.

Table 3.1: Demographic representation in survey sample

DEMOGRAPHIC FACTOR	POPULATION	SAMPLE
Statutory bodies	55% (n=56)	55% (n=36)
Regional area - average (ha)	15 776 315 (n=56)	9 765 229 (n=36)
Regional population - average	569 656 (n=55)	694 478 (n=35)
Distance of head office from capital city – average (km)	490 (n=56)	411 (n=36)

DEMOGRAPHIC FACTOR	POPULATION	SAMPLE
Regional body age – maximum (years)	22 (n=55)	14 (n=35)
Regional body age - average (years)	7.9 (n=55)	7.1 (n=35)
Number of staff - average	36.2 (n=56)	36.7 (n=36)
Caring for our Country 2009-2010 funding - minimum ($)	764 000 (n=56)	785 625 (n=36)
Caring for our Country 2009-2010 funding - maximum ($)	6 230 540 (n=56)	5 282 000 (n=36)
Caring for our Country 2009-2010 funding - average ($)	2 049 672 (n=56)	2 002 060 (n=36)
Proportion of government funding to total revenue 2007-08 – average ($)	85.4 (n=49)	86.1 (n=34)

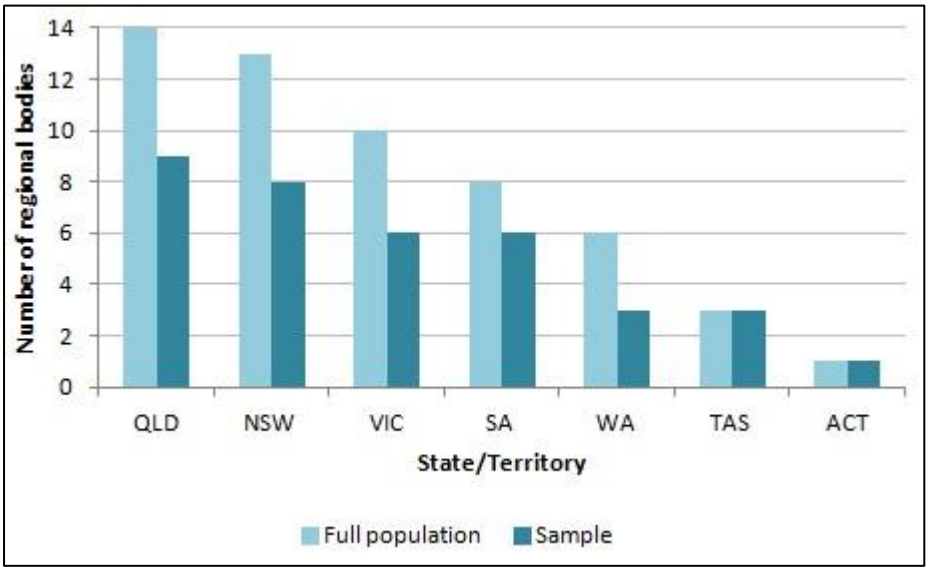


Figure 3.2: State/Territory representation in survey sample

3.2 Organisational Demographics

Organisational demographics were reviewed to enable the possibility of grouping the regions with like characteristics. Criteria for these grouping analyses included the demographic characteristics listed in **Section 3.1.2** as well as the presence of corporate strategic planning, the allocation of dedicated monitoring and evaluation staff members, the length of employment of current dedicated monitoring and evaluation staff members and the number of offices maintained by each organisation.

To maximise the internal consistency of the demographic and organisational data collected, the primary source for the data was the Annual Reports of each organisation for the 2007/2008 financial year. Where these could not provide all the relevant data, supplementary information was sourced from the organisations' web site where possible. As discussed above, these data were collected for the purpose of grouping to determine any commonalities that might between the monitoring and evaluation models and capabilities of regional bodies' with similar characteristics. It was intended that testing would identify whether or not, for instance, the amount of funding available might allow or restrict

regions from purchasing specialist monitoring and evaluation skills or might dictate the level of monitoring and evaluation practice implemented.

3.2.1 Statistical assumption testing

Assumption testing was undertaken on the demographic data using the SPSS statistical software package and Microsoft Excel to determine the suitability of the data for analysis and hypothesis testing. The data were found to be not normally distributed and due to the small number of cases (n=36) certain statistical tests were unsuitable for use in this research. It is noted, however, that while the sample is small, it was representative (refer to **Table 3.1**) and forms over 64 percent of the total population and as such was suitable for other analyses, including some cluster and factor analyses, correlation testing and comparison of means. Prior to completing factor analyses, tests for reliability using a Chronbach's Alpha test were undertaken on each of the item groups (demographic characteristics, drivers, barriers and practices) used in factor analyses to confirm appropriateness of each item for inclusion. Reviews of appropriateness of this approach were also undertaken using Bartlett's test for sphericity, and the Kaiser-Meyer-Olkin measure of sampling adequacy.

A cluster analysis was undertaken using the SYSTAT software package on the demographic characteristics of the regional bodies. The data was transformed to a standard scale (1-8) for all variables to allow for comparable calculations of Euclidean distances and an average linking method was applied. Any clusters identified were then carried through the remaining analyses to assist with categorisation.

3.3 Regional Body Survey

3.3.1 Survey design

The survey form was divided into five sections that focused on drivers, barriers, current monitoring and evaluation practices, satisfaction with current impact monitoring and evaluation practices, and the nature of partnerships supporting monitoring and evaluation within the regions (refer to survey form in **Appendix B**). Driver information was collected to support the identification of evaluation models, while the current practices were collected to assess the status of monitoring and evaluation and also to contribute to the initial baseline of evaluation capability and culture. Satisfaction levels, partnerships and barriers were included to provide context to understanding issues that affect the models, culture and capability.

The drivers identified through the literature for use in the survey include:

- Accountability to funding organisations (Hickey et al. 2007; Osborne et al. 1995)
- Highlighting project success (Conley-Tyler 2005; Eilat et al. 2008)
- Improvement of staff and community involvement in projects (Fetterman 1997)
- Internal program improvement (Conley-Tyler 2005; Eilat et al. 2008)

- Providing information to support policy decisions (Abma 2005; Robins & Dovers 2007)
- Reporting progress to the regional/catchment community (Fetterman 1997; Osborne et al. 1995; Wells & Rickwood 2006)
- Sourcing future funding (Hickey et al. 2007; Osborne et al. 1995)
- Tracking achievement of project outcomes (Conley-Tyler 2005; Eilat et al. 2008; Greenberg & Nunamaker 1987)

The barriers identified through the literature for use in the survey include:
- Changes in resource condition taking too long to measure (Based on Kluvers 1998; McVay et al. 2008b; Little 2005, in Moxham & Boaden 2007)
- Difficulty communicating the change in resource condition due to the use of indirect/surrogate measures (Based on Adily & Ward 2005; Dupuy & Grinbaum 2005)
- Difficulty finding methods that are seen as appropriate by the reporting audience (i.e. the people the results are for) (Based on Adily & Ward 2005; Australian Government 2003c; Bellamy 2005; English & Kaleveld 2003; McVay et al. 2008b)
- Difficulty finding methods that have been tested and proven suitable for our region (Based on Australian National Audit Office 1997; Bellamy 2005; NLWRA 2008; Thackway et al. 2005)
- Difficulty in explaining complex monitoring results to non-technical people (Based on Adily & Ward 2005; Dupuy & Grinbaum 2005)
- Difficulty in obtaining monitoring results that are immediately useful to field staff or land managers (i.e. without extensive data analysis)
- Difficulty isolating the impact of activities from other factors such as seasonal variation (Based on Dupuy & Grinbaum 2005)
- Difficulty isolating the impact of specific activities from other activities (Based on Dupuy & Grinbaum 2005)
- Lack of availability of equipment (i.e. can't access the equipment you need) (Based on Adily & Ward 2005; Australian Government 2003c; Bellamy 2005; McVay et al. 2008b)
- Lack of availability of specialist skills (i.e. can't access the specialists you need) (Based on Adily & Ward 2005; Australian Government 2003c; Bellamy 2005; McVay et al. 2008b)
- Lack of available staff time (i.e. staff are too busy with other business aspects) (Based on Adily & Ward 2005; Australian Government 2003c; Bellamy 2005; McVay et al. 2008b)
- Lack of funds to source the required skills and equipment (Based on Little 2005, in Adily & Ward 2005; Moxham & Boaden 2007)

The current practices surveyed followed the evaluation capability hierarchy provided by Rossi, Lipsey and Freeman (cited in Sharp, 2005) and include:
- Project output tracking (e.g. length of fencing, number of landholders involved)
- Assessment of project cost and efficiency
- Assessment of changes in awareness, skills, knowledge and attitudes of project participants (relating to the project purpose)

- Assessment of changes in land/water/nature managers' practices due to the project
- Assessment of changes in resource condition at the site of on-ground work
- Assessment of appropriateness of project methods (engagement, on-ground works etc.) against the project purpose
- Assessment of other changes at the site of on-ground work as surrogates for resource condition change (e.g. ground cover as surrogate for water quality)
- Assessment of appropriateness of site selection against the project purpose
- Assessment of flow-on effects of projects (i.e. expansion of learnings or practices from participants to non-participants outside the project)
- Assessment of the need for the program (i.e. the cumulative suite of projects such as water quality projects mentioned above)
- Assessment of cumulative impact of multiple projects within a program (e.g. effect of all water projects on the region's water quality)
- Assessment of the need for individual projects
- Assessment of economic impacts of the project on participants

Levels of satisfaction were gauged for monitoring and evaluation practices based on the main theme areas in the previously proposed indicators for regional bodies (National Land and Water Resources Audit 2008a):
- Water quality and waterway health
- Biodiversity and habitat health
- Land condition and soil health
- Social impacts
- Economic impacts

The nature of monitoring and evaluation partnerships was investigated through questions on the type of partners engaged with and the nature of the partnership. Partners listed in the survey were local government, consultants, landholders, state government, researchers, community groups and industry groups. Monitoring and evaluation partnership types included voluntary, in-kind and paid partnerships. Questions relating to drivers, barriers, current practices and satisfaction utilised a 0 to 10 Likert scale, with the addition of a 'not applicable' response for the satisfaction questions where impacts on a particular resource may not have been monitored and allowing the zero score to be consistently applied as indicating 'no satisfaction'.

3.3.2 Survey distribution and management

The Chief Executive Officer (CEO), or equivalent, and the staff member responsible for monitoring and evaluation within each NRM organisation were identified through web searches initially, or by telephone contact with the organisation where required. All 56 NRM organisations were provided with the opportunity to participate. Initial contact via the CEO or equivalent of each organisation included a consent form and nomination of the relevant staff member for participation. The survey form was sent to

the nominated staff member via email (July 2009), with two reminder emails sent (August and October 2009) and two follow-up telephone calls made (September and October) where responses weren't received or extensions negotiated. This process was confounded by staff on leave, staff turnover and reported heavy workloads and resulted in extension of the survey collection period to a total of 7 months.

Confidentiality of questionnaire responses were ensured by direct email submission via password protected email to the survey database stored in a password protected section of the Condamine Alliance server. Only the lead researcher had direct access to this information. Some information was provided to supervisors in the interest of improving the research but confidentiality was maintained through the same password protected storage approach as above. Reported results maintain the confidentiality and anonymity of participants through aggregated reporting by State/Territory or other untraceable groupings.

3.3.3 Social desirability bias management

Several approaches were incorporated in the survey design to help reduce the potential bias in survey responses due to respondents' perceptions of social desirability of particular responses. These included:

- Use of unemotional language in all statements and questions
- Potential responses ordered in a way that removed implied value scales between responses
- Questions focused on foundational aspects used to calculate potentially value-laden data (e.g. model or culture) rather than directly asking about these aspects.

Despite these efforts, there is likely to be some positive skew in results in some areas due to respondent's perception of socially desirable responses. The extent of such bias is expected to be low, however, due to the approaches implemented as listed above.

3.3.4 Data compilation and formatting

Survey questions were structured to require little transformation prior to analysis through the use of consistent direction and numbering within Likert scales throughout. Radio buttons and drop-down boxes were also used within the survey form to ensure consistency of reporting of nominal and ordinal data (non-Likert scale questions). Submission of responses via automatic email using PDF forms allowed seamless compilation of data directly into Microsoft Excel without manual re-entry, thus reducing the risk of transcription error. Demographic data was appended to the survey response data within Excel prior to upload into SPSS for analysis.

3.3.5 Limitations

Several potential limitations were identified that have been addressed through the design of these research methods, including limitations relating to data and sample size, and limitations relating to scope. The former can be summarised as:

- Sample size suitability for various statistical analyses – dealt with through targeted follow-up on responses and deliberate selection of analyses
- Data normality and suitability for various statistical analyses – dealt with through survey scale determination and deliberate selection of analyses
- Sample skew due to self-selection – dealt with through targeted follow-up on responses and cross-checking of representation of sample
- Consistency of question interpretation – dealt with through targeted use of industry-specific language in question design and relational frameworks between this language and the relevant theory

The scope parameters/limitations, however, relate more to refinement of topic and the exploratory nature of this research and include:
- Need for breadth of understanding at a single point in time to establish benchmarks – dealt with through model framework selection and survey question design
- Need to identify commonalities and differences among the population to allow comparison and differentiation of types/groupings – dealt with through selection of multiple grouping approaches (e.g. clusters, factor analyses)
- Need to establish relationships between aspects (e.g. barriers and models) to allow discussion on potential causalities – dealt with through deliberate selection of analyses

3.4 Analysis

This section outlines the approaches used to analyse the data. It discusses the assumption testing associated with these analyses and provides the context for the analysis approach by summarising the analyses undertaken in relevant literature.

3.4.1 Methods used in other studies

Evaluation studies

Many previous studies focused on evaluating a specific program or activity (Allan & Curtis 2003; Australian National Audit Office 1997; Barrow 2002; Hassall & Associates 2005; McVay et al. 2001; McVay et al. 2004) through a variety of mechanisms including interviews, document reviews, surveys and case studies. Others focused on developing methods for evaluating programs (Ashley & Boyd 2006; Chudleigh et al. 2007), testing these using journal content analyses, case studies and cost/benefit analyses. While still others focused on assessing the institutional capability of organisations or governments to undertake evaluations (Bellamy 2005; Bellamy & Brown c2009; Davidson et al. 2008; Griffith et al. 2009; Lockwood 2009) through case studies, workshops, interviews, expert panels, and syntheses of other literature. While each of these approaches may be valid for those studies' purposes, none provided approaches that would assist in establishing a whole-of-industry assessment or benchmark of evaluation models and

capability and so were not considered appropriate approaches for this research.

Regional natural resource management studies

Reviews of the regional bodies and natural resource management industries focused primarily on performance reviews (Fenton & Rickert 2006; Vogel 2011; Vogel & Zammit 2004, 2005) through case studies, interviews and surveys. With some research into approaches to undertaking performance reviews (Zammit & Cockfield 2000) using interviews and syntheses of other research. Still other studies reviewed the efficacy of institutional arrangements (Davis et al. 2001; Reeve & Brunckhorst 2007; Robins & Dovers 2007) using case studies and Strengths-Weaknesses-Opportunities-Threats analyses. While others focused on the development or review of impact assessment methodologies (Fenton & Rickert 2008; National Monitoring and Evaluation Symposium Steering Committee 2005) through case studies, social network analyses, synthesis of other research, and key informants.

The only studies within these that attempted to establish benchmarks across the whole regional natural resource management industry, were those undertaken by Vogel and Zammit, which used surveys to establish a benchmark for the governance practices within Australia's regional bodies. Their approach compared survey results on key characteristics across the regional bodies and compared these with internationally established corporate benchmarks. Their survey approach and comparative analysis was considered most suitable for this research. As no international or even other industry benchmark was available for comparison of evaluation models and capability, however, this research will focus on internal sector comparisons.

3.4.2 Grouping regional bodies

With a population of 56 regional bodies in Australia, it was important to determine ways to group these into categories of similar characteristics during the analysis to provide findings and discussion useful to the sector. Based on the approaches to categorisation discussed in **Section 2.3.2**, a range of groupings were investigated.

As discussed in **Section 3.2**, a cluster analysis of the demographic variables was undertaken using SYSAT software to identify any groupings that might be suitable for further analysis of the regional bodies' survey responses. Factor analyses were undertaken on the drivers, barriers and current practices of the regional bodies to determine if these aspects had grouping characteristics. Factors were identified for each of these aspects that could be rationalised by their characteristics. These factors were then used in further analysis of the evaluation models under which the regional bodies were operating, to assess commonality of issues surrounding model adoption. Prior to the factor analyses, statistical assumption testing was undertaken as outlined in **Section 3.2.1**. Other approaches to grouping the

regional bodies based on linking the survey responses to evaluation theory form part of the analysis of the status of regional body evaluation.

3.4.3 Status of Regional Body Evaluation

To confirm that the ratings used for each component of evaluation across the survey were appropriate, internal consistency checks were undertaken using Chronbach's Alpha tests. These analyses identified high alpha scores overall for all assessments (Drivers α=0.857; Barriers α=0.892 and Practices α=0.897) and no items that would significantly improve reliability by their removal. All items were retained in all analyses.

As the data was not normally distributed, Spearman's Rho correlations and compared means analyses were used to determine any statistical differences between the levels of importance of the suite of surveyed current practices across the different demographic characteristics. Factor analyses were used to determine relationships among the various drivers, the barriers, and the practices reported by the regional bodies. The alignment of each regional body against the identified factors was developed by determining each organisation's average score for the contributing drivers for each factor. These average scores where then compared to determine if any particular factor was more dominant than others for each regional body. Analysis of the relationships between the identified factors and the various monitoring and evaluation practices and between the factors and the drivers and barriers to monitoring and evaluation, were undertaken using Spearman's Rho correlations and compared means analyses.

Evaluation models

Each of the drivers identified from the literature (refer to **Section 2.3.4**) was reviewed in conjunction with the descriptions of each model provided in the literature to determine if they encapsulated a primary aspect of the model. If the description of the model purpose and the driver were clearly aligned, the driver was listed as a primary driver for that model. If the driver was not clearly aligned with the model purpose, the driver was listed as a secondary driver. These secondary drivers may affect some or all of the organisations operating within a particular model as they are not causal in model application. For example, the political model description placed the driver of accountability as a primary driver for this model as it is a core driver of the purpose behind this particular model. The driver of community interest in outcomes, however, is a secondary driver for this model as it may or may not affect organisations operating within this model — it is not causal to this model's application. The drivers with primary status for each model group are listed in **Table 3.2**.

Table 3.2: Model-driver relationships

MODEL	DESCRIPTION	PRIMARY DRIVERS
Political model	Monitoring to support political case and funding organisation's desires	• Accountability • Sourcing future funding • Highlighting successes
Symbolic model	Monitoring to promote public image Monitoring to promote perception of strategy and direction	• Accountability • Sourcing future funding • Highlighting successes
Organisational Excellence model	Critical success factor monitoring Process monitoring	• Accountability • Sourcing future funding • Tracking outcome achievement • Highlighting successes
Constitutive model	Monitoring of selected aspects to meet evaluators' 'reality'	• Accountability • Sourcing future funding • Program improvement • Tracking outcome achievement • Highlighting successes
Bounded Rationality model	Assumes gaps in knowledge and imposes selected monitoring for other decision levels	• Accountability • Sourcing future funding • Program improvement • Tracking outcome achievement • Highlighting successes
Expanded Contextual model	Monitoring of: Context, Strategy, Process, Activity, Impact and Catalysis	• Accountability • Sourcing future funding • Driving policy • Program improvement • Tracking outcome achievement • Highlighting successes • Increasing organisational ownership by community • Community interest in outcomes

It is clear from this list that there is close alignment between certain models where the drivers are ostensibly the same. Due to this lack of differentiation, for the purposes of this study, the models have been grouped into four categories:

- Political and symbolic models
- Organisational excellence model
- Constitutive and bounded rationality models
- Expanded contextual model

The decision framework used to assign evaluation models to the regional bodies—derived from the previously listed driver-model alignments (refer to **Table 3.2**)—is outlined in **Figure 3.3**.

It should be noted that while the drivers exist under these models, the application of appropriate design and quality monitoring and evaluation practices may vary based on the nature of the link between the model and the driver and the capability and culture of the organisation and individuals involved. This research did not include a review of the quality of design

and implementation of monitoring and evaluation by the regional bodies but attempted to determine the baseline of the critical models, capability and some aspects of culture.

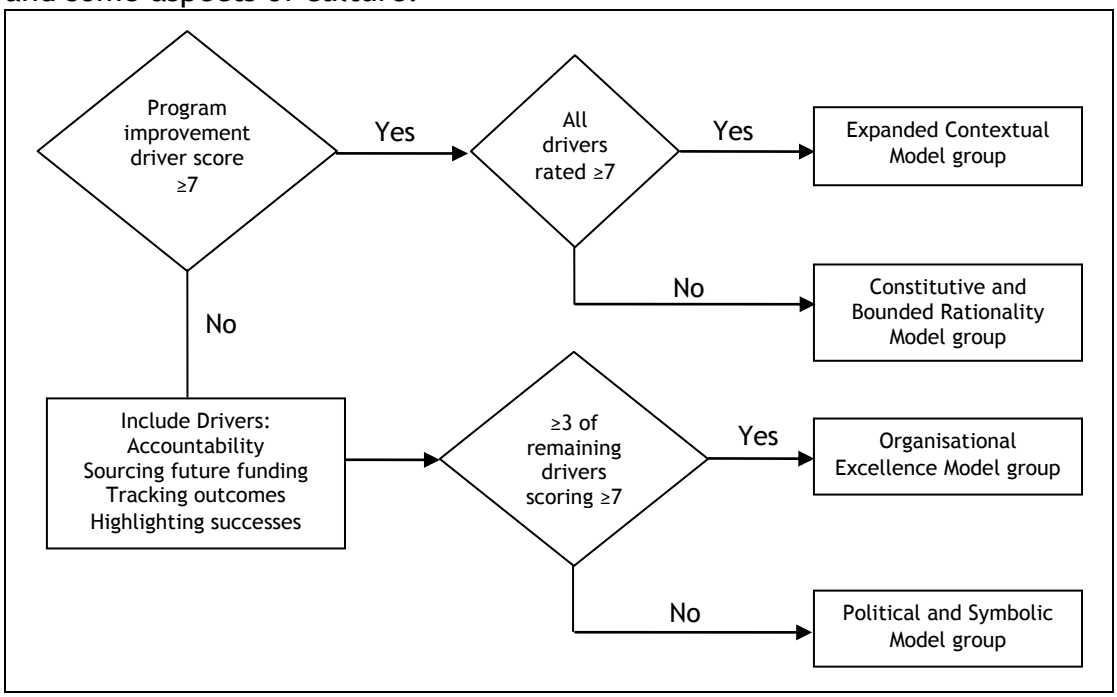


Figure 3.3: Model group assignment framework

Evaluation capability

Applying the program evaluation capability hierarchy discussed in **Section 2.3.2**, a capability score was calculated for each regional body. Each question in the survey regarding monitoring and evaluation practices (as listed in **Section 3.3.1**) targeted a specific practice within the program evaluation capability hierarchy (illustrated in **Figure 2.3**), providing regional body ratings for the importance of each hierarchy level within the organisations' monitoring and evaluation practices. The overall capability score for each regional organisation was calculated as the sum of all practice ratings, with the maximum capability score totalling 130. Equal weightings were assumed for all contributing capability aspects due to the lack of any literature to support their application. Capability only takes an organisation so far, however, as the organisational culture can curtail implementation as easily as can lack of capability.

Evaluation culture

Evaluation culture is a complex suite of integrated aspects as shown in **Figure 2.5**. While it is recognised that evaluation culture characterisation provides an aggregated, holistic view of the organisation's progression or evolution, only a basic application of this approach to characterisation is possible in this exploratory research.

Table 3.3 illustrates the indicators of evaluation culture, from Owen's (2003) research, included in this initial characterisation of Australia's regional bodies. The scores from these indicators were standardised (refer

to **Table 3.3**) and equally weighted, in the absence of any studies to the contrary, to determine the overall culture score for each regional body.

Table 3.3: Evaluation culture score

CULTURE ASPECT	SURVEY INDICATOR	SCORING
Link to external expertise and sustained interactivity	Monitoring and evaluation partnerships Includes: Consultants, Researchers and State Government partners	Maximum response score for the involvement of these three partner groups
Incremental process	Scale and timeframe of planned improvements to M&E	Score 10 = incremental scale over more than 12 months Score 8 = incremental scale over 6-12 months Score 7 = large scale over more than 12 months Score 6 = incremental scale over 3-6 months Score 5 = large scale over 6-12 months Score 4 = incremental scale over less than 3 months Score 3 = large scale over 3-6 months Score 2 = large scale over less than 3 months Score 1 = no change planned
Identification of key staff for evaluation involvement AND Commitment to roles for evaluation in decision-making	Presence of coordinating monitoring and evaluation staff member	Score 10 = Yes Score 1 = No
Applied to strategic issues	Evaluation of program need as most strategic level in program evaluation capability hierarchy	Relevant practice response score
Valued contribution to working knowledge	Internal driver of program improvement	Relevant driver response score
Overall culture score		Equally weighted sum of all scores out of possible 50

3.5 Conclusions

This chapter developed the approaches for addressing the research problems. It provided detailed descriptions of the methods for data collection and analysis, applying the theoretical categorisation frameworks and for establishment of baselines of the monitoring and evaluation practices, models, culture and capability of Australia's regional bodies.

The basic statistical approaches to organisational categorisation discussed include:

- Cluster analyses based on demographic characteristics to develop regional body groupings to assist with further analysis
- Factor analyses of aspects affecting evaluation (drivers and barriers) to allow for analysis of common issues and aspects of evaluation and their relationship with other characteristics

- Factor analyses of monitoring and evaluation practices to identify common themes of practice that allow for analysis of their relationships with other characteristics

Frameworks were also developed that link the survey data with the evaluation theory to allow for the determination of:

- The evaluation models under which each regional body operates based on their reported drivers
- The program evaluation capability of each regional body based on their reported practices
- The evaluation culture of each regional body based on a combination of aspects of their reported monitoring and evaluation partnerships, the nature of changes proposed to their monitoring and evaluation, the presence of dedicated monitoring and evaluation staff member, selected monitoring and evaluation practices, and selected drivers.

These approaches will provide a baseline of the status of monitoring and evaluation, and the factors affecting this, across Australia's regional bodies for use in future trend or evolution comparisons. Preliminary baselines for evaluation capability and culture will be basic assessments within the limitations of this research. Further research will be required to build depth into the understanding of these aspects of evaluation within the regional bodies.

4 Results

This chapter outlines the results of analyses of the demographic and survey data collected for the regional bodies using the approaches discussed in **Chapter 3**. It discusses the outcomes of analyses aimed at grouping the regional bodies and at reviewing the status of regional body evaluation in terms of practices, models, capability and culture and the relationships between these aspects.

4.1 Grouping of Regional Bodies

This section presents the results of demographic clustering and factor analyses of the drivers, barriers, partnerships and satisfaction levels of the regional bodies. This section also provides the results of reviews of the relationships between these groupings and key organisational characteristics.

4.1.1 Demographics

Australia's regional bodies vary significantly on the key demographic characteristics reviewed (refer to **Table 4.1**). Despite these organisations ostensibly being created to meet delivery of particular Australian and State/Territory government NRM funding programs, their ages vary significantly from a newly amalgamated regional body that was less than one year old at the time of surveying, to pre-existing organisations adapted to meet the funding programs' needs (14 years old). The area and populations included in each region also vary significantly from densely populated small coastal areas to vast tracts of sparsely populated inland countryside. Most of these characteristics are not normally distributed (charts provided in Appendix A).

Table 4.1: Summary of demographic characteristics of survey sample

STATISTIC		AGE (YRS) AT 2009	NUMBER OF STAFF	REGION AREA (HA)	REGION POPULATION	CFOC INCOME 2007-08 ($)	NUMBER OF OFFICES	DISTANCE TO CAPITAL CITY (KM)
n	Valid	35	36	36	35	36	35	36
	Missing	1	0	0	1	0	1	0
Mean		7.1	36.7	9,765,228	694,478	2,002,060	3.4	411
Median		6.5	28	3,158,100	106,500	1,908,096	1	248
Skewness		0.554	0.586	2.387	4.925	1.557	1.011	1.668
Kurtosis		-0.329	-0.756	4.970	26.121	4.444	-0.235	2.872
Minimum		0	8	235,800	4446	785,625	1	0
Maximum		14	86	54,000,000	12,000,000	5,282,000	10	1826

Four groups were identified in the demographics cluster analysis (**refer to Appendix A**) for use in further hypothesis testing and analysis. These groups can be described as:

- Cluster1 –'Younger' regions with smaller area, mid-range *Caring for Our Country* program income, and larger regional populations
- Cluster 2 - Mid-aged regions with mid to high *Caring for Our Country* program income and mid-high populations

- Cluster 3 - Mid-aged regions with smaller area, lower *Caring for Our Country* program income, and lower staff numbers
- Cluster 4 - Older regions with small to mid-sized areas

The proportion of regional bodies within each cluster is illustrated in **Figure 4.1**.

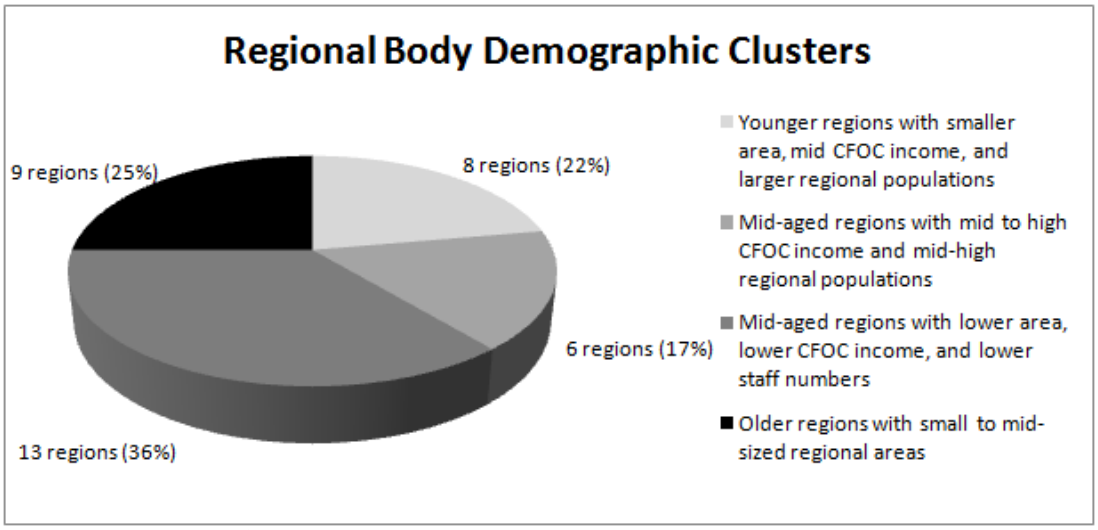


Figure 4.1: Regional body demographic clusters

There were also some clear correlations between certain demographic characteristics. While many of these were expected, others were somewhat unexpected. Simplification of the cluster analysis by removing the redundant variables identified through these correlations improved the validity of the clustering somewhat but did not significantly change the nature of the identified clusters (refer to **Appendix A**).

Correlations that highlighted co-variant variables for the cluster analysis refinement include:

- Regions with higher populations had offices closer to State/Territory capital cities (r_s=-0.470, p<0.01, n=35); and larger (by area) regions have regional body head offices further from the State/Territory capital city (r_s=0.525, p<0.01, n=36), which reflects both the urbanisation and concentration of population in Australia.
- Regions with higher populations (r_s=0.390, p<0.05, n=34) or higher numbers of staff (r_s=370, p<0.05, n=35) were more likely to have undertaken corporate strategic planning.
- Statutory regional bodies also generally had higher numbers of staff than their non-statutory counterparts (r_s=0.635, p<0.01, n=36) and were younger (r_s=-0.370, p<0.01, n=35) with lower proportions of government funding (r_s=-0.396, p<0.01, n=34).

- Strong correlations existed between all of *Caring for Our Country* income, numbers of regional body staff and number of offices:

CHARACTERISTIC	CFOC INCOME	NUMBER OF STAFF	NUMBER OF OFFICES
CFOC income		r_s=0.544 , p<0.01, n=36	r_s=0.394 , p<0.05, n=35
Number of staff	r_s=0.544 , p<0.01, n=36		r_s=0.549 , p<0.05, n=35
Number of offices	r_s=0.394 , p<0.05, n=35	r_s=0.549 , p<0.05, n=35	

- Strong correlations also existed between all of: regional area, regional population and distance from regional body head office to capital city:

CHARACTERISTIC	REGION AREA	REGION POPULATION	DISTANCE TO CAPITAL
Region area		r_s=-0.461 , p<0.01, n=35	r_s=0.525 , p<0.01, n=36
Region population	r_s=-0.461 , p<0.01, n=35		r_s=-0.470 , p<0.01, n=35
Distance to capital	r_s=0.525 , p<0.01, n=36	r_s=-0.470 , p<0.01, n=35	

The interaction of regional demographics with the surveyed aspects such as drivers and barriers, are listed under each of those headings.

4.1.2 Monitoring and evaluation drivers

Figure 4.2 illustrates the distribution of responses on the importance (0 indicating no importance, 10 indicating very high importance) of each of the assessed drivers in determining the monitoring and evaluation practices of the organisation. Most drivers are ranked at relatively high levels of importance but with some showing much more variability in responses than others. The response with the least variation across the sample was for the driver of using monitoring and evaluation to inform policy, with the widest variability associated with the drivers relating to improving engagement and reporting to the community. The highest ranking drivers were those relating to accountability to funding organisations, highlighting project successes, internal program improvement and tracking project achievement. Each of these drivers had a mean score above 8 and was allocated a score of at least 7 by more than 75 percent of regional bodies. It is important to note, however, that the mean scores for all drivers were over 6.5 and even the lowest scoring driver was allocated a score of 7 or more by over 60 percent of respondents indicating that most drivers are present for most regions, but to varying degrees.

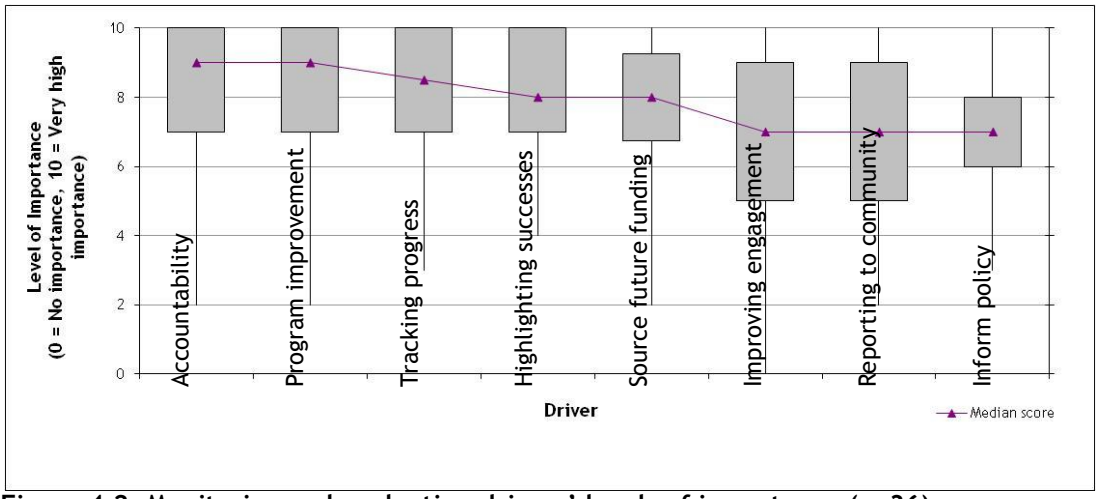


Figure 4.2: Monitoring and evaluation drivers' levels of importance (n=36)

While there were no significant correlations between the drivers and the demographic clusters, two correlations were identified between individual demographic characteristics and monitoring and evaluation drivers:

- Those regional bodies with corporate strategic planning, were less likely to be driven by accountability (r_s=-0.349, p<0.05, n=35).
- The more offices a regional body has, the less likely it is to be driven by program improvement (r_s=-0.358, p<0.05, n=35)

There were also many correlations between the drivers themselves, showing the interconnectedness of these imperatives as demonstrated in **Table 4.2**. Reporting to community was the most highly linked driver, with significant correlations to all seven other drivers. Closely behind this were the drivers of outcome tracking and highlighting success, which were each correlated with six of the seven other drivers. The driver with the least number of significant correlations with other drivers was that of sourcing funding (three out of seven possible correlations).

A factor analysis of the driver response scores identified two main groupings of drivers that account for 62 percent of the variation in survey responses. As seen in **Figure 4.3**, the drivers in Factor 1 focus more on engagement and program improvement, while the drivers in Factor 2 focus more on the maintenance of the organisation's revenue base.

Table 4.2: Significant driver correlations (Spearman's Rho)

DRIVER	ACCOUNT-ABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVE-MENT	OUTCOME TRACKING	HIGHLIGHT SUCCESS	COMMUNITY ENGAGE-MENT	REPORTING TO COMMUNITY
Accountability		.659(**) n=36	-	-	.645(**) n=36	.451(**) n=36	.332(*) n=36	.455(**) n=36
Sourcing funding	.659(**) n=36		-	-	.341(*) n=36	-	-	.503(**) n=36
Informing policy	-	-		.394(*) n=36	-	.379(*) n=36	-	.390(*) n=36
Program improvement	-	-	.394(*) n=36		.624(**) n=36	.702(**) n=36	.505(**) n=36	.625(**) n=36

DRIVER	ACCOUNT-ABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVE-MENT	OUTCOME TRACKING	HIGHLIGHT SUCCESS	COMMUNITY ENGAGE-MENT	REPORTING TO COMMUNITY
Outcome tracking	.645(**) n=36	.341(*) n=36	-	.624(**) n=36		.815(**) n=36	.530(**) n=36	.702(**) n=36
Highlighting successes	.451(**) n=36	-	.379(*) n=36	.702(**) n=36	.815(**) n=36		.533(**) n=36	.700(**) n=36
Community engagement	.332(*) n=36	-	-	.505(**) n=36	.530(**) n=36	.533(**) n=36		.691(**) n=36
Reporting to community	.455(**) n=36	.503(**) n=36	.390(*) n=36	.625(**) n=36	.702(**) n=36	.700(**) n=36	.691(**) n=36	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

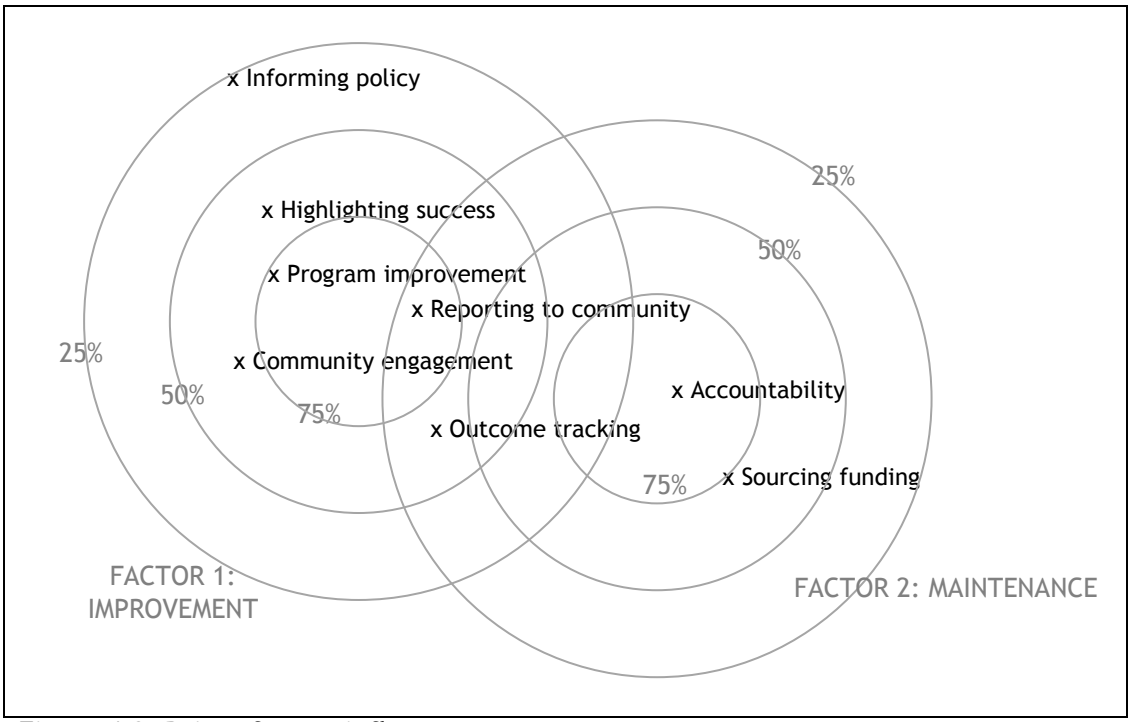


Figure 4.3: Driver factors influence map

These factors align well with the evaluation models discussed earlier. The maintenance focused Factor 1 aligns most closely with the narrower focused political and symbolic evaluation models and the organisational excellence model; whereas the improvement focused Factor 2 incorporates the drivers that generally lead to the adoption of the various higher order models (constitutive and bounded rationality models and the expanded contextual model).

Based on the average driver factor scores (as described in **Section 3.4.3**), the proportion of regional bodies more influenced by each Factor was calculated as shown in **Table 4.3**. This initial analysis identified the dominant factor for the majority of regional bodies (58 percent) as the maintenance factor (Factor 2). Within these groupings, however, the mean difference between the factor scores was only 0.9 points (on the 10 point

Likert scale), with reasonably low variability (between 0 and 2.9 points of difference between Factors).

Table 4.3: Initial driver factor grouping dominance

DOMINANT FACTOR (PERCENT OF REGIONAL BODIES)	FACTOR 1: IMPROVEMENT	FACTOR 2: MAINTENANCE
Factor 1: Improvement	36%	6%
Factor 2: Maintenance	6%	58%

To account for the small difference between Factors in some cases, the dominant Factors were recalculated to include in the 'equally dominant' category those regions where the difference between their average factor scores was less than 1 point. This provides a more representative split across the Factors as shown in **Table 4.4**, with a strong shift in the distribution indicating that the majority of regional bodies (53 percent) are actually almost equally influenced by both factors.

Table 4.4: Driver factor grouping dominance (within 1 point difference)

DOMINANT FACTOR (PERCENT OF REGIONAL BODIES)	FACTOR 1: IMPROVEMENT	FACTOR 2: MAINTENANCE
Factor 1: Improvement	17%	53% (equally dominant)
Factor 2: Maintenance	53% (equally dominant)	31%

There were no significant relationships identified between these driver factors and any of the demographic characteristics.

4.1.3 Barriers to monitoring and evaluation

While no research was found that identified and empirically assessed the specific barriers to adoption of evaluation practices amongst the regional bodies, there has been research on these barriers within the education (Cross 2005; Schmidt & Brown 2007; Watling & Arlow 2002) and health industries (Adang & Wensing 2008; Adily & Ward 2005; Pare & Trudel 2007; Ross et al. 1996; Sheahan et al. 2007) and local government (Kluvers 1998), with some researchers also focusing on the role of voluntary and community organisations in public service delivery within these and other industries (Little 2005, in Moxham & Boaden 2007). There is also some literature on adoption barriers in other NRM areas such as barriers to the use of science (Davis et al. 2001; Dupuy & Grinbaum 2005) and barriers surrounding the NRM sector in general (Australian National Audit Office 1997; Bellamy 2005; Greening Australia 2003; McCullough 2005; McDonald et al. 2006; McVay et al. 2008b; Thackway et al. 2005). These barriers were tested among Australia's regional bodies through this research and were found to have varying levels of relevance.

Figure 4.4 illustrates the range of responses received regarding the level of influence (0 indicates 'no influence', 10 indicates 'very high influence') of each of the various barriers on the monitoring and evaluation practices of the regional bodies. There is a much wider spread of responses on these barriers than was found among the drivers, and six barriers rated mean scores of less than 7. Two of the top three barriers related to the difficulty

in isolating the impact of investment activities – from seasonal variation and from those activities undertaken by others. Almost 70 percent of regional bodies rated these two barriers with a score of 7 or more, indicating that this is a common point of issue among most of the regional bodies. The other barrier rated in the top three was that associated with the lack of available staff time - this was a consistent message received by the researcher when requesting survey participation and adversely affected the number of survey responses received and the timeframe for response. 69 percent of regional bodies rated lack of staff time with a score of 7 or more.

While there were no significant correlations between the demographic clusters and these barriers, key correlations between individual demographic characteristics and the monitoring and evaluation barriers include:

- Regional bodies rating the barrier of lack of immediacy of results highly, were those regions with a larger area (r_s=0.426, p<0.01, n=36), those that were older (r_s=0.382, p<0.05, n=35) and those that had their main office further from their capital (r_s=0.347, p<0.05, n=36)
- Those regional bodies with higher numbers of staff rated more highly than their counterparts the barrier of lack of appropriate methods (r_s=0.454, p<0.01,n=36), of method complexity (r_s=0.356, p<0.05, n=36) and issues with isolating seasonal impacts (r_s=0.330, p<0.05, n=36)
- Statutory regional bodies also rated the difficulty of isolating seasonal impacts more highly than non-statutory bodies (r_s=0.338, p<0.05, n=36)
- Those regional bodies with higher income from the *Caring for Our Country* program rated barriers associated with the use of surrogates more highly than those with lower income (r_s=0.336, p<0.05, n=36)

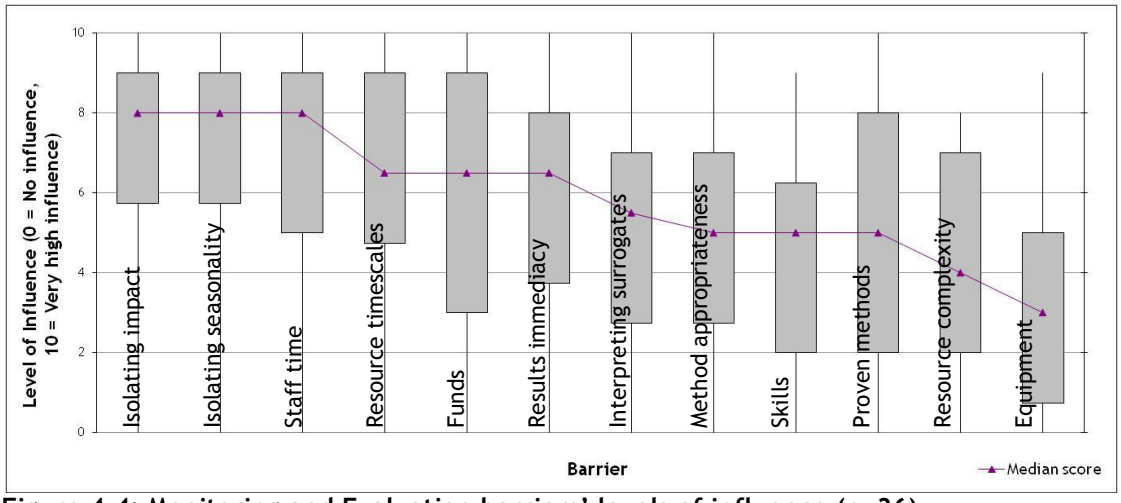


Figure 4.4: Monitoring and Evaluation barriers' levels of influence (n=36)

No significant relationships were identified between these individual barriers and the driver factors. There were, however, a large number of correlations between the barriers themselves, highlighting the complexity of monitoring and evaluating regional NRM programs. These significant correlations are listed in **Table** 4.5. The most highly linked barrier was that of lack of proven methods, which was significantly correlated with ten of

the other eleven barriers. This was closely followed by the barrier relating to the use of surrogates, which was correlated with nine of the other eleven barriers. The barrier with least relationship to the other barriers was that of the barrier of lack of time, which had significant correlations with only two other barriers (funds and the use of surrogates).

A factor analysis of the barrier response scores identified two main groupings of barriers that accounted for 60 percent of the variability in survey responses. As shown in **Figure 4.5**, the Factor 1 barriers focus on the evaluation capability aspects of skills and resourcing while Factor 2 barriers focus on the evaluation design aspects associated with the complexity of NRM and monitoring and evaluation methods.

Table 4.5: Significant barrier correlations (Spearman's Rho) (n=36)

BARRIER	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Equipment		.698**	-	.371*	-	.424**	.542**	.404*	.589**	.497**	-	-
Skills	.698**		-	.477**	-	.499**	.579**	.521**	.644**	.556**	-	-
Time	-	-		.390*	-	-	-	-	-	-	-	-
Funds	.371*	.477**	.390*		-	.383*	-	-	-	.358*	-	-
Impact time	-	-	-	-		.463**	-	-	-	.416*	.511**	.432**
Use of surrogates	.424**	.499**	.306	.383*	.463**		.485**	.397*	.524**	.401*	.508**	-
Method complexity	.542**	.579**	-	-	-	.485**		.381*	.645**	.403*	.338*	-
Immediacy of results	.404*	.521**	-	-	-	.397*	.381*		.682**	.765**	.605**	.519**
Appropriate method	.589**	.644**	-	-	-	.524**	.645**	.682**		.737**	.509**	.469**
Proven method	.497**	.556**	-	.358*	.416*	.401*	.403*	.765**	.737**		.632**	.517**
Activity isolation	-	-	-	-	.511**	.508**	.338*	.605**	.509**	.632**		.782**
Seasonality isolation	-	-	-	-	.432**	-	-	.519**	.469**	.517**	.782**	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

The average barrier factor scores (as described in **Section 3.4.3**) were calculated both within and without the 1 point difference accommodation as was applied in the driver analysis in **Section 4.1.2**. The proportion of regional bodies more influenced by each Factor is shown in **Table 4.6**, with the analysis results without adjusting for 1 point difference included in brackets for comparison. The more dominant factor was that related to evaluation design (Factor 2) for 53 percent of regional bodies, with 42

percent of regional bodies identified as almost equally influenced by both factors.

While no significant relationships were identified between the driver and barrier factors, one correlation exists between the barrier factors and the driver of informing policy. Regional bodies experiencing both barrier factors equally, generally rated the driver of informing policy as of lower importance than those whose barriers are dominated by Factor 2 barriers (χ^2=5.395, p<0.05, df=1).

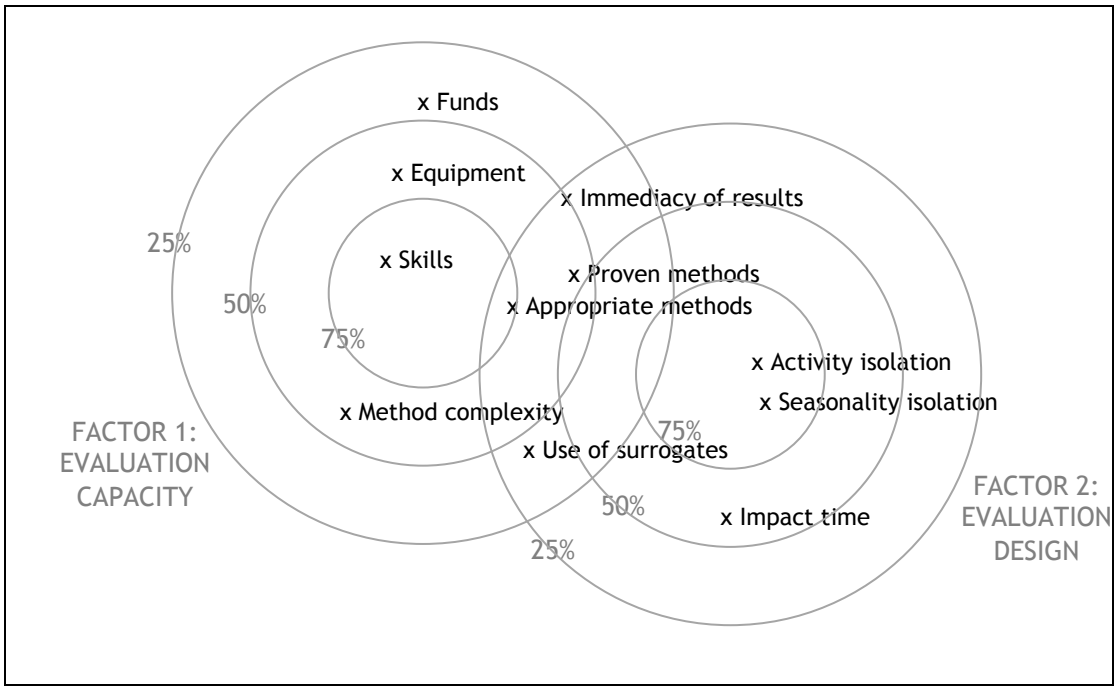


Figure 4.5: Barrier factors influence map

Table 4.6: Barrier factor grouping dominance (within 1 point difference)

DOMINANT FACTOR (PERCENT OF REGIONAL BODIES)	FACTOR 1: EVALUATION CAPACITY	FACTOR 2: EVALUATION DESIGN
Factor 1: Skills and resourcing	6% (17%)[1]	42% (3%)
Factor 2: Technical aspects	42% (3%)	53% (81%)

1 Analysis results without adjusting for 1 point difference are included in brackets

4.1.4 Partnerships

Levels of partnership with other organisations and individuals to undertake monitoring and evaluation varied significantly across the regional bodies as shown in **Figure 4.6**. The groups with the highest median score for involvement in regional monitoring and evaluation were State Government (median score of 7 out of 10) and consultants and landholders (both with median score of 6). The least utilised partner group was that of Local Government, which received a median score of 2.

A comparison of means identified no statistical difference between the statutory and non-statutory regional bodies in regard to the partners and partnerships they have.

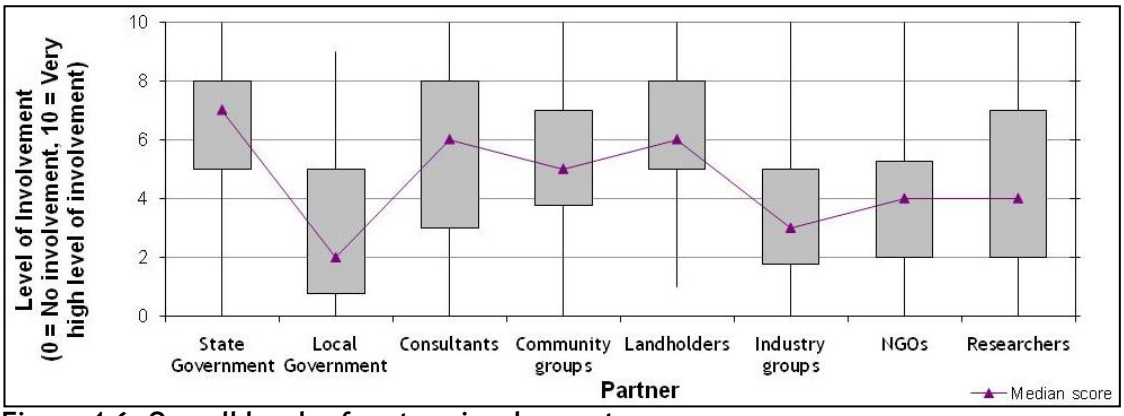


Figure 4.6: Overall levels of partner involvement

While there were no significant correlations between the demographic clusters and the involvement of these partner groups, key correlations between individual demographic characteristics and the participation of the partner groups include:

- Non-government organisations are more likely to be partnering with regional bodies in regions with larger populations (r_s=0.349, p<0.05), smaller areas (r_s=-0.352, p<0.05) and smaller distances between their head office and their nearest capital city (r_s=-0.368, p<0.05)
- Regions with larger populations were also more likely to be partnering with local government (r_s=0.472, p<0.01)
- State government agencies were less likely to be a monitoring and evaluation partner in regions with larger area (r_s=-0.355, p<0.05)

Key correlations between the partner groups themselves include:

- Regional bodies that partner with community groups are more likely to partner with local and state government, land managers, non-government organisations and researchers than those regional bodies that don't partner with community groups.

STATE GOVERNMENT (N=36)	LOCAL GOVERNMENT (N=36)	LAND MANAGERS (N=35)	NGOS (N=36)	RESEARCHERS (N=36)
r_s=.329, p<0.05	r_s=.459, p<0.01	r_s=.442, p<0.01	r_s=.340, p<0.05	r_s=.440, p<0.01

- Regional bodies that partner with researchers are more likely to partner with local and state government, community groups, industry groups and non-government organisations than those regional bodies that don't partner with researchers.

STATE GOVERNMENT (N=36)	LOCAL GOVERNMENT (N=36)	COMMUNITY GROUPS	INDUSTRY GROUPS (N=36)	NGOS (N=36)
r_s=.482, p<0.01	r_s=.429, p<0.01	r_s=.440, p<0.01	r_s=.549, p<0.01	r_s=.488, p<0.01

- Regional bodies that partner with industry groups are more likely to partner with non-government organisations and researchers than those regional bodies that don't partner with industry groups.

LOCAL GOVERNMENT (N=36)	NGOS (N=36)	RESEARCHERS (N=36)
r_s=.434, p<0.01	r_s=.559, p<0.01	r_s=.549, p<0.01

In general then, if organisations are engaging in at least some partnerships, they tend to be engaging with most partnerships.

While no significant relationships were identified between monitoring and evaluation partnerships and the driver factors, it was identified that regional bodies equally influenced by both barrier factors were less likely to be partnering with researchers than those dominated by the technical aspects barrier factor (χ^2=4.675, df=1, p<0.05).

4.1.5 Satisfaction and planned changes

An assessment of the regional bodies' levels of satisfaction with current monitoring and evaluation practices for the various NRM theme and impact areas (i.e. land, water, biodiversity, social, and economic) identified that there was more satisfaction with the biophysical aspects of NRM being monitored and evaluated than the social and economic aspects as shown in **Figure 4.7**. The three biophysical themes of water, biodiversity and land rated the highest levels of satisfaction (median scores of 5, 6 and 6 out of 10 respectively). The remaining social and economic areas both scored lower, with median ratings of 3 and 2 respectively.

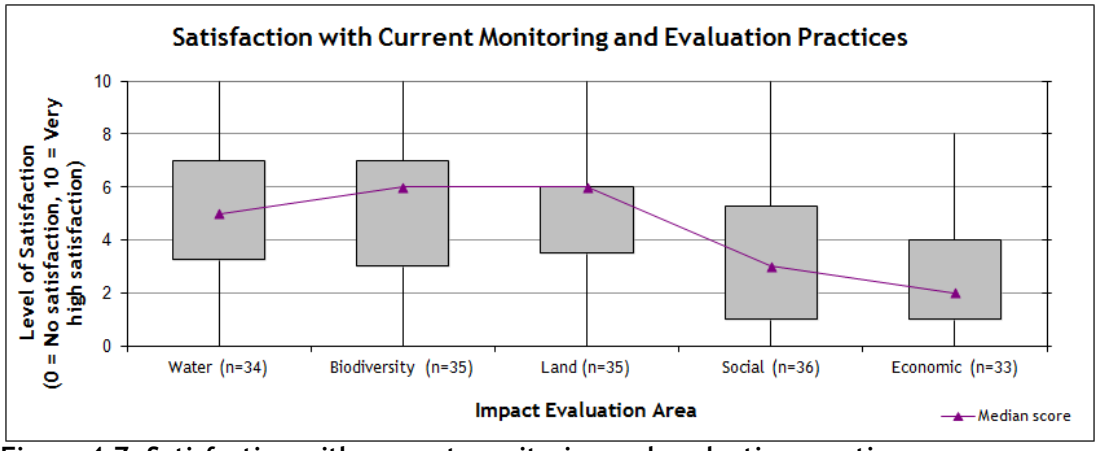


Figure 4.7: Satisfaction with current monitoring and evaluation practices

While there were no significant correlations between the demographic clusters and the satisfaction levels reported by the regional bodies, one individual demographic characteristic was correlated with satisfaction levels:

- The higher the proportion of government funding of total income, the less likely a respondent is satisfied with their water theme (water quality and waterway health) monitoring (r_s=-0.372, p<0.05, n=34) and their economic impact assessments (r_s=-0.414, p<0.05, n=34).

Table 4.7: Satisfaction scores

IMPACT EVALUATION AREA	MEAN SCORE
Water quality and waterway health	5.24
Biodiversity and habitat health	5.17
Land condition and soil health	4.94
Social impacts	3.54
Economic impacts	2.56

Key correlations between impact monitoring and evaluation areas include:

- Regional bodies that were satisfied with their social impact monitoring and evaluation were more likely to be satisfied with all of their other areas of impact monitoring and evaluation:

WATER QUALITY AND WATERWAY HEALTH	BIODIVERSITY AND HABITAT CONDITION	LAND CONDITION AND SOIL HEALTH	ECONOMIC IMPACTS
r_s=.472, p<0.01, n=36	r_s=.618, p<0.01, n=36	r_s=.524, p<0.01, n=36	r_s=.469, p<0.01, n=36

- Regional bodies that were satisfied with their biodiversity and habitat condition monitoring were more likely to be satisfied with all other areas of impact monitoring except economic impact:

WATER QUALITY AND WATERWAY HEALTH	LAND CONDITION AND SOIL HEALTH	SOCIAL IMPACTS
r_s=.552, p<0.01, n=36	r_s=.756, p<0.01, n=36	r_s=.618, p<0.01, n=36

Compared means analyses identified no difference between statutory and non-statutory regional bodies' satisfaction levels.

Of the responding regional bodies, 89 percent intended to implement changes to improve their organisation's monitoring and evaluation practices. Of these, 78 percent indicated that these changes would be incremental, while the remaining 22 percent were planning large scale changes. Of all of these changes, 75 percent were planned to be undertaken within 12 months of the survey. Two correlations were identified between the nature of planned changes and the satisfaction levels rated for impact monitoring:

- Regional bodies more satisfied with their water impact monitoring (r_s=-0.381, p<0.05, n=33) and their biodiversity impact monitoring (r_s=-0.381, p<0.05, n=33) were more likely to be planning incremental rather than large scale changes.

No significant relationships were identified between satisfaction levels and any of the driver or barrier factors.

4.1.6 Conclusion

The highest rating individual drivers were those relating to accountability, highlighting successes, program improvement and tracking outcomes, while two of the top three barriers related to the difficulty in isolating the impact of investment activities—from seasonal variation and from the activities of others. Almost 70 percent of regional bodies rated these two barriers with a score of 7 or more, indicating that this is a common point of issue among most of the regional bodies. The remaining top barrier was

that of lack of staff time. To bring these and other overarching ratings to a finer resolution, grouping of the regional bodies was undertaken using a variety of approaches as discussed in **Section 3.4.2**.

Four regional body groupings were identified through cluster analysis of demographic characteristics however no relationships were identified between these clusters and any of the drivers, barriers, practices, satisfaction levels, partnerships or the driver or barrier factors. Grouping through the factor analyses, however, identified two driver factors (an engagement and program improvement factor and an income maintenance factor) and two barrier factors (a logistics factor focused on skills and resourcing barriers, and a factor focused on technical barriers around NRM and method complexities). The majority of regional bodies showed balanced influence of the two driver factors (53 percent), while the split between barrier factors was almost evenly split between those regions that were more dominated by technical barriers (42 percent) and those equally influenced by both barrier factors (53 percent). No relationships were identified between the driver and barrier factors and or between the driver factors and any individual barrier or satisfaction levels or partnerships. The only significant relationship identified relating to the barrier factors was in the area of partnerships as discussed below.

Monitoring and evaluation partnerships were more common with State government, consultants and landholders, with local government the least common partners. The many correlations between partnerships in general, indicate that organisations open to some partnerships are more likely to be open to most partnerships. While no significant relationships were identified between monitoring and evaluation partnerships and the driver factors, regional bodies equally dominated by both barrier factors were found to be less likely to be partnering with researchers than those dominated by the technical aspects barrier factor.

Satisfaction with impact monitoring and evaluation was higher for the biophysical areas of land, water and biodiversity than for the social and economic areas. Despite this, regional bodies that were satisfied with their social impact monitoring and evaluation were more likely to be satisfied with all of their other areas of impact monitoring and evaluation. Of the 89 percent of regional bodies that expressed their intention to implement changes to improve their organisation's monitoring and evaluation practices, the majority of these changes (78 percent) were planned as incremental changes rather than large scale changes, and most of all the proposed changes (75 percent) were planned to be undertaken within 12 months of the survey. More perspective and insight can be gained around these changes through consideration of the status of regional body evaluation to which they will be added.

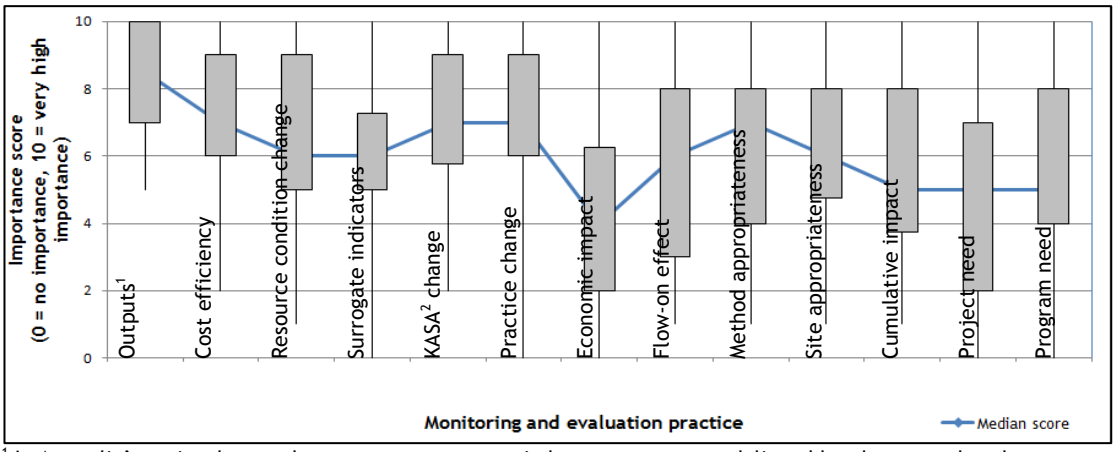
4.2 Status of Regional Body Evaluation

This section outlines the results of analyses of the monitoring and evaluation practices of the regional bodies, the assignment of evaluation

models under which the regional bodies operate and the subsequent development of culture and capability scores for these organisations. The results of reviews of the relationships between these characteristics are also presented.

4.2.1 Current monitoring and evaluation practices

Figure 4.8 illustrates the range of responses received regarding the level of importance (0 indicates 'no importance', 10 indicates 'very high importance') of each of the various monitoring and evaluation practices currently being implemented by the regional bodies. There is a wide spread of responses on these practices overall, but with some consistencies evident, particularly among the left-most six in **Figure 4.8.** Only economic impacts and project needs rated mean scores of less than 5 (i.e. less than moderate importance) (refer to **Table 4.8**), with assessment of outputs, cost efficiency and 'knowledge, awareness, skills and attitudes' (KASA) change all rated with mean scores above 7.



[1] In Australia's regional natural resource management industry, outputs are deliverables that are related to immediate results (Australian Government NRM Team 2009a).
[2]KASA change represents changes in knowledge, awareness, skills, and attitudes.

Figure 4.8: Current monitoring and evaluation practices (n=36)

Table 4.8: Practice mean rankings

PRACTICE	MEAN
Outputs	8.4
Cost-Efficiency	7.2
KASAP	7.0
Practice change	6.8
Resource Condition	6.5
Method appropriateness	6.3
Surrogates	6.2
Site appropriateness	6.1
Flow on effects	5.6
Program need	5.5
Cumulative effects	5.5
Project need	4.8
Economics	4.1

While there were no significant correlations between the demographic clusters and these practices, key correlations between individual demographic characteristics and these practices include:

- Regional bodies with a higher proportion of government funding compared to their total revenue were less likely to be implementing economic evaluation practices (r_s=-0.425, p<0.05, n=34)
- Those regions with their head office further from their capital city were more likely to rate evaluation of flow on effects highly (r_s=-0.407, p<0.05, n=36)
- Regions with a higher population were more likely to rate evaluation of program need highly (r_s=0.357, p<0.05, n=35)

No significant relationships were identified between these practices and the driver factors, but many correlations were identified between evaluation practices and individual drivers as illustrated in **Table 4.9**. The most frequently correlated practice is that of evaluation of resource condition change, which is correlated with every driver. This is closely followed by practice change evaluation, which is correlated with 7 of the 8 drivers (i.e. not correlated with informing policy driver). Regional bodies with low ratings for the evaluation driver of program improvement, were more likely to rate all practices lower than those regional bodies with high program improvement ratings (χ^2=0.418, p<0.05, n=36).

Table 4.9: Significant correlations between practices and drivers

PRACTICE	DRIVER							
	ACCOUNT-ABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVEMENT	OUTCOME TRACKING	HIGHLIGHTING SUCCESSES	COMMUNITY ENGAGEMENT	REPORTING TO COMMUNITY
Outputs	.352(*)	-	-	-	.347(*)	-	-	-
Cost efficiency	.548(**)	-	-	-	.413(*)	-	-	-
Resource condition	.384(*)	.338(*)	.481(**)	.371(*)	.443(**)	.410(*)	.417(*)	.395(*)
Surrogate indicators	-	-	.495(**)	-	-	-	-	.456(**)
KASA	.418(*)	-	-	.342(*)	.493(**)	-	-	.410(*)
Practice change	.591(**)	.423(*)		.364(*)	.521(**)	.351(*)	.416(*)	.484(**)
Economics	-	-	.456(**)	-	-	-	.331(*)	-
Flow on effects	-	.345(*)	.471(**)	-	.423(*)	-	-	.470(**)
Method appropriateness	-	-	.530(**)	.384(*)	.466(**)	-	.331(*)	.426(**)
Site appropriateness	.480(**)	-	-	.554(**)	.669(**)	.609(**)	.375(*)	.377(*)
Cumulative effects	.448(**)	-	.555(**)	-	.373(*)	-	-	.402(*)
Project need	-	-	.416(*)	-	-	-	-	-
Program need	-	-	.454(**)	.377(*)	-	.334(*)	.427(**)	-

Two significant relationships were identified between practices and the barrier factors:

- Regional bodies more equally influenced by both barrier factors had lower ratings for the practice of economic impact assessment than those

dominated by the technical aspect barriers of Factor 2 (χ^2=5.587, p<0.05, df=1)

- Cumulative impact assessment practice was identified as correlated with the barrier factors (r_s=-0.3522, p<0.05, n=36). The mean rating given to this practice by regional bodies equally dominated by both factors was 2.9 in comparison with means of 5.5 and 5.0 for those dominated by the individual barrier factors 1 and 2 respectively.

Correlations between current practice importance ratings and individual barrier influence ratings include the following key relationships:

- Regional bodies that rated highly barriers associated with the time required for impacts to be measurable were more likely to rate the following practices as of low importance:
  - Use of surrogate indicators (r_s=-0.382, p<0.05, n=36)
  - Economic impact evaluation (r_s=-0.379, p<0.05, n=36)
  - Method appropriateness assessments (r_s=-0.418, p<0.05, n=36)
  - Cumulative effects evaluation (r_s=-0.358, p<0.05, n=36)
  - Project need assessment (r_s=-0.363, p<0.05, n=36)
- Regions where the measurement of outputs was rated highly, were less likely to rate highly barriers related to:
  - Equipment (r_s=-0.351, p<0.05, n=36)
  - Skills (r_s=-0.407, p<0.05, n=36)
  - Use of surrogates (r_s=-0.442, p<0.05, n=36)
  - Method complexity (r_s=-0.466, p<0.05, n=36)
  - Method appropriateness (r_s=-0.364, p<0.05, n=36)
- Organisations rating lack of time as a barrier were less likely to be monitoring resource condition (r_s=-0.363, p<0.05, n=36).
- Regional bodies that rated assessment of site appropriateness highly, were more likely to rate low barriers relating to skills (r_s=-0.355, p<0.05, n=36) and equipment (r_s=-0.422, p<0.05, n=36).

There were a large number of correlations between the individual practices as listed in **Table 4.10**, with the most significant suite of relationships centred on the assessment of cumulative effects, which is correlated with all other practices. This was closely followed by method appropriateness (correlated with 11 of 12 practices), resource condition monitoring (correlated with 10 out of 12 practices), and surrogate indicators and site appropriateness (each correlated with 9 out of 12 practices).

Table 4.10: Significant practice correlations (Spearman's Rho) (n=36)

PRACTICE	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATE-NESS	SITE APPROPRIATE-NESS	CUMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Outputs		.454 **	.364 *	-	-	-	-	-	-	.374 *	-	-	-
Cost efficiency	.454 **		.487 **	-	-	.429 **	-	-	.456 **	.541 **	.342 *	-	-
Resource condition	.364 *	.487 **		.484 **		.469 **	.516 **	.465 **	.504 **	.548 **	.543 **	-	.487 **

PRACTICE	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATE-NESS	SITE APPROPRIATE-NESS	CUMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Surrogate indicators	-	-	.484 **		.415 *	.368 *	.466 **	.679 **	.464 **	-	.520 **	.379 *	.414 *
KASA	-	-	-	.415 *		.779 **		.689 **	.568 **	.434 **	.584 **	-	-
Practice change	-	.429 **	.469 **	.368 *	.779 **			.652 **	.559 **	.492 **	.700 **	-	-
Economics	-	-	.516 **	.466 **	-	-		.623 **	.636 **		.509 **	.443 **	.444 **
Flow on effects	-	-	.465 **	.679 **	.689 **	.652 **	.623 **		.695 **	.354 *	.581 **	-	-
Method appropri-ateness	-	.456 **	.504 **	.464 **	.568 **	.559 **	.636 **	.695 **		.539 **	.641 **	.486 **	.440 **
Site appropri-ateness	.374 *	.541 **	.548 **	-	.434 **	.492 **	-	.354 *	.539 **		.424 **	-	.430 **
Cumulative effects	-	.342 *	.543 **	.520 **	.584 **	.700 **	.509 **	.581 **	.641 **	.424 **		.552 **	.572 **
Project need	-	-	-	.379 *	-	-	.443 **	-	.486 **	-	.552 **		.741 **
Program need	-	-	.487 **	.414 *	-	-	.444 **	-	.440 **	.430 **	.572 **	.741 **	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Satisfaction ratings discussed in **Section 4.1.5** placed economic impact assessment as an area of general dissatisfaction for the regional bodies. Current economic impact assessment practices (refer to **Figure 4.8**) scored lowest among the practices assessed, with a mean importance rating of 4.14 compared with the means of all other practices (except project need) which ranged between 5.53 and 8.39. Project need assessments also rated low with a mean rating of 4.81.

A factor analysis of current practice adoption highlights three core factors that explain 66 percent of the variance in response (refer to **Figure 4.9**). The practices within Factor 1 relate generally to intermediate outcomes, the practices within Factor 2 focus more on assessing need and benefits, while the practices within Factor 3 relate to measures of appropriateness.

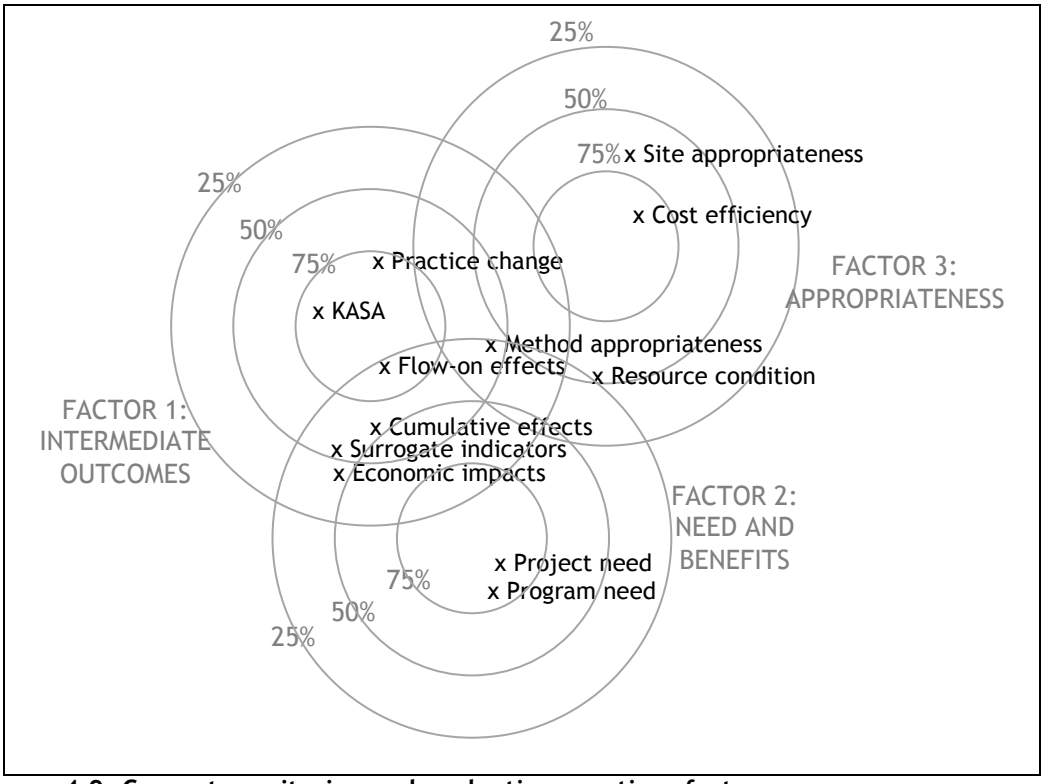


Figure 4.9: Current monitoring and evaluation practices factors map

Based on the average practice factor scores (as described in **Section 3.4.3**) within 1 point difference (on the 10 point Likert scale) for the regions, the proportion of regional bodies more influenced by each Factor was calculated as shown in **Table 4.11**, with the results without adjusting for 1 point difference, included in brackets for comparison. The most dominant factor was appropriateness (Factor 3) for 25 percent of regional bodies however 42 percent of regional bodies were identified as almost equally influenced by all three factors.

Table 4.11: Practice factor grouping dominance (within 1 point difference)

DOMINANT FACTOR (PERCENT OF REGIONAL BODIES)	FACTOR 1: INTERMEDIATE OUTCOMES	FACTOR 2: NEED AND BENEFITS	FACTOR 3: APPROPRIATENESS
Factor 1: Intermediate outcomes	6% (17%)[1]	6% (-)	14% (-%)
Factor 2: Need and benefits	6% (-)	- (11%)	8% (-)
Factor 3: Appropriateness	14% (-%)	8% (-)	25% (72%)
Factors 1, 2 and 3	42% (-)		

1 Analysis results without adjusting for 1 point difference are included in brackets

No correlations were identified between these practice factors and the driver or barrier factors, or between the practice factors and the individual drivers, barriers, satisfaction levels or partnerships.

4.2.2 Evaluation models

Most regional bodies (58 percent) operate within a Constitutive or Bounded Rationality evaluation model. The 25 percent of regional bodies operating

within an expanded contextual evaluation model includes more statutory (57 percent) than non-statutory bodies (43 percent).

Table 4.12: Model distribution by statutory status

MODEL	PROPORTION OF CATEGORY		PROPORTION OF REGIONAL BODIES (N=36)
	STATUTORY (N=16)	NON-STATUTORY (N=20)	
Expanded Contextual	30%	18%	25%
Constitutive and Bounded Rationality	45%	75%	58%
Organisational Excellence	15%	1%	11%
Political and Symbolic	10%	0%	6%

The review undertaken of the model assignment process appropriateness through comparison of expected and actual primary and secondary driver ratings highlights a strong alignment between these scores across all model groups as illustrated in **Table 4.13**. There is a strong match between the expected and actual scores for all drivers across all models with the actual scores being greater or equal to seven as predicted for all primary drivers except three: sourcing funds (average score of 6.0) and highlighting success (average score of 5.5) within the political and symbolic models group and highlighting success (average score of 6.8) within the organisational excellence model group. These differences can be explained for those regions within the political and symbolic models group due to their generally rating all drivers lower than the other model groups.

The overall mean scores for all questions for the different model groups are:

- Expanded contextual model group $\bar{x} = 6.5$
- Constitutive and bounded rationality model group $\bar{x} = 5.7$
- Organisational excellence model $\bar{x} = 6.1$
- Political and symbolic models $\bar{x} = 5.5$.

The slightly lower rating given by regional bodies in the organisational excellence model group to the driver of highlighting success is considered acceptable as it is only 0.2 points below the target cut-off of 7 out of 10 and all the secondary drivers within this model group were rated at less than or equal to 6 out of 10 — at least 0.8 points lower than this driver.

Table 4.13: Model-driver allocation confirmation

DRIVER	POLITICAL/ SYMBOLIC MODELS		ORGANISATIONAL EXCELLENCE MODEL		CONSTITUTIVE/ BOUNDED RATIONALITY MODELS		EXPANDED CONTEXTUAL MODEL	
	EXPECTED SCORE [1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE
Accountability	≥ 7	7.5	≥ 7	8.3	≥ 7	8.1	≥ 7	9.2
Sourcing funds	≥ 7	6.0	≥ 7	8.3	≥ 7	7.0	≥ 7	8.8
Informing policy	< 7	7.0	< 7	6.0	< 7	6.2	≥ 7	9.2
Program improvement	< 7	2.5	< 7	5.5	≥ 7	8.7	≥ 7	9.4

DRIVER	POLITICAL/ SYMBOLIC MODELS		ORGANISATIONAL EXCELLENCE MODEL		CONSTITUTIVE/ BOUNDED RATIONALITY MODELS		EXPANDED CONTEXTUAL MODEL	
	EXPECTED SCORE [1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE	EXPECTED SCORE[1]	AVERAGE SCORE
Outcome tracking	< 7	5.5	≥ 7	7.8	≥ 7	7.9	≥ 7	9.8
Highlighting success	≥ 7	5.5	≥ 7	6.8	≥ 7	8.0	≥ 7	9.8
Community involvement	< 7	1.0	< 7	5.5	< 7	6.5	≥ 7	9.3
Reporting to community	< 7	3.5	< 7	5.8	< 7	6.8	≥ 7	9.3

[1] Expected score ≥ 7 where driver was allocated primary status (refer to **Table 3.2**)

The internal consistency of each model's regional bodies across the evaluation drivers is illustrated in **Figure 4.10** to **Figure 4.17**. The largest internal variation can be seen in the constitutive and bounded rationality models group which, by its very nature, has the greatest opportunity for selective processes and purposes for evaluation.

No correlations were identified between the evaluation models applied by regional bodies and any demographic characteristics or evaluation barriers.

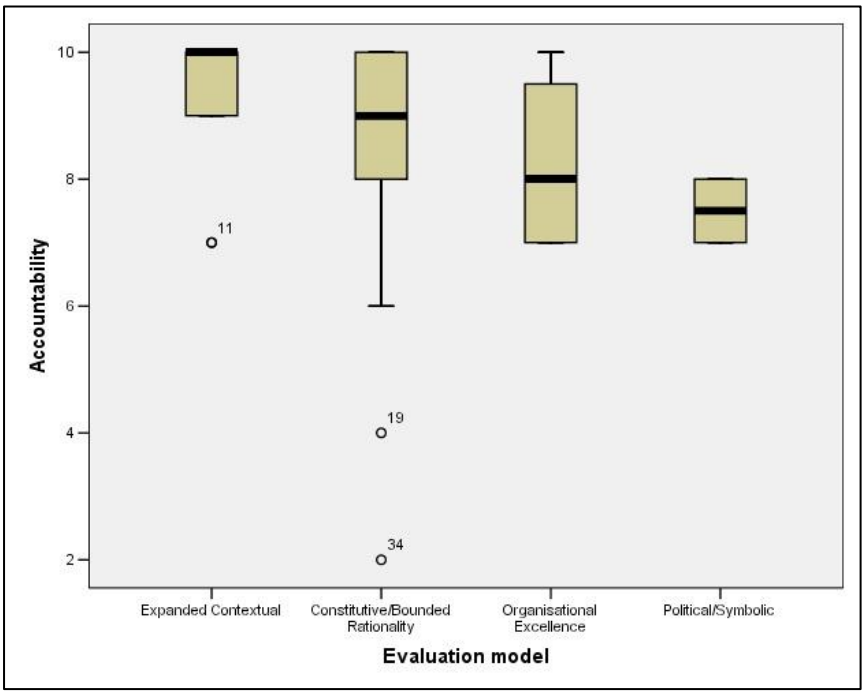


Figure 4.10: Accountability driver by model group

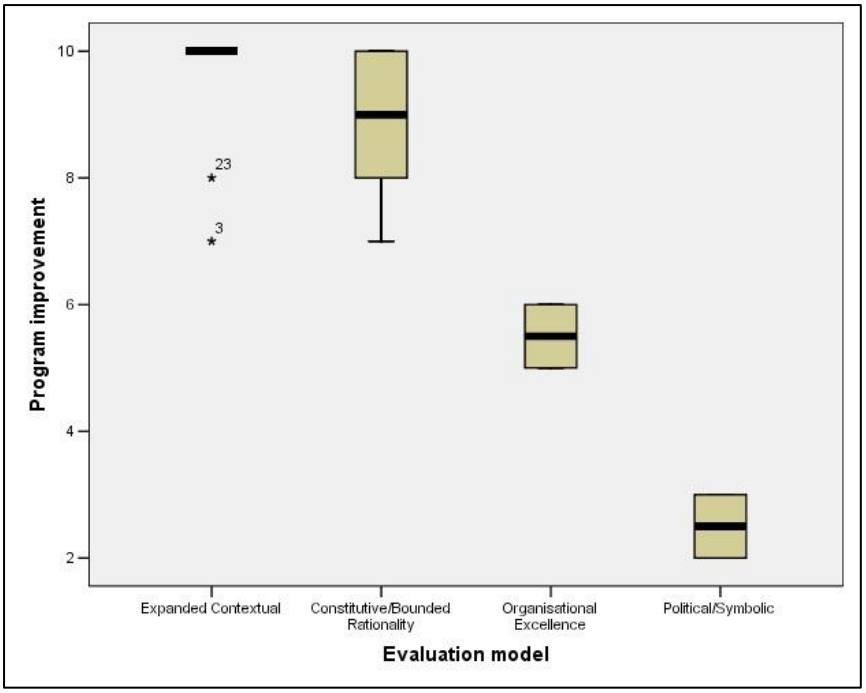


Figure 4.11: Program improvement driver by model group

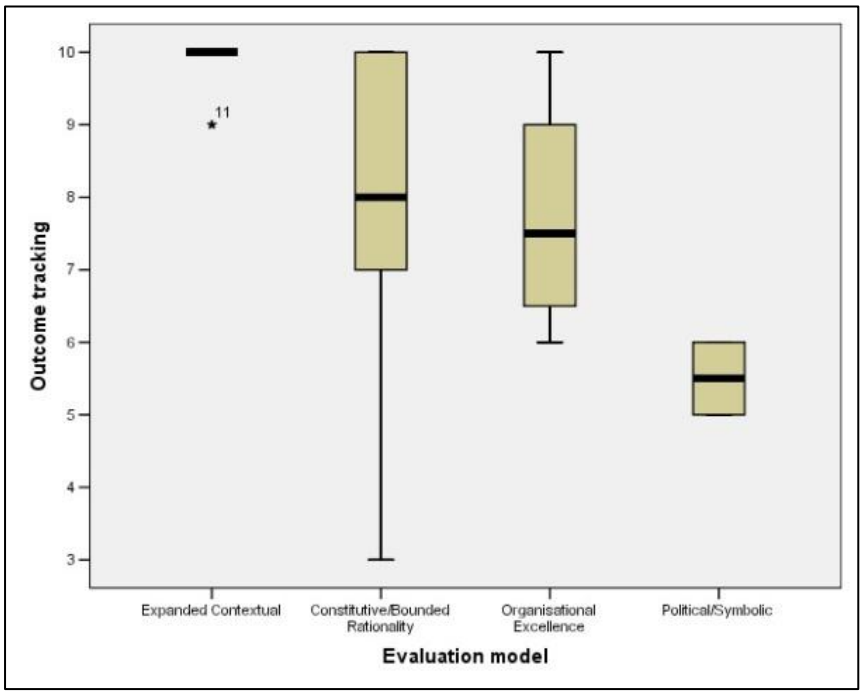


Figure 4.12: Outcome tracking driver by model group

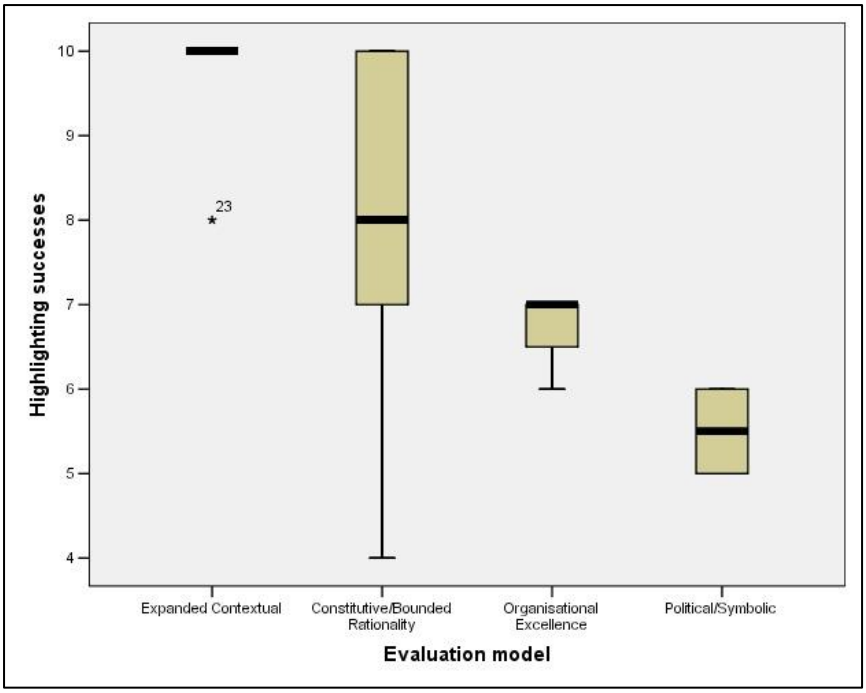


Figure 4.13: Highlighting success driver by model group

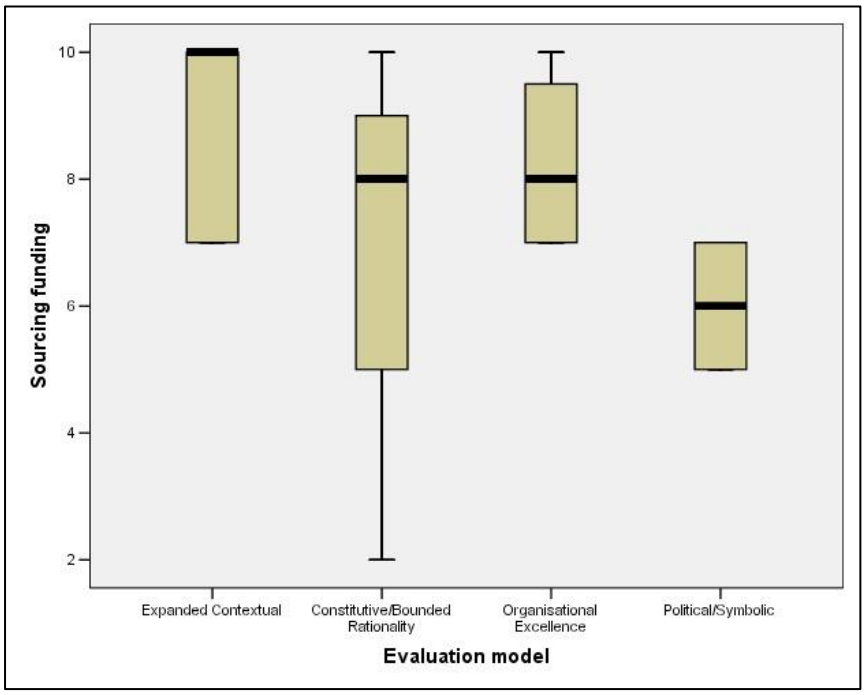


Figure 4.14: Sourcing funding driver by model group

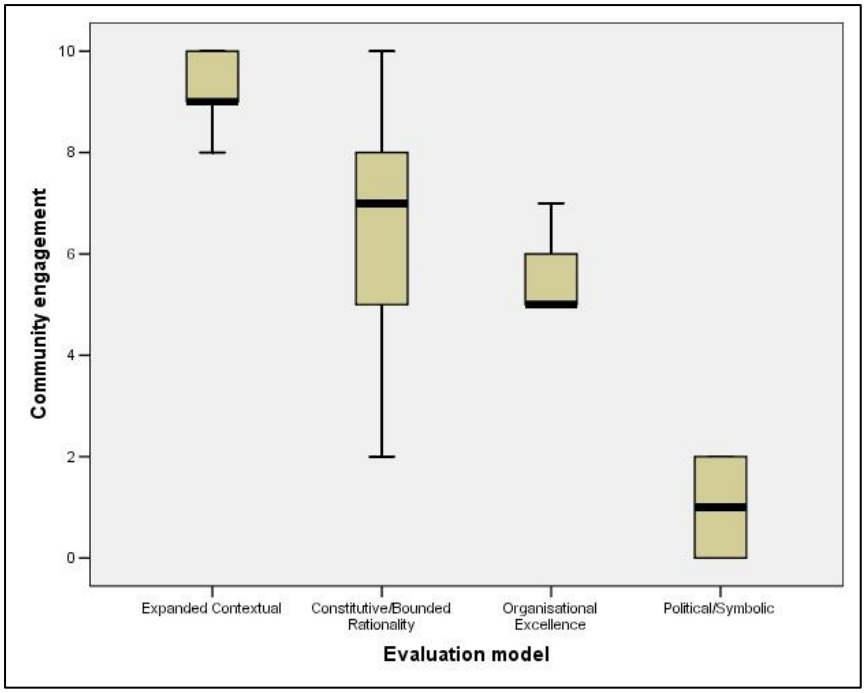


Figure 4.15: Community engagement driver by model type

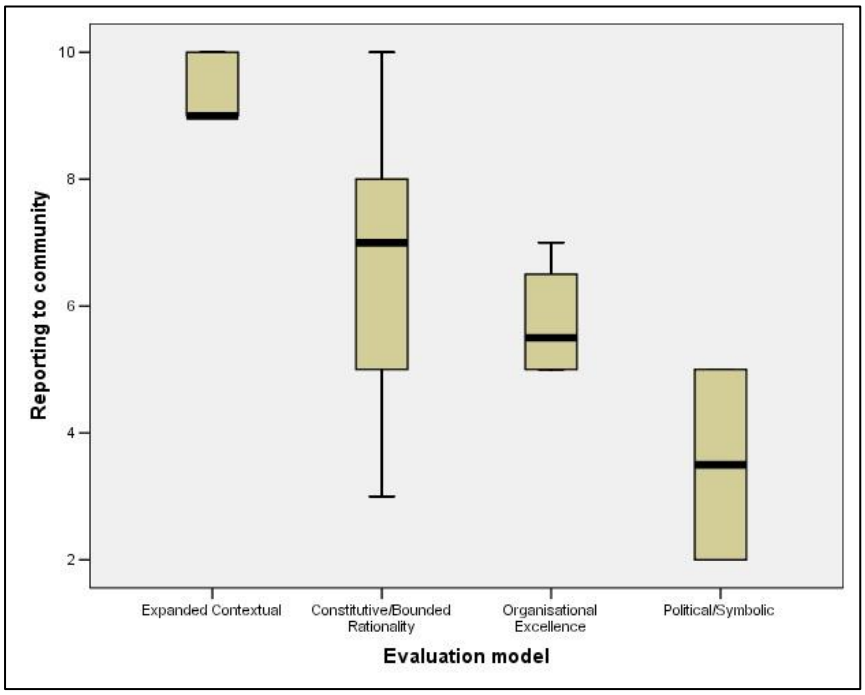


Figure 4.16: Reporting to community driver by model group

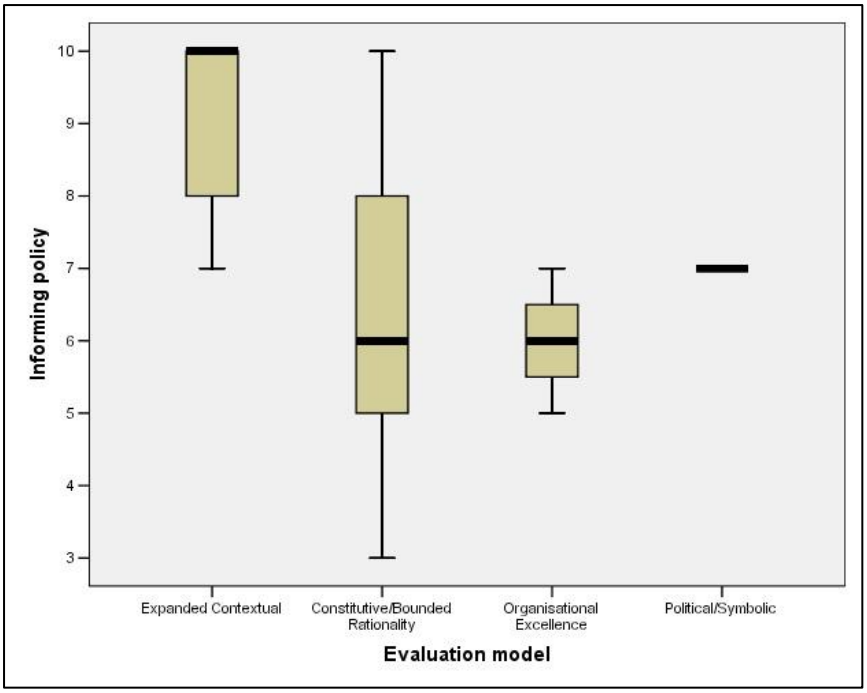


Figure 4.17: Informing policy drivers by model group

Several relationships were identified, however, between the models and current monitoring and evaluation practice scores as shown in **Table 4.14**. These generally indicate that regional bodies operating under the evaluation models with narrower scope such as the political and symbolic models were less likely to be implementing any of the individual practices listed, while regional bodies operating under the higher level evaluation models such as the expanded contextual model were more likely to be implementing all of the individual practices listed.

Table 4.14: Significant model correlations with practices

PRACTICE	CORRELATION WITH MODELS: SPEARMAN'S RHO (N=36)
Resource condition	r_s=-.490, p<0.01
Surrogate indicators	r_s=-.484, p<0.01
Practice change	r_s=-.403, p<0.05
Economic impacts	r_s=-.429, p<0.01
Flow-on effects	r_s=-.482, p<0.01
Method appropriateness	r_s=-.417, p<0.05
Site appropriateness	r_s=-.481, p<0.01
Cumulative effects	r_s=-.367, p<0.05
Program need	r_s=-.483, p<0.01

While there were no significant correlations between the evaluation models and the demographic clusters or the driver, barrier or practice factors, compared means analyses using Kruskal-Wallis test identified a series of relationships relating to the individual demographic characteristics, barriers and practices, including:

- There was no significant difference between the evaluation models applied by statutory regional bodies compared with non-statutory regional bodies (χ^2=0.093, df=1, p>0.05).
- Regional bodies applying the constitutive and bounded rationality models had less staff than those applying other evaluation models (χ^2=9.240, df=3, p<0.05).
- Regional bodies applying the constitutive and bounded rationality models rated the barrier of the time required for impacts to be measurable higher than regions applying all other models (χ^2=8.017, df=3, p<0.05).
- Regional bodies applying the expanded contextual model rated the following practices higher than all other model groups:
  - Resource condition monitoring (χ^2=11.059, df=3, p<0.05)
  - Economic impact evaluation (χ^2=10.566, df=3, p<0.05)
  - Flow-on effect analysis (χ^2=9.037, df=3, p<0.05)
  - Method appropriateness review (χ^2=8.446, df=3, p<0.05)
  - Project need assessment (χ^2=8.752, df=3, p<0.05)
  - Program need assessment (χ^2=11.976, df=3, p<0.01)
- There were no significant differences among the levels of satisfaction with impact monitoring of regional bodies applying different evaluation models.

4.2.3 Evaluation capability

While the maximum capability score possible was 130, the mean score across the regional bodies (as shown in **Figure 4.18**) was 62 percent of the maximum score (80). The lowest score was 29, but 36 percent of regional bodies scored over 90.

While capability scores were calculated on regional bodies' practice scores, these strongly reflect the drivers of each regional body as evidenced by the correlation between capability scores and model group (r_s=-0.559, n=36, p<0.01). The distribution of capability scores across the model groups is illustrated in **Figure 4.19**. Compared means testing identified no difference between the distribution of statutory and non-statutory capability scores (χ^2=0.001, p>0.05, df=1), which are summarised in **Table 4.15**.

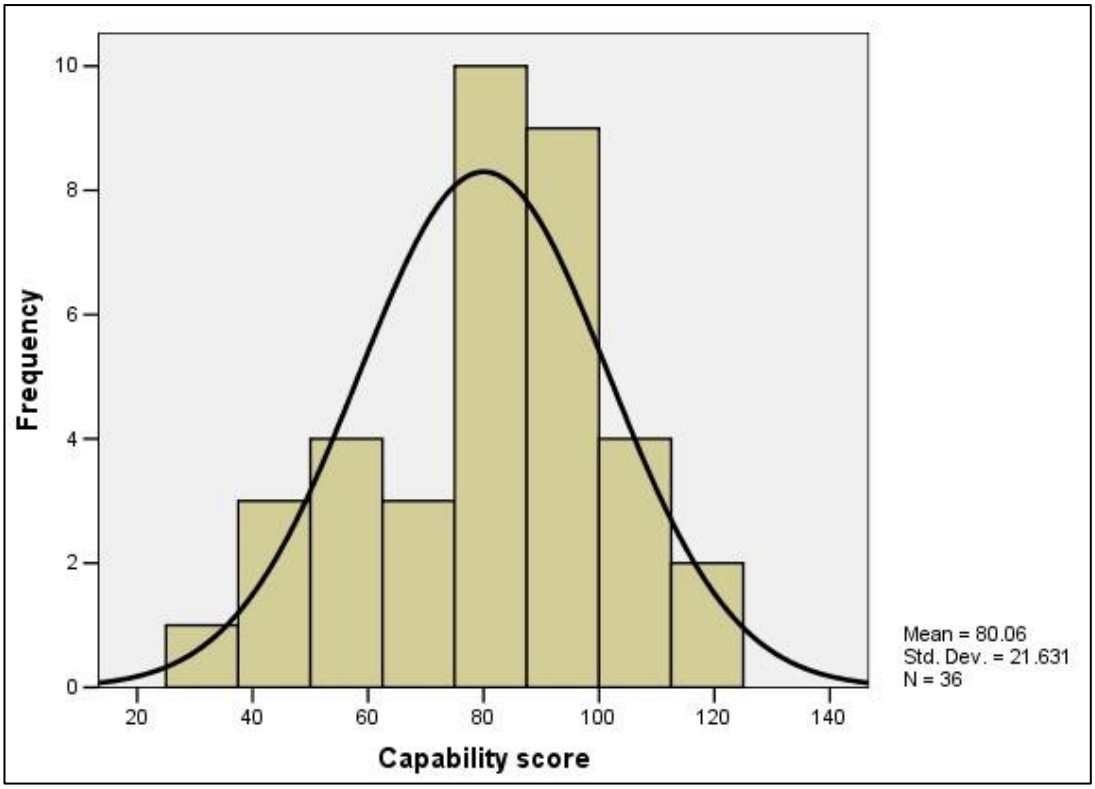


Figure 4.18: Evaluation capability scores distribution

Table 4.15: Capability scores by statutory status

STATISTIC	STATUTORY REGIONAL BODIES (N=20)	NON-STATUTORY REGIONAL BODIES (N=16)
Minimum	46	29
Maximum	118	121
Average	81	79

No significant correlations were identified between the evaluation capability scores and the demographic clusters or with individual demographic characteristics, or with the driver or practice factors, but the barrier factors were found to be correlated with the regions' capability score (r_s=-0.344, $p<0.05$, n=36). Regional bodies equally influenced by both barrier factors score a mean of 71.7 compared with mean capability scores of 84.9 and 96.5 for those dominated by the individual barrier factors 1 and 2 respectively.

4.2.4 Evaluation culture

The maximum potential evaluation culture score is 50. The mean score among the regional bodies was approximately 35, showing moderately high evaluation culture among these organisations as shown in **Figure 4.20**. The culture aspects that contributed to this overall score are illustrated in **Error! Reference source not found.**. Compared means testing between tatutory and non-statutory regional bodies identified no difference among either the overall culture scores or the aspects contributing to the culture score.

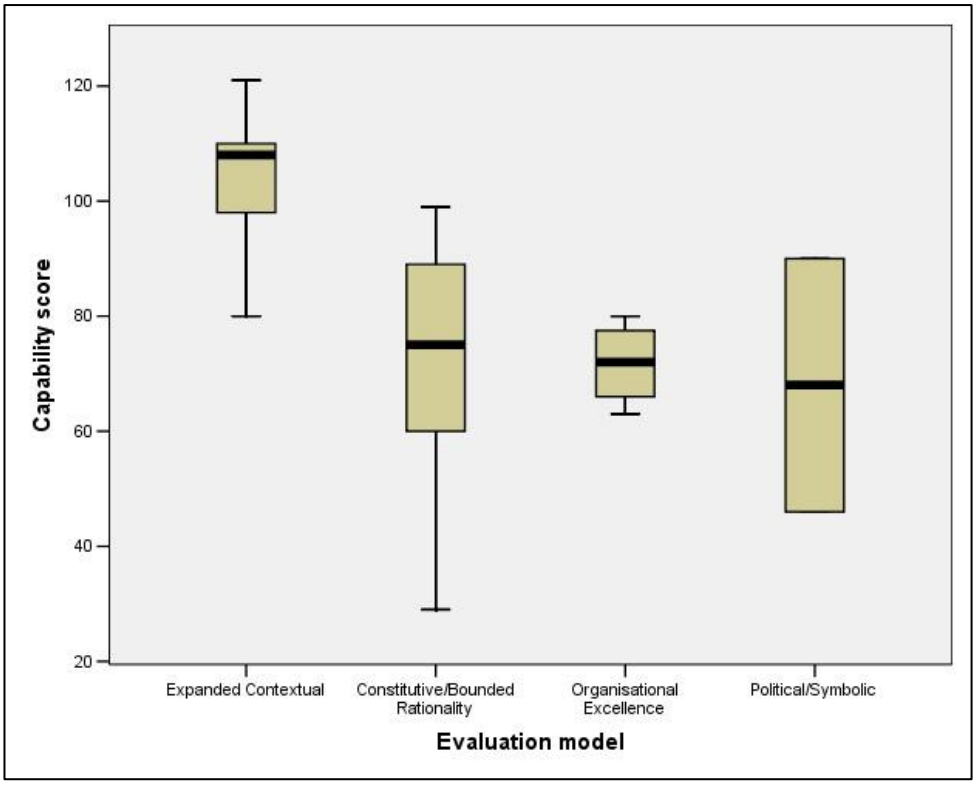


Figure 4.19: Evaluation capability scores by Model

The overall culture score (as described in **Section 3.4.3**) was higher for regional bodies applying the higher level evaluation models (χ^2=-0.559, p<0.01, n=36) as illustrated in **Figure 4.21**. The key contributing components towards this overall score relationship are:

- Strategic application of evaluation is higher for the higher level models (χ^2=-0.483, p<0.01, n=36)
- Contribution to knowledge by evaluation is higher for the higher level models (χ^2=-0.649, p<0.01, n=36)

Key relationships relating to regional bodies' culture scores include:

- Regional bodies with a larger number of staff (r_s=0.377, p<0.05), higher *Caring for Our Country* income (r_s=0.370, p<0.05) and corporate strategic planning in place (r_s=0.336, p<0.05) were more likely to have higher evaluation culture scores.
- No barriers were correlated with evaluation culture scores
- Culture scores were correlated with the practices of monitoring and evaluating program need (r_s=0.527, p<0.01); practice change (r_s=0.500, p<0.01); cost efficiency (r_s=0.409, p<0.05); knowledge, awareness, skills and attitude (r_s=0.372, p<0.05); flow-on effects (r_s=0.347, p<0.05); method appropriateness (r_s=0.356, p<0.05); site appropriateness (r_s=0.398, p<0.05); and cumulative effects (r_s=0.368, p<0.05); leaving outputs, resource condition, surrogate indicators, economics and project need as not specifically related to culture scores.
- Regional bodies evaluation culture scores were correlated with their capability scores (r_s=0.507, p<0.01)

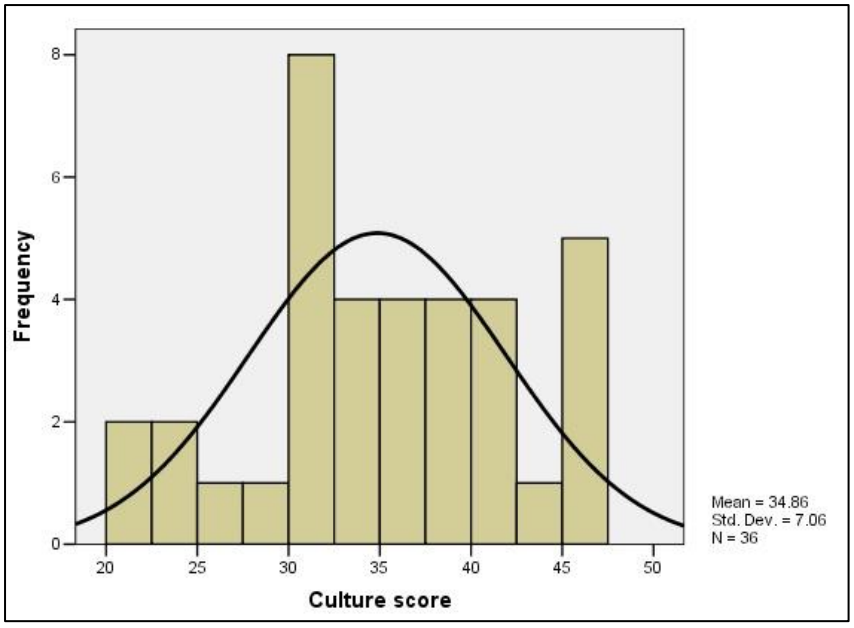


Figure 4.20: Evaluation culture scores distribution

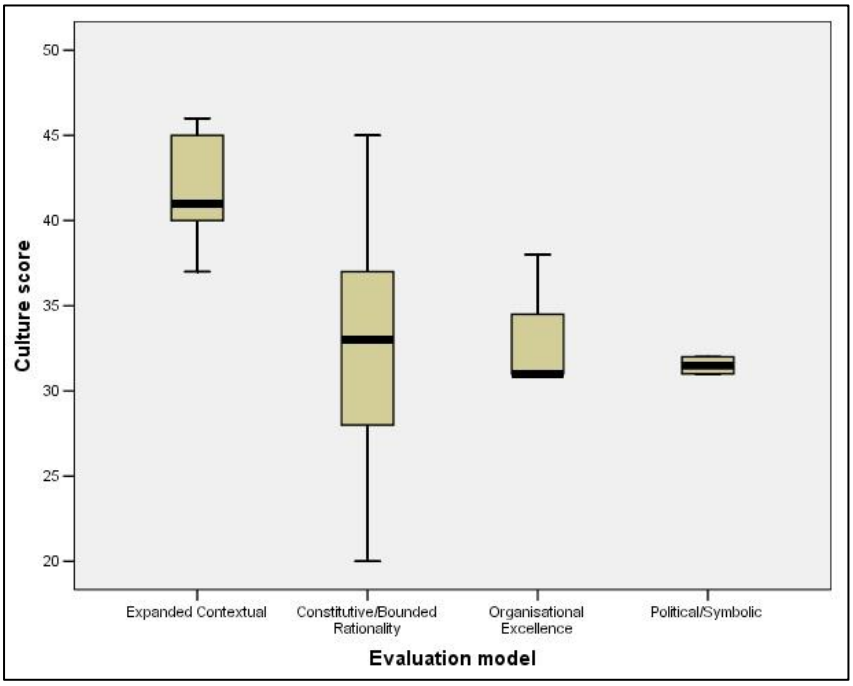


Figure 4.21: Evaluation culture scores by Model

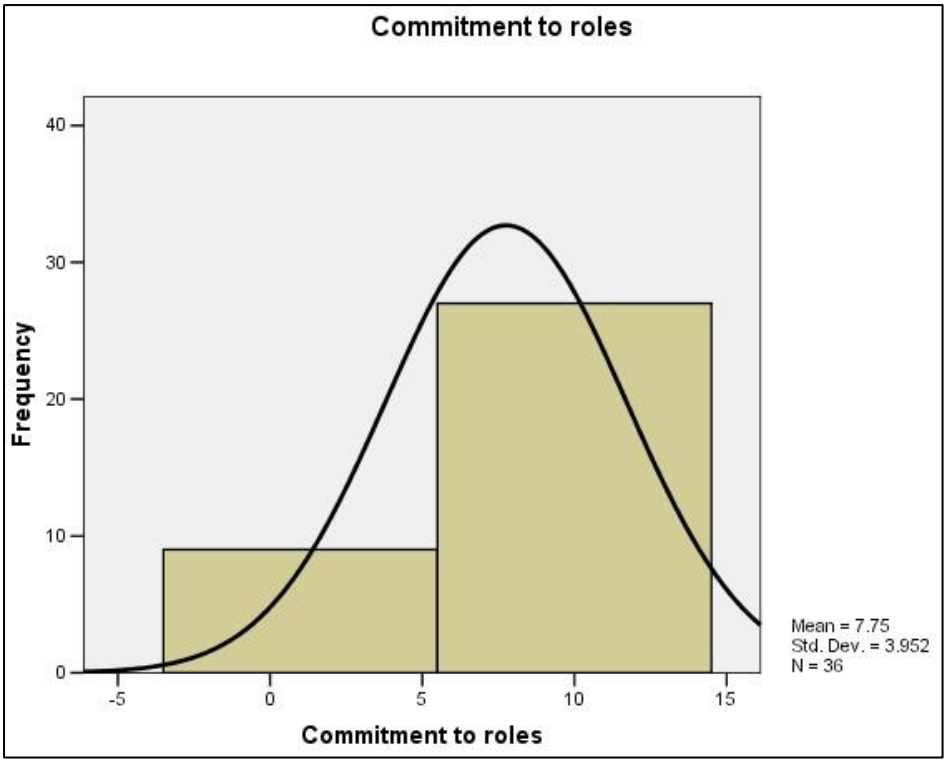


Figure 4.22: Evaluation culture aspect – Commitment to evaluation roles

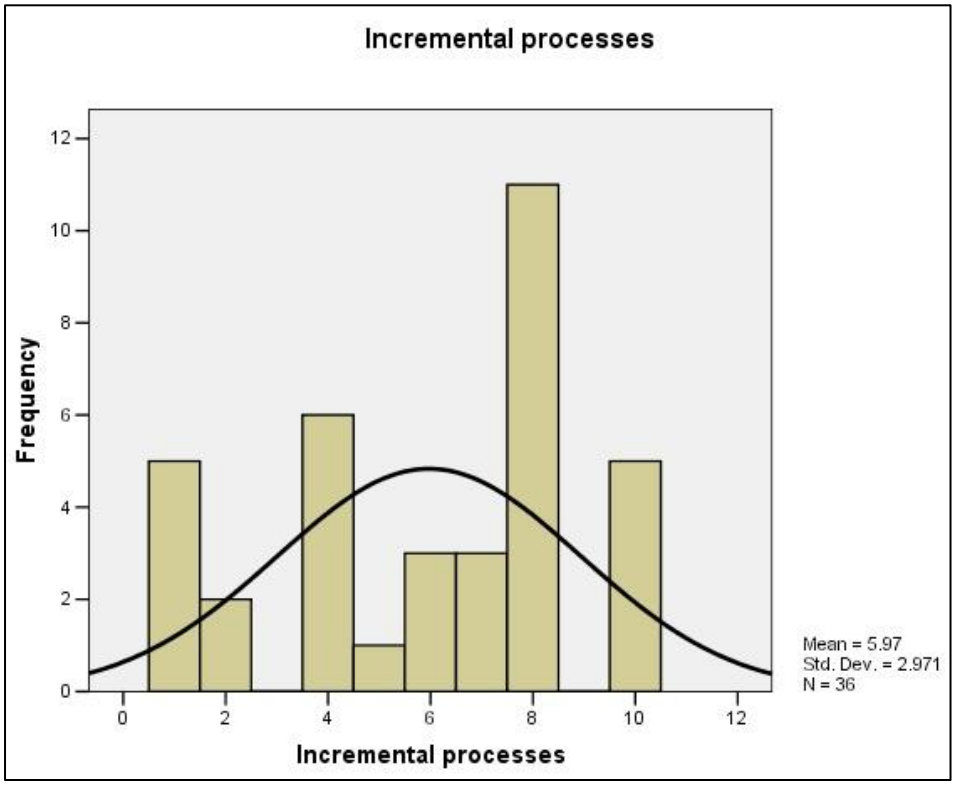


Figure 4.23: Evaluation culture aspect – Incremental processes

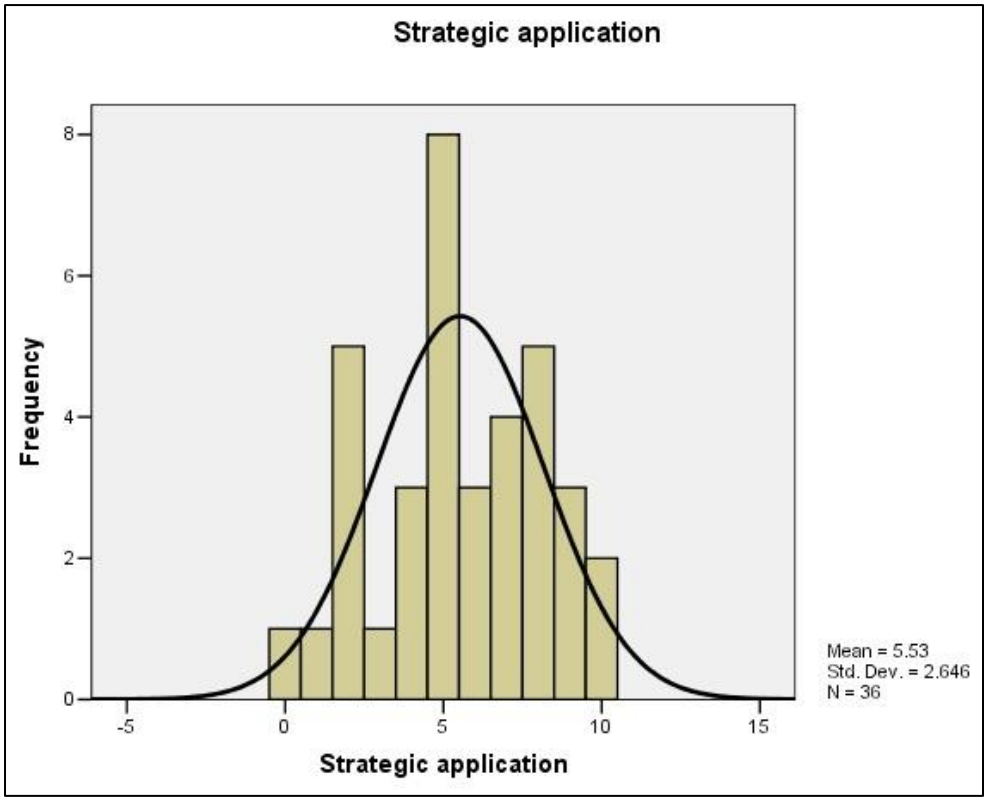


Figure 4.24: Evaluation culture aspect – Strategic application of evaluation

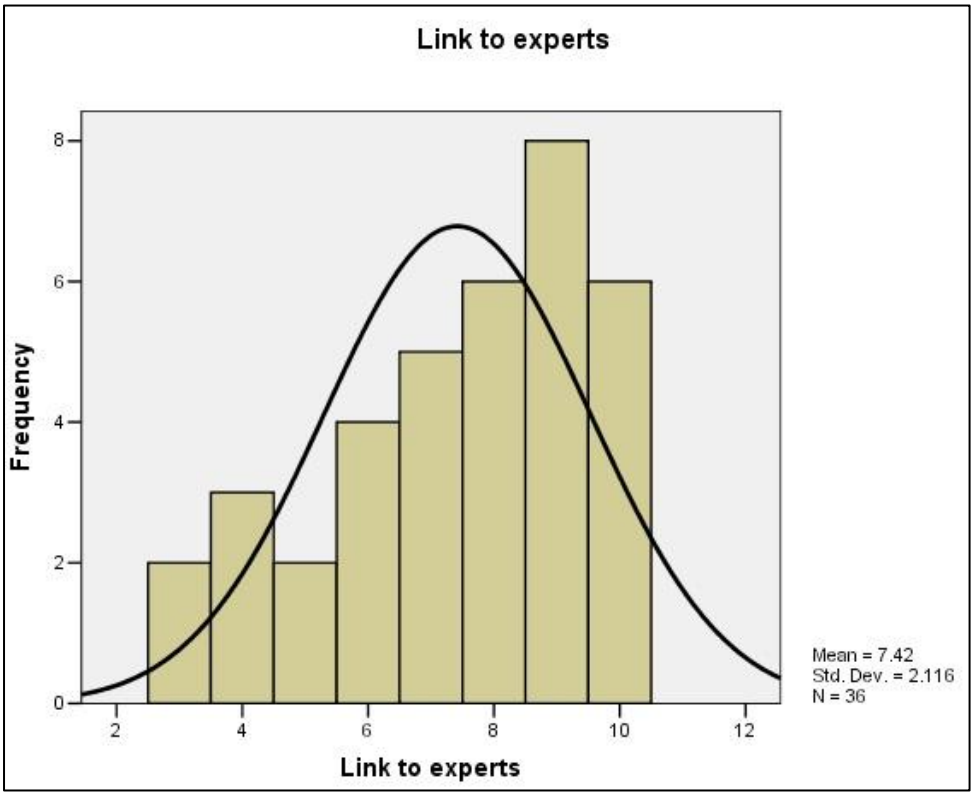


Figure 4.25: Evaluation culture aspect – Link to experts

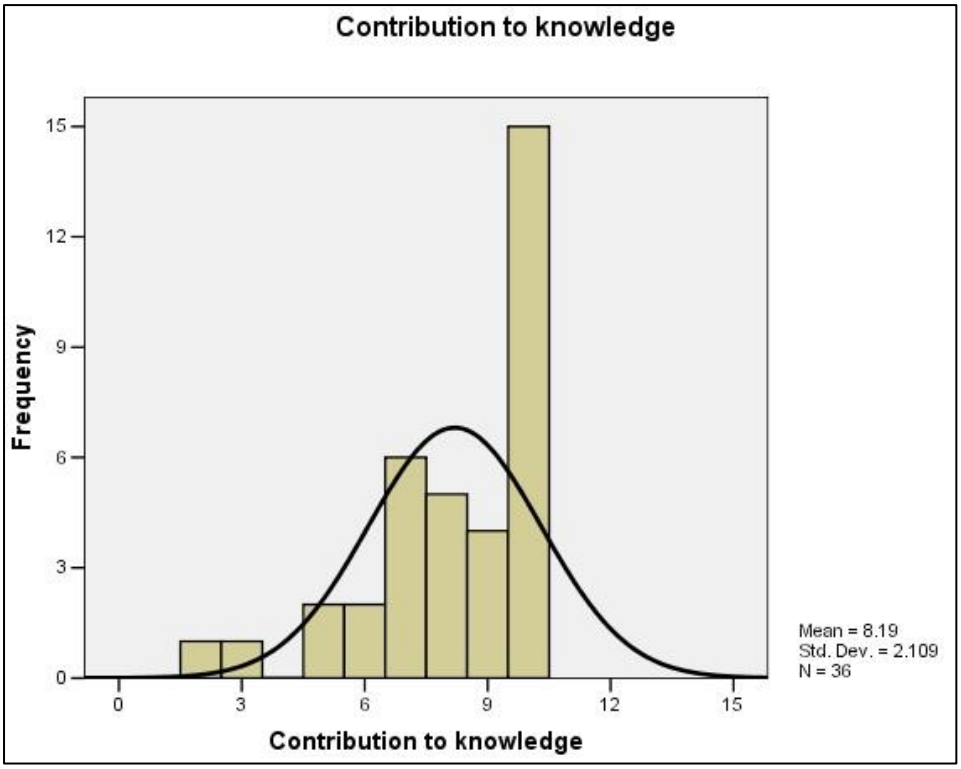


Figure 4.26: Evaluation culture aspect – Contribution to knowledge

No significant correlations were identified between the evaluation culture aspect scores and the demographic clusters, the individual demographic characteristics, or the driver factors, but both the barrier factors (r_s=-0.374, $p<0.05$, n=36) and practice factors (r_s=0.366, $p<0.05$, n=36) were linked with the incremental processes aspect of culture. Regional bodies equally influenced by both barrier factors score a mean of 4.8 in this area compared with mean ratings of 8.0 and 6.7 for the individual barrier factors 1 and 2 respectively. The practice factors, however, showed higher scores for regional bodies that were influenced by a combination of the third factor and one or more of the other factors as shown in **Table 4.16**.

Table 4.16: Practice factor scores for incremental change

DOMINANT FACTORS	SCORE
Factor 1 (intermediate outcomes)	3.5
Factor 2 (need & benefit)	N/A
Factor 3 (appropriateness)	4.2
Factors 1 and 2	4.0
Factors 1 and 3	7.6
Factors 2 and 3	7.0
All three factors	6.9

4.2.5 Conclusion

Analyses of the importance ratings of the various monitoring and evaluation practices identified that the highest rating practices were assessment of outputs, cost efficiency and KASA change, which all rated with mean scores

above 7. The earlier review of satisfaction ratings placed economic impact assessment as an area of general dissatisfaction for the regional bodies, which was confirmed by the ratings given for this practice specifically. It rated lowest among the practices assessed, with a mean importance rating of 4.14. Project need assessments also rated low with a mean rating of 4.81. These practices rated much lower than all of the other practices which had means ranging between 5.53 and 8.39. Correlations between practices identified that the most significant suite of inter-practice relationships centred on the assessment of cumulative effects, which was correlated with all other practices. This was closely followed by method appropriateness (correlated with 11 of 12 practices), resource condition monitoring (correlated with 10 out of 12 practices), and surrogate indicators and site appropriateness (each correlated with 9 out of 12 practices).

A factor analysis of the practice ratings identified three factors: Factor 1 relating generally to intermediate outcomes; Factor 2 practices focusing more on assessing need and benefits; Factor 3 practices relating to measures of appropriateness. The most dominant factor for 25 percent of regional bodies was appropriateness (Factor 3) however 42 percent of regional bodies were identified as almost equally influenced by all three factors.

Most regional bodies (58 percent) operate within a Constitutive or Bounded Rationality evaluation model. The 25 percent of regional bodies operating within an expanded contextual evaluation model is made up of slightly more statutory bodies (57 percent) than non-statutory bodies (43 percent). Several relationships were identified between the evaluation models and current monitoring and evaluation practices, which generally indicate that regional bodies operating under the evaluation models with narrower scope— such as the political and symbolic models—were less likely to be implementing any of the individual practices listed. In contrast, regional bodies operating under the higher level evaluation models—such as the expanded contextual model—were more likely to be implementing all of the individual practices listed. No significant differences were identified between the evaluation models applied by statutory regional bodies compared with non-statutory regional bodies (χ^2=0.093, p>0.05, df=1).

Evaluation capabilities across the regional bodies were moderately high. The mean capability score across the regional bodies was 62 percent of the maximum score (80 out of a possible 130) while 36 percent of regional bodies scored over 90. The lowest capability score was 29. No significant differences were identified between the capability scores of statutory regional bodies compared with non-statutory regional bodies (χ^2=0.001, p>0.05, df=1), but the barrier factors were found to be correlated to the regions' capability score (r_s=-0.344, p<0.05, n=36). Regional bodies equally influenced by both barrier factors score a mean capability of 71.7 compared with mean scores of 84.9 and 96.5 for those dominated by the individual barrier factors 1 and 2 respectively.

The mean culture score among the regional bodies was approximately 35 (out of potential maximum of 50), showing moderately high evaluation culture among these organisations. Compared means testing between statutory and non-statutory regional bodies identified no difference among either the overall culture scores or the aspects contributing to the culture score. The overall culture score was higher for regional bodies applying the higher level evaluation models (χ^2=-0.559, p<0.01, n=36). Regional bodies with a larger number of staff (r_s=0.377, p<0.05), higher *Caring for Our Country* income (r_s=0.370, p<0.05) and corporate strategic planning in place (r_s=0.336, p<0.05) were more likely to have higher evaluation culture scores. Both the barrier factors (r_s=-0.374, p<0.05, n=36) and practice factors (r_s=0.366, p<0.05, n=36) were linked with the incremental processes aspect of evaluation culture. Regional bodies equally influenced by both barrier factors scored a mean of 4.8 (out of 10) in this area compared with mean ratings of 8.0 and 6.7 for the individual barrier factors 1 and 2 respectively. The practice factors, however, showed higher scores for regional bodies that were influenced by a combination of the third factor of appropriateness and one or more of the other factors.

4.3 Results conclusions

This chapter reported results of the analyses of the demographic and survey data collected as described in Chapter 3. The analysis results included key characteristics of the monitoring and evaluation drivers, barriers, practices, models, capability and evaluation culture of the regional bodies. The highest rating individual drivers were those relating to accountability, highlighting successes, program improvement and tracking outcomes, while two of the top three barriers related to the difficulty in isolating the impact of investment activities—from seasonal variation and from the activities of others. The remaining top barrier was that of lack of staff time. The monitoring and evaluation practices receiving the highest importance rating were the assessment of outputs, cost efficiency and KASA change, which all had mean ratings above 7. The review of regional body satisfaction ratings placed monitoring and evaluation of economic impacts as an area of general dissatisfaction, which was supported by low ratings for this practice (mean importance rating of 4.14 out of 10 compared with the means of all other practices (except project need) which ranged between 5.53 and 8.39). Project need assessments also rated low (mean importance of 4.81).

Factor analyses of the monitoring and evaluation drivers, barriers and practices of the regional bodies identified the following groupings:

- Two driver factors - an engagement and program improvement factor and an income maintenance factor
- Two barrier factors - a logistics factor focused on skills and resourcing barriers, and a factor focused on technical barriers around NRM and method complexities

- Three practice factors – intermediate outcomes practices, practices assessing need and benefits, and practices relating to measures of appropriateness

The majority of regional bodies were influenced almost equally by the two driver factors (53 percent), while the regional body split between barrier factors was almost even with those regions that were more dominated by technical aspects barriers factor (42 percent) and those equally influenced by both barrier factors (53 percent). The most dominant practice factor for 25 percent of regional bodies was that of measures of appropriateness; however 42 percent of regional bodies were identified as almost equally influenced by all three factors.

A review of the types of organisations and individuals that assist the regional bodies with implementing these practices identified that monitoring and evaluation partnerships were more common with State government, consultants, and landholders, with local government the least common partners. Regional bodies equally influenced by both barrier factors were less likely to be partnering with researchers than those dominated by the technical aspects barrier factor.

Satisfaction with impact monitoring and evaluation was higher for the biophysical areas of land, water and biodiversity than for the social and economic areas, however, regional bodies satisfied with their social impact monitoring and evaluation were more likely to be satisfied with all other areas of impact monitoring and evaluation. Of the 89 percent of regional bodies that expressed their intention to implement changes to improve their organisation's monitoring and evaluation practices, the majority of these changes (78 percent) were planned as incremental changes rather than large scale changes, and most of all the proposed changes (75 percent) were planned to be undertaken within 12 months of the survey.

Most regional bodies operate within the higher level constitutive or bounded rationality (58 percent) and expanded contextual (25 percent) evaluation model groups. Of those regions operating under the expanded contextual evaluation model, 57 percent were statutory bodies and 43 percent were non-statutory bodies. Despite the seeming difference between the evaluation models under which statutory and non-statutory regional bodies operate, overall these differences were not statistically significant (χ^2=0.093, p>0.05, df=1).

Evaluation capabilities across the regional bodies were also moderately high. The mean capability score across the regional bodies was 62 percent of the maximum score (80 out of a possible 130) while 36 percent of regional bodies scored over 90. The lowest capability score was 29. No significant differences were identified between the capability scores of statutory regional bodies compared with non-statutory regional bodies (χ^2=0.001, p>0.05, df=1), but the barrier factors were found to be correlated with the regions' capability score (r_s=-0.344, p<0.05, n=36).

Regional bodies equally influenced by both barrier factors scored a mean capability of 71.7 compared with mean capability scores of 84.9 and 96.5 for those dominated by the individual barrier factors 1 and 2 respectively.

The mean culture score among the regional bodies was approximately 35 (out of a potential maximum of 50), showing moderately high evaluation culture among these organisations. Compared means testing between statutory and non-statutory regional bodies identified no difference among either the overall culture scores or the aspects contributing to the culture score. The overall culture score was higher for regional bodies applying the higher level evaluation models (χ^2=-0.559, $p<0.01$, n=36), while regional bodies with a larger number of staff (r_s=0.377, $p<0.05$), higher *Caring for Our Country* income (r_s=0.370, $p<0.05$) and corporate strategic planning in place (r_s=0.336, $p<0.05$) were more likely to have higher evaluation culture scores.

5 Discussion

This chapter discusses the results provided in **Chapter 4** and develops responses to the research problems listed in **Chapter 2**. It provides insight into the nature and extent of relationships between the characteristics and regional body groupings identified, the status of regional body evaluation, the evaluation culture and capability of these organisations and the relationships between these and organisational governance structures. It raises possible causal relationships and implications for future evaluation in the NRM sector in Australia and identifies several areas for future research.

5.1 Regional Bodies: Grouping and Evaluation Status

This section will address research problems one and two (**Section 2.2** and **Section 2.3.4**):

- It is unclear how regional bodies differ and what relationship might exist, if any, between their characteristics and their implementation of, and inclination for, monitoring and evaluation.
- It is not clear within which evaluation models regional bodies operate.

It will show that while there are a variety of ways to group regional bodies, many of these provide little depth of understanding of the monitoring and evaluation of Australia's regional bodies. The two groupings that best provide insight into the differences in evaluation between the regional bodies, however, are the barrier factor influence groups and the evaluation model groups. Other individual aspects such as selected demographic characteristics, practice adoption, satisfaction levels and partnerships also yield points of insight for future consideration.

5.1.1 Demographic characteristics

As discussed in **Section 2.2**, while most of the 56 regional bodies were created specifically for the purpose of managing the governments' NRM investments in the regions under the joint venture investment programs of the 1990s (Attorney-General's Department 1997; Australian Government 2008a; COAG c2000; McVay et al. 2004; NRMMC 2005), some of the regional bodies were formed from pre-existing groups or entities. This inherited organisational diversity compounds the structural complexity created through the decision of some States to adopt statutory models (i.e. Victoria, New South Wales and South Australia) for their regional bodies and other States/Territories opting for not-for-profit, private company and community board models. When added to the wide ranging regional characteristics across Australia (including population, area, landscape types, and historical and current development), this complexity meant that the regional bodies started with vastly different situations, needs and structures.

The key demographic characteristics (refer to **Table 4.1**) confirm this variability. Despite these organisations ostensibly being created to meet the delivery needs of the Australian and State/Territory governments' NRM funding programs, their ages vary significantly from a region newly amalgamated just prior to surveying, to pre-existing organisations adopted

to meet the funding programs' needs (14 years old at the time of the survey). The area and populations included in each region also vary significantly from densely populated small coastal areas to vast tracts of sparsely populated inland countryside. There are clusters in terms of these characteristics but the clusters are not a variable that explains differences in evaluation.

Some consistencies that were identified within the demographic characteristics across these organisations include:

- Regions with higher populations or higher numbers of staff were more likely to have undertaken corporate strategic planning.
- Statutory regional bodies (found in New South Wales, Victoria and South Australia) had higher numbers of staff and were generally younger than their non-statutory counterparts and while they still had high reliance on direct government funding, their proportion of government funding to total revenue was less.

Drawing out the points within these two sets of correlations, it appears that they may be simply highlighting that:

- The requirement placed on the statutory bodies for corporate planning has not been taken up as strongly by other regional bodies in the non-statutory states.
- The link between age and statutory status may be a reflection of the approach taken in some areas of the non-statutory states to capitalise on the use of existing organisations in the role of regional bodies rather than requiring the formation of new organisations.
- The statutory regional bodies had recourse to receive levies from land managers to support their role. While this funding was not direct funding received from their State or the Australian Government, it is a tax direct to these statutory bodies that could be classed as a government income, which was not available to the non-statutory regional bodies.

While the demographic characteristics provided four clusters by which to categorise the regional bodies, these clusters of themselves provide no insight into the monitoring and evaluation aspects of the regional bodies. There were no significant correlations between the clusters and any of the analysed parameters (i.e. drivers, barriers, practices, satisfaction levels, partnerships, planned changes, models, capability or culture as detailed in Appendix A). This poses interesting questions when considering possible future evolution of evaluation within these organisations. Their basic differences do not dictate their monitoring and evaluation but may provide the breadth of context and experience to enrich the sector's evaluation practices and systems through the opportunity offered by natural experiments. Conversely, however, this very variability could reduce the transferability of learnings across such diverse contexts — what works in one region may not be suitable for another region with different context, leading to unique solutions for each region. Further investigation in depth and over time would be required to determine the influence of this diversity on the evolution of evaluation within Australia's regional bodies.

5.1.2 Drivers

Reasons for undertaking evaluations vary considerably as discussed in **Section 2.3.4**. A wide range of drivers for evaluation have been identified by researchers, generally falling into the following categories: external funding requirements (Abma 2005; Conley-Tyler 2005; Eilat et al. 2008; Hickey et al. 2007; Osborne et al. 1995; Robins & Dovers 2007); internal organisational requirements (Conley-Tyler 2005; Eilat et al. 2008; Fetterman 1997; Greenberg & Nunamaker 1987); and community requirements (Fetterman 1997; Osborne et al. 1995; Wells & Rickwood 2006). Drivers within each of these categories were rated by the regional bodies based on their level of importance in their then current monitoring and evaluation.

All drivers were consistently rated highly by the regional bodies, with all mean scores above 6.5 out of 10. The highest ranking drivers were those relating to accountability to funding organisations, highlighting project successes, internal program improvement and tracking project achievement. The strong correlation of the driver of reporting to the community with other drivers (refer to **Table 4.2**) may reflect the strong historical developmental link between these organisations and their community (as discussed in **Section 2.2**) and with the resulting perception that the community are interested in, or the regional bodies are accountable to, the community on, all aspects of regional body business, from accountability, to policy information, to program improvement.

The negative correlation between the driver of accountability and the presence of corporate strategic planning has interesting implications. The implementation of corporate strategic planning is a key step in a business approach to managing an organisation and documents the organisation's own internal drivers (i.e. vision, mission, goals). This process may result in stronger emphasis on these drivers and being internally driven and accountable rather than focusing on accountability to external parties. Conversely, regional bodies that have yet to take a business-like approach to their organisational management may find that this external accountability driver is not tempered by internal drivers and accountability.

Two factors were identified that explained 62 percent of the variability across the drivers: an improvement related factor and a maintenance focused factor (refer to **Figure 4.3**). Most regional bodies were identified as equally influenced by drivers in both factors (53 percent), with the improvement factor drivers of next highest dominance (31 percent). This balance between drivers provides promising evidence of the evolution of evaluation practice within the regional bodies. The low number of regional bodies with sole focus on the maintenance — or self-preservation — drivers (16 percent) provides some reassurance that the sector overall has a strong focus on improvement, and establishes a strong baseline for future comparison to track the evolution of evaluation across the sector.

While these groupings of drivers provide some insight into why regional bodies might evaluate and the level of influence of each of the groups, their lack of correlation with other aspects assessed in this research means they do not provide insight into the wider differences in evaluation among the regional bodies.

5.1.3 Barriers and satisfaction

While no research was found that isolated the specific perceived barriers to adoption of evaluation practices, there has been research on these barriers within the education (Cross 2005; Schmidt & Brown 2007; Watling & Arlow 2002) and health industries (Adang & Wensing 2008; Adily & Ward 2005; Pare & Trudel 2007; Ross et al. 1996; Sheahan et al. 2007) and local government (Kluvers 1998), with some researchers also focusing on the role of voluntary and community organisations in public service delivery within these and other industries (Little 2005, in Moxham & Boaden 2007). There is also some literature on adoption barriers in other NRM areas such as barriers to the use of science (Davis et al. 2001; Dupuy & Grinbaum 2005) and barriers surrounding the NRM sector in general (Australian National Audit Office 1997; Bellamy 2005; Greening Australia 2003; McCullough 2005; McDonald et al. 2006; McVay et al. 2008b; Thackway et al. 2005). These barriers were tested among Australia's regional bodies and found to have varying levels of relevance. Two of the top three barriers rated by the regional bodies related to the technical difficulty in isolating the impact of investment activities — from seasonal variation and from those activities undertaken by others. Almost 70 percent of regional bodies rated these two barriers with a score of 7 or more (on a 10 point Likert scale), indicating that this is a common point of issue among most of the regional bodies. The other barrier rated in the top three was that associated with the lack of available staff time, which was a consistent message received by the researcher when requesting survey participation and this adversely affected the number of survey responses received and the timeframe for response. 69 percent of regional bodies rated lack of staff time with a score of 7 or more.

One key issue regarding barriers that illustrates the impact of demographic differences is that the more remote (larger area, further from capital city) and older (generally non-statutory) regional bodies generally had more issues with the lack of immediacy of results from monitoring and evaluation. This could indicate that the other regions have either solved the issue or have not been confronted with it and may relate to issues where delayed communication of results could significantly impact on maintaining engagement and momentum in areas with a more sparse population.

Another series of relationships suggest issues in the use of more technically complex monitoring and evaluation methods. Regional bodies with higher staff numbers (generally statutory organisations) had more issues with technical aspects relating to monitoring and evaluating their impacts (lack of appropriate methods, method complexity, and isolating seasonal

impacts). Similarly, those regional bodies with higher income from the *Caring for Our Country* program rated barriers associated with the use of surrogates more highly than those with lower incomes. Together, these two findings may indicate a higher level of rigour and technical complexity or sophistication expected of these larger and more highly funded organisations. This seems somewhat counter-intuitive as these bodies would be more likely to have access to highly trained staff and sufficient funding to undertake evaluations. One explanation might be that they may attempt to do more and therefore have more difficulty. Alternatively, perhaps the larger and better funded organisations are taken up with other concerns about maintaining the organisation and there is then less attention to evaluation. Further research would be required to test these possible explanations.

The factor analysis (refer to **Figure 4.5** and **Table 4.6**) revealed two factors that explain 60 percent of the variance in barriers ratings across the regional bodies. The first factor related to the evaluation capacity aspects of skills and resourcing barriers, and the second focused on more technical aspects relating to evaluation design. The majority of regional bodies (53 percent) were equally influenced by the barriers of both factors, while 42 percent were primarily dominated by the technical aspects factor. This supports the finding above that regional bodies are facing issues of technical sophistication in their monitoring and evaluation, although the reasons for this are not able to be determined from this research. Key relationships identified between these barrier factors and other evaluation aspects show significant differences between regional bodies equally influenced by both barrier factors in comparison with those dominated by only one of the factors. Regional bodies equally influenced by both barrier factors were less likely to be partnering with researchers than those dominated by the evaluation design barrier factor; have lower average program evaluation capability than those more influenced by either other factor; and have lower ratings for the culture aspect of applying incremental processes for evaluation improvement. The duality of barriers influencing these regional bodies appears to have stronger adverse impact on the evaluation aspects of these regional bodies than that experienced by regions influenced primarily by one or other of the barrier factor groups—double the issues leads to cumulatively more adverse impact on evaluation.

Other evidence supporting the issues surrounding the implementation of various monitoring and evaluation practices is supplied by review of the regional bodies' satisfaction with their impact monitoring and evaluation. Satisfaction levels were higher for the biophysical evaluation areas around land, water and biodiversity than for the social and economic areas. Despite this, regional bodies that were satisfied with their social impact monitoring and evaluation were more likely to be satisfied with all of their other areas of impact monitoring and evaluation. This may be due to these organisations having progressed their biophysical monitoring to a sufficiently high level to allow them to focus on the social aspects or that these organisations had greater breadth to their overall technical capacity.

Further consideration of satisfaction levels will be described in the context of the current practices and the overall status of regional body evaluation in the next sections of this thesis, but the link between satisfaction levels and proposed changes to the regional bodies' monitoring and evaluation practices shows significant improvements proposed, some of which may address the barriers discussed above. Of the 89 percent of regional bodies that expressed their intention to implement changes to improve their organisation's practices, the majority of these changes (78 percent) were planned as incremental changes rather than large scale changes, and most of all the proposed changes (75 percent) were planned to be undertaken within 12 months of the survey. This supports the improvement intent implicit in the evaluation models under which most of the regional bodies operate.

The barrier factor groupings and levels of satisfaction with impact assessment methods provide some appreciation of the differences and issues facing the regional bodies when developing and implementing their monitoring and evaluation. They provide issues for consideration around potential barriers to and ways forward for future evolution of evaluation across the whole NRM sector. Further depth of understanding of these differences may also be gained by adding information about the current practices and the status of evaluation among these organisations.

5.1.4 Practices

The program evaluation capability of organisations can be described by their implementation of certain evaluation practices (Rossi, Lipsey and Freeman 2003, in Sharp 2005) (refer to **Figure 2.3**). These practices are logically connected in the development and review of programs with strategic implementation, and support organisational evaluation capabilities (refer to **Figure 2.4**). Ratings of the importance of the various monitoring and evaluation practices varied across the regional bodies, but some consistencies were evident (refer to **Section 4.2.1**). The highest ranking practices (all with means of 7 or more on a 10 point Likert scale) were the monitoring and evaluation of outputs, cost efficiency, and change in KASA, which relate strongly to the core reporting requirements of the various programs under which these regional bodies have been funded (refer to **Section 2.3.4**). The only practices with mean ratings of less than 5 (i.e. less than moderate importance) were those related to economic impact assessment and project need evaluation. The latter may be rated low due to the presence of the NRM plans to guide investment. The development of these plans includes the determination of the priorities for the region and thus could be considered as encompassing the program and project need evaluations. Economic impact assessment, however, while rated low by the sector in general, was rated even lower by regional bodies that were more reliant on government funding (as a proportion of their total revenue)—generally older, non-statutory regions—than their counterparts, which may indicate a number of possible explanations, some or all of which may apply:

- These regional bodies may have previously been funded comfortably enough for them to provide high dollar incentives that reduced their need to convince participants of the economic advantages of participation, and may not have required them to implement restricting economies within projects
- They may have sufficient economic evidence on hand to communicate the economic advantages of on-ground NRM practice change to potential participants without requiring any further assumption testing—more likely in terms of farm productivity benefits of agricultural practice change than for changes relating to the management of biodiversity or for water quality improvement practices
- They may have neither sufficient evidence nor satisfactory methods identified for evaluating this aspect of their activities and so may have tended to ignore this area
- They may lack experience and expertise in economic impact assessment or simply consider it less relevant than they do their perceived core business surrounding the biophysical, and to some extent social, impacts.

Further analysis would be required to determine which, if any, of these are appropriate explanations, but the high rating given to the importance of this practice (rated by 9 regional bodies as 7 or more out of 10), and satisfaction with this practice (rated by 2 regional bodies rated as 7 or more out of 10), by some regions indicates that there are regions which could provide learnings in this area that might benefit their counterparts.

Further evidence was identified to support the earlier discussion regarding the level of sophistication of evaluation being required of and implemented by regional bodies (refer to **Section 4.1.3**). It was identified that those regions where the measurement of outputs was rated highly were less likely to identify issues related to resourcing (equipment and skills) and certain complexity issues (use of surrogates, method complexity, method appropriateness), implying that the stronger focus on outputs was associated with reduced focus on the more technical evaluations of outcomes/impacts of activities. As outputs are one of the primary reporting mechanisms used by Australia's regional NRM programs (both State and Australian government funded programs) this raises the question of whether or not this focus is detrimental to the evolution of regional body evaluation. The lack of correlation between output evaluation importance and the evaluation models, barrier factors, program evaluation capability or evaluation culture provides some assurance that this is not the case, but the future importance placed on this particular evaluation area by funding organisations could form an area for future research to determine any trends and impacts should the importance of this type of measurement change in the future for funding bodies.

The three factors identified as accounting for 66 percent of the variance among regional body monitoring and evaluation practice importance ratings (refer to **Figure 4.9**) relate to intermediate outcomes, assessing need and benefits, and measures of appropriateness. Most regional bodies (42

percent) were approximately equally influenced by all three factors, with the next most dominant factor being that related to measures of appropriateness (25 percent of regional bodies). Similar to the general balance shown across the driver and barrier factors, the balance evident across the practice factors implies that the regional bodies are implementing across the full spectrum of the program evaluation hierarchy. This research does not review the quality of such implementation but the balanced ratings offer some indication that the quality, if not yet satisfactory, will be likely to evolve and improve due to the level of importance given these practices by the organisations. The regional bodies with low drive in the area of program improvement, however, are those most at risk of low quality evaluation outcomes and lower adoption of all individual practices within the program evaluation capability hierarchy. There were no correlations between these practice factors and the driver or barrier factors or any of the individual barriers or drivers, indicating that there are other aspects at play in deciding practice adoption than those specifically addressed in these analyses.

One way to increase capability to undertake monitoring and evaluation is through the establishment of partnerships. Regional body monitoring and evaluation partnerships were more common with State government, consultants and landholders, with local government the least common partner. The many correlations between partnerships in general, indicate that organisations open to some partnerships are more likely to be open to most partnerships. Some barriers can inhibit partnerships, however, as is evidenced by the increased likelihood that regional bodies more influenced by the technical barrier factor will partner with researchers to help solve these technical issues compared with those equally influenced by the logistics barrier factor. This illustrates that the additional influence of the logistics barriers inhibits the potential to address the technical aspects issues through partnerships, reducing the options for these regional bodies to rise above their barriers to evaluation.

This baseline of the importance of certain monitoring and evaluation practices and their factor groupings, provides an indication of the current importance of these practices within regional body monitoring and evaluation; identifying an overall moderate to high level of importance placed on all practices. The adoption of these practices and the partnerships than can assist in building capacity to implement them, can be influenced by the identified barriers to evaluation. By themselves, the practice importance ratings provide only a partial contribution to understanding the breadth of monitoring and evaluation aspects. Further research into the quality of design and implementation of these practices would expand the understanding of monitoring and evaluation practice adoption among Australia's regional bodies.

5.1.5 Models

While many different model frameworks have been proposed in the literature (Keeley 1978; Kluvers 1998; Markiewicz 2005; Osborne et al.

1995; Whitmore et al. 2006) (refer to **Section 2.3.2**), most do not adequately incorporate the key aspects of the influence of political accountability and evolution across whole organisations as is faced by Australia's regional bodies. The approach that does incorporate these aspects (Kluvers 1998; Osborne et al. 1995) and has been applied to date in both public and non-profit sectors categorises evaluation approaches using models based on political context. It involves six models of performance evaluation of complex public programs: the political model, the symbolic model, the organisational excellence model, the constitutive model, the bounded rationality model, and the expanded contextual model that have been combined for the purposes of this research into four groups (as described in **Section 3.4.3** and illustrated in **Table 5.1**). The method of assigning these models to regional bodies through analysis of their evaluation driver ratings was confirmed by the consistency shown in **Table 4.13** and **Figure 4.10 to Figure 4.17**. The distribution of regional bodies operating within each model group is summarised in **Table 5.1**.

Table 5.1: Model distribution by statutory status

MODEL GROUP	PROPORTION OF CATEGORY		PROPORTION OF REGIONAL BODIES (N=36)
	STATUTORY (N=16)	NON-STATUTORY (N=20)	
Expanded Contextual	30%	18%	25%
Constitutive and Bounded Rationality	45%	75%	58%
Organisational Excellence	15%	1%	11%
Political and Symbolic	10%	0%	6%

The majority of statutory regional bodies were relatively evenly distributed between the two higher level model groups: the expanded contextual (30 percent) and constitutive and bounded rationality (45 percent) model groups. Among the non-statutory regional bodies, however, the constitutive and bounded rationality model group was dominant (75 percent). Despite this apparent upward trend in model evolution among the statutory regional bodies, 25 percent were operating under the narrower focused (political and symbolic, and organisational excellence) models compared with only one percent of non-statutory regional bodies applying these models. This confounding mix of approaches raises questions about what influence the monitoring and evaluation requirements placed on regional bodies under the different governance models have on their evaluation model evolution. The evaluation requirements placed upon the statutory regional bodies do not necessarily guarantee that a regional body will be operating within one of the higher level evaluation models as there is some suggestion of a bi-modal distribution. Further research into this issue and tracking the evolution of regional bodies within each governance structure may provide useful insight into how best to promote the evolution of evaluation among these organisations.

While the majority of regional bodies operate within the higher level evaluation models, the application of these models may or may not address the issues raised by the Australian National Audit Office in their reviews of

the implementation of the NHT and NAP programs (as discussed in **Section 2.3.3**). It is possible that implementation of the higher level models stops at the end of a funding cycle without addressing the on-going evaluation of impact of activities over time until resource condition changes are measurable. Future research on this issue would be required to determine the extent of longer-term, follow-up monitoring of activity impacts. The use of case studies of 'typical' regional bodies operating within each model group could be used to provide further depth of understanding of these groups.

5.1.6 Conclusion

Australia's regional bodies can be grouped in many different ways, each of which highlights similarities and differences across different aspects of monitoring and evaluation including their drivers, barriers, practices, models and capability. The groupings or categorisations that provide the greatest insight into the regional bodies' implementation of, and inclination for, monitoring and evaluation are the evaluation models and barrier factor groupings. The majority of regional bodies were identified as applying the higher level evaluation models, with very few regional bodies adopting the narrower focused models. In terms of groupings by barriers to evaluation, the majority of regional bodies were equally influenced by both the technical aspects and logistics barriers factors, followed by regions more influenced by the technical aspects factor. While the barrier factors were not directly correlated with the evaluation models, the dual impact of both barrier factors was found to have significant negative influence on certain monitoring and evaluation partnerships and will be considered further in the context of evaluation capability and culture in following sections of this thesis. Further research to obtain differentiation between subgroups of regions applying the constitutive and bounded rationality models would provide added information for understanding the high variability within this complex group.

Thus, the categorisations derived from this research address both research problem one and problem two. They clarify how regional bodies differ and what relationships exist between their characteristics and their implementation of, and inclination for, monitoring and evaluation (research problem one). They also clarify under which evaluation models the regional bodies operate (research problem two).

5.2 Regional Body Evaluation Capability Aspects

This section addresses research problems three and five (as described in **Section 2.3.4**):

- It is not clear how Australia's regional bodies perceive aspects of their evaluation capability.
- The barriers to monitoring and evaluation and their effect on regional bodies' practices and models have not been identified.

The regional bodies' program evaluation capabilities and evaluation culture were both found to be generally moderately high. The barriers perceived by the regional bodies as influencing this capability were varied. The

identified barrier factors collectively had more impact on practices than did the individual barriers, although these did affect some few practices. The barriers and barrier factors were found to have no significant relationships with the regional bodies' models of evaluation, program evaluation capability or evaluation culture.

5.2.1 Barriers and Practices

As mentioned in **Section 5.1.2**, the top three barriers rated by the regional bodies as having influence on their evaluation practices are a lack of time available to undertake monitoring and evaluation and issues around isolating the impact of their activities from the effects of seasonality and the impact of other groups'/individuals' activities. In addition to these three barriers, the natural resource management specific issue of timescales required for resource condition change to be measurable and the subsequent turn towards the use of surrogate measures was highlighted by series of interrelated issues as discussed in **Section 4.1.3**. The correlation between the timescales barrier and not only the practice of using surrogate measures for resource condition monitoring but also with barriers associated with isolation of impact from other activities' impacts and from the effects of seasonality could perhaps be expected where groups are attempting to shorten interpretation timescales for meaningful adaptive management but are having difficulty finding acceptable ways to do this.
Conversely, regional bodies reporting high influence of this timescales barrier were those that recorded lower ratings for the importance of their current use of surrogate measures, possibly indicating that they are yet to identify acceptable surrogate measures to meet their needs. These organisations also rated low their current use of economic impact assessment, their current assessment of project method appropriateness, their cumulative impact assessment, and their assessment of project need. This may be due to a belief that these practices are heavily reliant on resource condition information and the timescales associated with that information therefore reduces the implementation of these practices. Or it may indicate a general lack of capacity to deal with so many complex issues together. Without the information provided by surrogate measures, these practices may continue to have low adoption among this group.

Barriers associated with the use of surrogate measures were rated as of lower influence by those regions that rated the assessment of outputs as of higher importance, perhaps indicating the perception by those organisations that the use of outputs is an acceptable surrogate measure of performance as has been the case in many Australian government natural resource management programs (refer to **Section 2.3.4**). Despite these barriers, adoption levels for most of the practices assessed in this research were high (38 percent of practices with median rating of 7 or more and 92 percent of practices with median rating of 5 or more). This may be due to the sector-wide implementation of program theory (as discussed in **Section 2.3.4**) to assist with reporting causal links in systems where changes can take many years to become evident. While this research did not review the

quality of design and implementation of these practices, it can be inferred that the barriers are not stopping monitoring and evaluation, but are rather altering the methods used. Further review of the association between these aspects and satisfaction levels is provided in **Section 5.2.3**.

5.2.2 Barriers' and Models

No correlations were identified between the regional bodies' evaluation models and any of the reviewed evaluation barriers or the barrier factors. Compared means analyses across the models only identified one difference between model groups: Regional bodies operating within the constitutive and bounded rationality model group rated the barrier of the time required for impacts to be measurable higher than regions applying all other models. Noting that this is the largest group of regions and are more likely to be the older, non-statutory regional bodies, this finding raises questions as to why the other model groups did not rate this same barrier as highly. There are two possible explanations that relate well to the place of these models in the evolutionary continuum. Regions applying the higher level expanded contextual model may have overcome the timescales issue through their application of program theory (refer to **Section 2.3.4**) and its related choices of methods and measures. Conversely, those regions applying the narrower scope organisational excellence or political and symbolic models may not have faced this issue due to the very nature of the evaluation questions their drivers direct them to address. Further research would be required to confirm if the validity of these possible explanations. The presence of only one significant relationship between barriers and evaluation models implies that the occurrence of these barriers to evaluation is generally not specific to regional bodies applying any particular model and can be experienced within any region at any point in the evaluation model framework's evolutionary line.

5.2.3 Satisfaction and Improvements

The assessment of the regional bodies' levels of satisfaction with current monitoring and evaluation practices addressed the main NRM theme impact areas of: water (water quality and waterway health), biodiversity (biodiversity and habitat health), land (land condition and soil health), social and economic. In general, regional bodies were more satisfied with their monitoring and evaluation of the biophysical aspects of water, biodiversity and land, with social and economic impact evaluation rating at much lower levels of satisfaction. In addition to this, regional bodies satisfied with their water impact monitoring and their biodiversity impact monitoring were more likely to be planning incremental rather than large scale changes. This may be due to these areas having received greater focus through the history of the evolution of these organisations, and their being perceived as core business and so receiving higher focus to achieve satisfactory approaches which are now seen as requiring only small adjustments.

Regional bodies that were satisfied with their social impact monitoring and evaluation were more likely to be satisfied with all of their other areas of

impact monitoring and evaluation. Regional bodies that were satisfied with their biodiversity and habitat condition monitoring were more likely to be satisfied with all other areas of impact monitoring except economic impact. These two stand-out impact assessment areas (social and biodiversity impacts) are generally the more complex to assess, indicating that once regional bodies have addressed these two issue areas, the biophysical assessments relating to land and water may be perceived to be more straightforward and were likely to also be at a level that met their satisfaction or alternatively, that the regional bodies have already settled their approaches to the other areas by the time they focus on these two more complex areas.

Satisfaction ratings placed economic impact assessment as an issue for the regional bodies, which corresponds with the generally low rating given to practices relating to economic impact assessment. As discussed in **Section 5.1.4**, the low adoption may be due to a number of reasons but the relatively consistent dissatisfaction with implementation appears to indicate a lack of appropriate methods for economic impact assessment, rather than a lack of awareness of the importance of these practices. In contrast, however, was the finding that those organisations that rated highly the importance of their economic impact assessment practices also rated highly their satisfaction levels for this area of monitoring and evaluation. Thus those organisations implementing economic impact assessment were more likely to be satisfied with their efforts. These organisations (rating economic impact assessment practices highly) also rated highly the drivers of engagement and informing policy, indicating high potential for this practice area to improve across the regions with the sharing of learnings and methods. It also highlights a possible link between economics in decision-making regarding both policy and engagement (i.e. ability to provide a business case for involvement).

The generally low ratings given to satisfaction compared with the high practice importance ratings and even the ratings of barrier influence heightens the implications of these low ratings across Australia's regional bodies and supports the significance of the planned improvements reported. Improvements were planned by 89 percent of regional bodies, mostly through incremental changes (78 percent), and mostly planned for implementation within 12 months (75 percent). Further review of practice implementation and satisfaction levels across time would provide a comparison for evolution and effectiveness of the implementation of these planned changes.

Relationships between organisational factors such as size and focus on cost-efficiency also had a significant effect on regional bodies' plans for improving their practices. Larger organisations were less likely to be planning large scale changes due perhaps to either difficulties associated with embedding new practices across larger staff numbers, or these organisations having sufficient specialist staff to have already established practices considered appropriate. While this initially raises questions regarding the optimum organisation size for evolution of evaluation

processes among the regional bodies, the question attains further complexity when the correlation between organisation size and evaluation culture is considered as this seems to indicate that the second explanation may be more relevant. A similar disinclination for large-scale changes was identified among organisations with higher focus on cost-efficiency assessment, in contrast with those organisations that placed high importance on the driver of program improvement.

5.2.4 Capability

The dominant form of capability assessed in this research is that of program evaluation capability (as discussed in **Section 5.1.4**), which can be categorised by implementation of certain evaluation practices as described by the program evaluation capability hierarchy (Rossi, Lipsey and Freeman 2003, in Sharp 2005) (refer to **Figure 2.3**). These were analysed through a review of practice implementation as outlined in **Section 3.4.3**, and yielded a mean program evaluation capability score for Australia's regional bodies of 62 percent (80) of the maximum score (130). A total of 36 percent of regional bodies scored over 90, with the lowest score totalling 29. Due to the strong correlation between practices and drivers (refer to **Table 4.9**), regional bodies' program evaluation capability scores were also correlated with the model groups as illustrated in **Figure 4.19**. The strong correlation between program evaluation capability score and evaluation model (as discussed in **Section 4.2.3**) supports the application of the model framework as an appropriate approach to characterising the monitoring and evaluation of Australia's regional bodies and benchmarks this sector overall as having a moderately high program evaluation capability.

5.2.5 Culture

For an organisation to reach the heights of the capability hierarchy it must foster an evaluative culture, which recognises that the findings of internal evaluation regimes provide meaningful internal learning and improved organisational effectiveness (Owen 2003). Owen identifies 11 key factors which can contribute to the establishment of an evaluation culture. These factors (refer to **Figure 2.5**) relate to: commitment at all levels of management; obtaining expert advice; establishing dedicated evaluation teams; training of staff in collection, analysis and integration of results into organisational processes; identification of barriers to evaluation; and periodic reviews of these cultural changes. The initial evaluation culture categorisation undertaken in this research (as described in **Section 3.4.3**) identified that the mean culture score for Australia's regional bodies was 70 percent (35) of the maximum score (50). The majority of regional bodies (83 percent) scored over 30 with 28 percent scoring over 40 and the lowest evaluation culture score totalling 20 (as illustrated in **Figure 4.20**). In general, regional bodies applying the higher level evaluation models achieved higher evaluation culture scores, with the aspects of strategic application of evaluation and contribution to knowledge by evaluation significantly correlated with these regions.

Analysis of the regional bodies' evaluation culture scores against other characteristics identified several significant relationships. Regional bodies with larger numbers of staff and regions with higher *Caring for Our Country* program income were more likely to have higher evaluation culture scores. This may be because the larger staff complement includes more members trained in, or immediately capable of, evaluation and thus there is a critical mass. As these larger organisations are also more likely to have implemented corporate strategic planning (refer to **Section 5.1.1**) and the presence of corporate strategic planning is also correlated with a regional body's culture score, these larger organisations that have corporate strategic plans in place, generally achieved higher evaluation culture scores. This supports the hypothesis that a stronger business approach promotes more rigorous internal requirements and drive for evaluation. In contrast to this strong relationship and similar to the evaluation models, evaluation culture scores were not correlated with any of the assessed barriers or barrier factors, confirming that the barriers assessed are likely to be faced by any region without bias to their evaluation evolution. As might be expected by the nature of evaluation culture and capability, the scores for these two aspects were highly correlated. This was also supported by the correlation of several practices with the evaluation culture score.

This basic application of evaluation culture analysis provides an overarching estimate of certain aspects of the regional bodies' evaluation culture that can be tracked over time and establishes the Australian NRM sector as having a moderately high evaluation culture. Detailed analyses of these organisations would provide more detailed understanding of the culture of these organisations and the impact of this on their monitoring and evaluation practices.

Program evaluation capability scores indicated that the majority of regional bodies had high capability. Due to the strong correlation between practices and drivers, the regional bodies' program evaluation capability scores correlate to their model group, which supports the application of the evaluation model framework as an appropriate approach to characterising the monitoring and evaluation aspects of Australia's regional bodies. Analysis of the evaluation culture of the regional bodies also supported this finding. The regional bodies operating within the higher level evaluation models generally achieved higher evaluation culture scores, with the aspects of strategic application of evaluation and contribution to knowledge by evaluation significantly correlated with these higher level evaluation models. These strong links between capability, culture and model provide strong and compounding evidence that Australia's regional NRM sector have high evaluation capability, culture and practices.

Several key relationships identified in the analysis point to strong connections between organisational size and business focus as important factors towards having strong evaluation culture and capability. The presence of corporate strategic planning is correlated to a regional body's

perception of the importance of the driver of accountability to funding bodies. The implementation of a business approach to managing an organisation may give stronger emphasis to these drivers and being internally driven and accountable rather than on focusing on accountability to external parties. The presence of corporate strategic planning is also correlated to a regional body's culture score, highlighting that higher evaluation culture scores were achieved by those regions with corporate strategic plans. When it is acknowledged that (a) the larger regional bodies were more likely to be those that have undertaken corporate strategic planning and were also more likely to have stronger evaluative cultures, (b) culture and capability scores are highly correlated, and (c) capability scores and evaluation models were also correlated, potential opportunities arise for further research to develop strategies around these aspects that optimise the organisational characteristics and practices of the regional bodies to improve the evaluation culture, capability and models of the whole sector.

5.2.6 Conclusion

The barriers perceived by Australia's regional bodies and the perceived importance of certain monitoring and evaluation practices, have been identified and ranked to provide a benchmark across the sector. Levels of satisfaction and planned improvements also provide insight into the regional bodies' perceptions of their capability, yielding a rich picture of both high practice implementation and areas for improvement supported by strong intent to implement changes to improve regional body monitoring and evaluation.

The top three barriers rated by the regional bodies as having most influence on their evaluation practices were lack of time available to undertake monitoring and evaluation and technical issues around isolating the impact of their activities from the effects of seasonality and the impact of other groups'/individuals' activities. Despite these barriers, however, adoption levels for most of the practices assessed in this research were high. This may be due to the sector-wide implementation of program theory to assist with reporting causal links in systems where changes can take many years to become evident

Ratings of the regional bodies' satisfaction with monitoring and evaluation practices placed economic impact assessment as an issue for the regional bodies, which corresponded with the generally low rating given to practices relating to economic impact assessment. This low adoption may be due to a number of reasons but the relatively consistent dissatisfaction with the implementation appears to indicate that a lack of appropriate methods for or staff skills in economic impact assessment, rather than a lack of awareness of the importance of these practices. In contrast, however, was the finding that those organisations that rated highly the importance of their economic impact assessment practices also rated highly their satisfaction levels for this area of monitoring and evaluation. Thus those organisations implementing economic impact assessment were more likely

to be satisfied with their efforts and may be able to provide important learnings for others in the sector.

Thus, this research provides a clear summary of the regional body perceptions of aspects of their evaluation capability and culture (including barriers to monitoring and evaluation), and the effects of barriers on practices and models addressing both research problem three and problem five.

5.3 Governance structure relationships

This section addresses research problem four (as described in **Section 2.3.4**):

- It is unknown what relationships exist, if any, between regional bodies' evaluation drivers, models, capabilities, cultures and governance structures.

It highlights that there are only a few key areas of difference between the statutory and non-statutory regional bodies; generally limited to the more technical barriers around impact isolation and the split across evaluation models. The statutory regional bodies rated these technical barriers to evaluation more highly than their non-statutory counterparts. The statutory regional bodies also showed a somewhat bi-modal split in evaluation models with the high level models more dominant. In comparison, the non-statutory regional bodies generally operated under mid-high level models with much less evidence of the narrower focused models.

5.3.1 Structures

The general assumption within institutional theory that organisations within a 'field' or sector have a standardised governance structure (Delbridge & Edwards 2007) poses a unique challenge and opportunity for Australia's NRM sector. As discussed in **Section 2.2**, Victoria, New South Wales and South Australia adopted statutory models for their regional bodies while the other States/Territories opted for not-for-profit, private company and community board models. Comparison between these two governance models was undertaken at each point during the research to identify any aspects of monitoring and evaluation affected by this characteristic. From a demographic perspective, as discussed in **Section 5.1.1**, statutory regional bodies generally had higher numbers of staff and were younger than their non-statutory counterparts and while they still had high reliance on government funding, their proportion of government funding to total revenue was less non-statutory regional bodies. No other significant relationships were identified regarding demographic characteristics.

5.3.2 Barriers, drivers and practices

The only barrier rated significantly differently by statutory and non-statutory regional bodies was that associated with the difficulty of isolating

investment impacts from seasonal impacts. Statutory regional bodies rated this issue more highly than non-statutory bodies.

There are several possible explanations for this, including:

- The statutory bodies (see **Section 5.3.3** below) are generally operating with the higher expanded contextual model which places more emphasis on the contextual environment and on getting the 'right' information for decision-making. This may place more emphasis on being able to evaluate the 'true' impact of their investments.
- Similar to the explanation above, the accountability and reporting requirements placed upon the statutory regional bodies may place higher emphasis on these more complex issues for evaluation of 'true' impact.
- Alternatively, as these regions have generally higher numbers of staff, these may include staff members with stronger scientific research backgrounds who place higher expectations of rigour on their organisation's monitoring and evaluation practices and thus have encountered these barriers more than those regions satisfied with less rigour in their decision-support framework.

Further research is required to determine if this is an evolutionary or resourcing difference or due to different accountability and reporting requirements placed on these organisations.

Compared means analyses identified no difference between statutory and non-statutory regional bodies' practices, satisfaction levels or the types of organisations they partner with to undertake monitoring and evaluation.

5.3.3 Evaluation models

Within the framework of evaluation models, statutory regional bodies tended to operate fairly evenly within the two higher level model groups—expanded contextual (30 percent) and constitutive and bounded rationality (45 percent) model group—compared with the dominant constitutive and bounded rationality model among the non-statutory regional bodies (75 percent). Despite this seemingly upward trend in model evolution, 25 percent of the statutory regional bodies were operating within the narrower scope (political and symbolic, and organisational excellence) models compared with only 1 percent of non-statutory regional bodies. This indicates that the requirements upon statutory bodies still allows for the existence of regional bodies applying the narrower scope evaluation models but that the context of non-statutory regional bodies has promoted a certain amount of evolution (to constitutive and bounded rationality models level). It is possible that a ceiling exists—perhaps due to resourcing issues as posed by the barrier factor analyses—preventing wide-spread application of the expanded contextual model among non-statutory regional bodies, or simply that insufficient time has lapsed for this final evolutionary step. The fact that some few non-statutory regional bodies are applying the expanded contextual model (18 percent) appears to indicate that the later explanation may be correct, but a combination of

the two explanations may also be appropriate. The certainty of such a trend and the reasons for it should be the subject of further research.

5.3.4 Capability and culture

Regarding program evaluation capability and evaluation culture, compared means analyses identified no differences between statutory and non-statutory regional bodies. This lack of direct relationship indicates that the models applied by regional bodies may well be transitory as they progress up or down the evolutionary line based on their capability and culture. Further research into the effect of capability and culture on model application would improve understanding of the likely evolution of evaluation in this sector.

5.3.5 Conclusion

Differences are evident between the evaluation barriers and models of statutory and non-statutory regional bodies, but not between their drivers, practices, capability, culture, satisfaction levels or partnerships. The key aspects of these differences relate to the technical barrier of isolating investment impacts from seasonal impacts and the distribution of regional bodies across the different model groups. Both of these issues could be simple evolutionary differences as the evaluation within these organisations mature within their regional context and varying externally imposed evaluation requirements. In terms of evaluation models, however, differences do exist between the statutory and non-statutory regional bodies. Statutory regional bodies tended to be equally likely to be operating under the two dominant expanded contextual (30 percent) and constitutive and bounded rationality (45 percent) model groups, compared with the single dominant constitutive and bounded rationality model among the non-statutory regional bodies (75 percent). Despite this seemingly upward trend in model evolution, 25 percent of the statutory regional bodies were applying the narrower scope (political and symbolic, and organisational excellence) models compared with only 1 percent of non-statutory regional bodies applying these models. The fact that some few non-statutory regional bodies were applying the expanded contextual model (18 percent) appears to indicate that it may simply be that insufficient time has lapsed for this final evolutionary step. The certainty of such a trend and the reasons for it should be the subject of further research.

This research, therefore, establishes a baseline of what relationships exist between regional bodies' evaluation drivers, models, capabilities, cultures and governance structures. Further research is required, however, to determine the extent to which these differences are evolutionary as theorised, or due to other factors outside this research.

5.4 Discussion conclusions

This chapter addressed each of the research problems through discussion of the results from Chapter 4. The barrier factors and evaluation model

categorisations provided the best insight into the inclinations for and implementation of monitoring and evaluation by Australia's regional bodies; described the split of regional bodies within each of these categorisations; and highlighted some areas where further research could provide additional understanding of trends and relationships surrounding these categorisations.

This chapter also outlined Australia's regional bodies' perception of the barriers influencing their monitoring and evaluation practices, the importance of these practices, and their satisfaction with their impact evaluation practices. It discussed the relationships between these aspects and highlighted that the technical barriers of isolating the impact of investment and the barrier of lack of staff time were perceived as the most influential barriers to monitoring and evaluation. It highlighted high practice implementation across the sector generally, and strong indication by the regional bodies for planned improvements to their practices. Economic impact evaluation was highlighted as an area of highest dissatisfaction and lowest adoption, with some regions of high satisfaction and adoption identified as potential sources of learnings for wider sector benefit in this area.

Discussion around the differences between monitoring and evaluation aspects across the statutory and non-statutory regional bodies highlighted limited relationships to these governance structures. The only aspects showing evidence of differences related to statutory status were in the areas of model adoption and evaluation barriers. The evaluation models under which the statutory regional bodies operated were predominantly the higher models, with some tendency towards a bimodal split with some statutory regional bodies operating under the narrower focused models. The non-statutory regional bodies, in contrast, were predominantly operating within a moderately high level model of evaluation with almost no evidence of the narrower focused models among this group. The evaluation barrier difference discussed was that of statutory regional bodies perceiving the technical difficulties around isolating the impact of their investment much more highly than their non-statutory counterparts.

These discussions addressed each of the research problems, providing new understanding of the monitoring and evaluation practices and perceptions of Australia's regional NRM organisations. Further research in the form of case studies of 'typical' regional bodies operating within each model group could be used to provide further depth of understanding of these groups.

6 Conclusion

6.1 Context and research problems

Established under a joint venture between the Australian Government and the individual state and territory governments, Australia's regional NRM organisations were the primary mechanism for delivery of these governments' NRM investment programs. The decision of some States to adopt statutory models (i.e. Victoria, New South Wales and South Australia) for their regional bodies and other States/Territories opting for not-for-profit, private company and community board models adds further complexity. When added to the wide ranging regional characteristics across Australia (including population, area, landscape types, and historical and current development), this complexity meant that the regional bodies started with vastly different situations.

The strong government investment through these organisations placed significant accountability pressures on them and required them to evaluate the impact of their programs in order to receive continued funding. A decade of audits of the regional delivery of funding under NHT and NAP each highlighted a lack of validated data on the impacts of these programs, such that their progress towards outcomes could not be assessed, which lead to even heavier emphasis on monitoring and evaluation under the subsequent *Caring for our Country* program.

Historically, the literature shows that evaluations are undertaken by a wide range of sectors for a variety of purposes, including: policy making and knowledge development, performance management and accountability, impact assessment, and organisational learning and continuous improvement. Organisations and individuals involved in evaluations have been categorisation in various ways within the literature, including evaluation styles, models, capability and culture. Despite the expanding volume of literature about evaluation and about Australia's regional NRM bodies, none of the previous reviews of these organisations have established a baseline of the regional bodies' evaluation models and capabilities on a national scale. A review of each of the approaches to categorisation mentioned above identified evaluation models, capability and culture categorisations as suitable for developing a baseline across the regional bodies through this research due to their focus on an aggregated, holistic level that lies outside the various pressures, and their potential staged progression or evolutionary line against which an organisation's evaluation processes could be benchmarked.

Reasons for undertaking evaluations vary considerably and a wide range of drivers for evaluation have been identified in the literature. These drivers generally fall into the following categories: external funding requirements; internal organisational requirements; and community requirements. An organisation will operate under a specific evaluation model due to specific drivers. These primary drivers are likely to be consistent among organisations operating under the same model, making these evaluation

drivers a critical aspect of the model categorisation process. There are likely to be many factors affecting and affected by the evaluation models of Australia's regional bodies. Barriers are one such factor. Not only are they likely to affect the evaluation model applied by an organisation, but also their evaluation capability. While no research was found that isolated the specific regional body barriers to adoption of evaluation, there has been research on these barriers within the education and health industries and local government and also focusing on the role of voluntary and community organisations in public service delivery. Four main categories of barriers were identified in the literature, including uncertainty barriers, validity barriers, organisational ownership barriers and support barriers.

6.2 Summary of findings

Australia's regional bodies can be grouped by many different categorisations, each of which highlights similarities and differences across different aspects of monitoring and evaluation. The three key categorisation frameworks analysed were: evaluation models, capability and culture. Analysis of the evaluation models under which the regional bodies operate highlighted that the majority of regional bodies were identified as applying the higher level expanded contextual (25 percent) and constitutive and bounded rationality (58 percent) models. Very few regional bodies were applying the narrower focused organisational excellence (11 percent), and political and symbolic (6 percent) models. Analysis of the program evaluation capability scores of the regional bodies indicated that the majority of these organisations had high capability (i.e. the mean capability score was 62 percent of the maximum score). Analysis of the evaluation culture of the regional bodies identified that in general, regional bodies applying the higher level evaluation models achieved higher evaluation culture scores, with the aspects of strategic application of evaluation and contribution to knowledge by evaluation significantly correlated with these higher level evaluation models.

Other grouping approaches focused on the regional bodies' evaluation drivers, barriers and practices. There were two driver factors (an improvement related factor and a maintenance focused factor), two barrier factors (a skills and resourcing factor and a technical issues factor) and three practice factors (an intermediate outcomes focused factor, a factor related to assessing need and benefits, and another around measures of appropriateness). Of these categorisations, only the barrier factors showed relationships with other aspects (including evaluation models and some practices) which provided added insight into the monitoring and evaluation of the regional bodies.

A series of key relationships between current monitoring and evaluation practice scores and evaluation models generally indicate that regional bodies operating under the evaluation models with narrower scope (e.g. political and symbolic models) were less likely to be implementing any specific practices listed, while regional bodies operating under the higher level evaluation models (e.g. expanded contextual model) were more likely

to be implementing all of the specific practices listed. While this is somewhat expected, it poses questions for the sector as to how they can increase both higher level model and practice adoption, and which of these is the critical factor – i.e. does practice adoption lead to model adoption or vice versa? And how can the critical factor be influenced?

The evaluation model, capability and culture categorisations provide initial benchmarks for the Australian NRM sector and address both research problem one and problem two. Their relationships with regional body characteristics and practices clarify how regional bodies differ and what relationships exist between their characteristics and their capability and inclination for monitoring and evaluation (research problem one). They also clarify under which evaluation models the regional bodies operate (research problem two).

Aspects reviewed to better understand what is perceived to affect the evaluation capability and culture of the regional bodies included: practice adoption, barriers, satisfaction levels, and partnerships. The regional bodies were generally more satisfied with their biophysical impact assessment practices than their economic and social impact assessment practices, although there was at least one regional body that was well satisfied with each of these individual aspects. This skew could perhaps be expected based on the historical direct connection of these organisations with the biophysical priority areas represented by these impact areas (land, water and biodiversity), with the economic and social aspects raising in profile over time as public-private benefit concepts and reduced funding brought the economic aspects to the fore. The dissatisfaction with the social impact assessment aspects in particular, highlights a key gap as the social theory behind voluntary environmental programs has been raised as a critical knowledge gap required to fully understand the behaviours leading to adoption and to maximise uptake (Kientzel & Kok 2011).

The top three barriers rated by the regional bodies as having most influence on their evaluation practices were lack of time available to undertake monitoring and evaluation, and issues around isolating the impact of their activities from the effects of seasonality and the impact of other groups'/individuals' activities. Despite these barriers, however, adoption levels for most of the practices assessed in this research were moderately high. Ratings of the regional bodies' satisfaction with monitoring and evaluation practices placed economic impact assessment as an issue for the regional bodies, which corresponded with the generally low rating given to practices relating to economic impact assessment. This low adoption may be due to a number of reasons but the relatively consistent dissatisfaction with the implementation appears to indicate that a lack of appropriate methods or lack of skills for economic impact assessment, rather than a lack of awareness of the importance of these practices. As those organisations that rated highly the importance of their economic impact assessment practices also rated highly their satisfaction levels for this monitoring and evaluation area, these organisations may be able to provide learnings from this area for the sector in general.

In addition to identified top three barriers discussed above, the sector specific issue of timescales required for resource condition change to be measurable and the subsequent turn towards the use of surrogate measures was highlighted by series of interrelated issues. This timescales barrier was correlated both with the practice of using surrogate measures for resource condition monitoring and with the barriers associated with isolation of impact (from other activities' impacts and from the effects of seasonality). These relationships could perhaps be expected where groups are attempting to shorten interpretation timescales for meaningful adaptive management but are having difficulty finding acceptable ways to do this. This is somewhat supported by the fact that regional bodies reporting high influence of this timescales barrier were those that recorded lower ratings for the importance of their current use of surrogate measures, possibly indicating that they are yet to identify acceptable surrogate measures to meet their needs. These organisations also rated low their current use of economic impact assessment, their current assessment of project method appropriateness, their cumulative impact assessment, and their assessment of project need. This may indicate a belief that these practices are heavily reliant on resource condition information and the timescales associated with that information therefore reduces the implementation of these practices. Without the information provided by surrogate measures, these practices may continue to have low adoption among this group.

Counter to this barrier effect on practices there were no correlations identified between the barriers or barrier factors and the regional bodies' evaluation models. There was only one difference between the barriers across the model groups: Regional bodies operating within the constitutive and bounded rationality models rated the barrier of the time required for impacts to be measurable higher than regions applying all other models. This raises questions over why the other model groups did not rate this same barrier as highly. Two possible explanations exist that relate well to the place of these models in the evolutionary continuum. Regions applying the higher level expanded contextual model may have overcome the timescales issue through their application of program theory and its related choices of methods and measures. Conversely, those regions applying the narrower focused organisational excellence or political and symbolic models may not have faced this issue due to the very nature of the evaluation questions their drivers direct them to address. The presence of just this one significant relationship between barriers and evaluation models implies that the occurrence of these barriers to evaluation are not specific to regional bodies applying any particular model but can be experienced within any region at any point in the evaluation model framework's evolutionary line.

Consideration of the different governance approaches used within the sector highlighted some differences evident between the evaluation barriers and models of statutory and non-statutory regional bodies, but no differences between their drivers, practices, capability, culture, satisfaction levels or partnerships. The key aspects of difference relate to

the technical barrier of isolating investment impacts from seasonal impacts and the distribution of regional bodies across the different model groups. Both of these could be simple evolutionary differences as these organisations' evaluation processes mature within their specific regional contexts and various externally imposed evaluation requirements. Statutory regional bodies tended to be equally likely to be operating under the two dominant expanded contextual (30 percent) and constitutive and bounded rationality (45 percent) model groups, compared with the dominant constitutive and bounded rationality model among the non-statutory regional bodies (75 percent). Despite this seemingly upward trend in model evolution, 25 percent of the statutory regional bodies were applying the narrower scope (political and symbolic, and organisational excellence) models compared with only 1 percent of non-statutory regional bodies applying these models. The fact that some few non-statutory regional bodies are applying the expanded contextual model (18 percent) appears to indicate that it may simply be that insufficient time has lapsed for this final evolutionary step. The specific requirements posed upon the statutory regional bodies can be seen as not necessarily ensuring that these organisations are operating under the higher level models; and the less specific requirements placed upon the non-statutory regional bodies does not necessarily cause them to adopt the narrower scope evaluation models. In contrast, no differences were identified between statutory and non-statutory regional bodies' program evaluation capability and evaluation culture. This lack of direct relationship indicates that the models applied by regional bodies may well be transitory as they progress up or down the evolutionary line based on their capability and culture.

Several key relationships identified through this research point to strong connections between organisational size and business focus as important factors towards having strong evaluation culture and capability and high level evaluation models. The presence of corporate strategic planning is correlated with a regional body's perception of the importance of the driver of accountability to funding bodies. The implementation of a business approach to managing an organisation—including corporate strategic planning—may give stronger emphasis to being internally driven and accountable rather than to accountability to external parties. The presence of corporate strategic planning is also correlated with a regional body's culture score, highlighting that higher evaluation culture scores were achieved by those regions with corporate strategic plans. When it is acknowledged that (a) the larger regional bodies were more likely to be those that have undertaken corporate strategic planning and were also more likely to have stronger evaluative cultures, (b) culture and capability scores are highly correlated, and (c) capability scores and evaluation models were also correlated, potential opportunities arise for further research to develop strategies around these aspects that optimise the organisational characteristics and practices of the regional bodies to improve the evaluation culture, capability and models of the whole sector.

In summary, the majority of regional bodies are operating within the higher level expanded contextual and constitutive and bounded rationality model

groups and have moderately high level evaluation capability and cultures. Some specific barriers affect the practice adoption of the regional bodies but do not appear to affect their evaluation models. Some key questions have also been raised regarding issues that may influence the future evolution of monitoring and evaluation within the sector and areas, which the sector may choose to take an active role in further researching and directing.

6.3 Methods and limitations

Approaches to understanding the monitoring and evaluation drivers, barriers and practices of Australia's 56 regional bodies have been developed, along with methods for initial categorisation of these organisations' across the suit of categorisation approaches identified from the literature, including:

- Cluster analyses based on demographic characteristics
- Factor analyses of aspects affecting evaluation (drivers and barriers)
- Factor analyses of monitoring and evaluation practices
- Evaluation model identification
- Program evaluation capability calculation
- Evaluation culture estimates

Due to the exploratory nature of this research, these methods provide a baseline of the status of monitoring and evaluation and the factors affecting this across Australia's regional bodies for use in future trend or evolution comparisons where no previous benchmark existed. Preliminary baselines for evaluation capability and culture are basic assessments within the limitations of this research and establish a snapshot of these aspects as appropriate for exploratory research of this nature. While the sample size of 36 was sufficient for these preliminary estimates, specific investment into further research could assist in improving this sample rate and provide a more comprehensive and detailed analysis of this sector's monitoring and evaluation. Further research will be required to build depth into the understanding of these aspects of evaluation within the regional bodies and into the quality of the implementation of this monitoring and evaluation by the regional bodies, which was not assessed.

6.4 Implications for policy, practice and future research

Australia's regional bodies can be grouped by many different categorisations as discussed above. The most appropriate conceptual frameworks for categorisation of organisations so dependent on government funds and where monitoring and evaluation of responses to government requirements and funding is required over time, is through evaluation barrier factors and evaluation models. The high level evaluation models under which the regional bodies generally operate provide a positive base for the long term quality of evaluation in this sector. The implications of organisational size and business focus as discussed above and the different model splits found among the statutory and non-statutory regional bodies provide considerations for future policy decisions within the

sector to assist with identifying opportunities for policy to support long term improvements in evaluation capability and culture.

While the high level evaluation models under which the regional bodies generally operate provide a positive foundation for quality evaluations, further research into the quality of design and implementation of existing evaluation practices and relationships between this quality and other characteristics of the regional bodies and the sector in general could provide useful information towards promoting high quality evaluation where gaps exist. The gap in the area of economic impact assessment should also form part of future research, but sharing of learnings from regions well satisfied in this area could provide early sector improvements in practice in this area. Identification of the differences that led these organisations to achieve satisfactory implementation in this area could also provide means to address this gap over time across the whole sector. Similarly, the dissatisfaction with the social impact assessment aspects highlights a key gap as the social theory behind voluntary environmental programs has been raised as a critical knowledge gap required to fully understand the behaviours leading to adoption and to maximise uptake.

The application of these higher level models also may or may not address the issues raised by the Australian National Audit Office in their reviews of the implementation of the NHT and NAP programs. It is possible that implementation of the higher level models stops at the end of a funding cycle without addressing the on-going evaluation of impact of activities over time until resource condition changes are measurable. Future research on this issue would be required to determine the extent of longer-term, follow-up monitoring of activity impacts.

The high status of the technical barriers surrounding impact isolation provides a suit of policy and practice decisions and opportunities for the sector. A decision on the importance of this impact isolation could release this barrier from its importance, or provide a basis for concerted resourcing and support for addressing the barrier. The influence of the dual barrier factors on most regional bodies has been shown to negatively impact on their capacity to address technical barriers through partnerships and this provides another opportunity where concerted resourcing and support for addressing the logistics barriers could release the regional bodies to expand their partnerships towards addressing the technical barriers.

The application of higher level evaluation models and higher evaluation cultures within regional bodies raises confidence that these organisations will be able to support the ‘call for empirical research on environmental outcomes, especially in the context of emerging, complex environmental problems like climate change’ as raised by Niles and Lubell (2012) who see this as critical to driving policy sciences forward through providing better observations of causal processes in policy settings. The lack of connections between some regional bodies and the research institutions, however, is likely to impact on the capacity of these regions to participate and to drive policy relevant to their regions and issues.

Further research to establish the impact of evaluation evolution itself on the distribution of regional bodies among the different categorisations applied would also provide information to support learning within the sector. While the initial categorisations developed through this research provide a baseline for later comparison, future temporal analyses may provide further insight into how much of the identified differences were simply due to the different rates of evolution within each regional body and how much these rates of evolution differ within contextual differences such as governance structure, expected technical evaluation sophistication or imposed evaluation and reporting requirements.

A summary of the areas where future research could benefit understanding of the relationships between aspects influencing monitoring and evaluation and their trends over time includes:

- Establishment of increased differentiation between regional bodies applying the constitutive and bounded rationality models would provide better understanding of their variability and their potential for evolution to the operation within the expanded contextual model. The use of case studies of 'typical' regional bodies operating within each model group could be used to provide further depth of understanding of these groups.
- Greater depth of analysis of evaluation capability and culture than was possible through this research would provide more comprehensive understanding of these critical aspects effecting evaluation practice and their trends over time within the sector.
- Determination of whether or not low barriers ratings were due to a regional body's level of evaluation sophistication (i.e. haven't considered that aspect yet, or have overcome that barrier) and which end of the continuum dominates evaluation practices.
- Follow-up research to determine if the planned changes to monitoring and evaluation practices resulted in any significant changes in satisfaction levels (i.e. were the right changes planned? Were they implemented? Did they improve the situation?).
- Determination of the quality of implementation of the practices reviewed in this research and the relationships between this quality and other aspects such as satisfaction levels, capability and culture.
- Identification of optimum and limiting conditions for evolution of evaluation within Australia's regional bodies (e.g. organisation size, governance structure) including consideration of the implications for the sector as a whole based on whether or not the wide variety of context (including organisational and regional demographic characteristics) surrounding regional bodies will promote or limit the sharing and transferability of learnings relating to evaluation evolution.
- Determination of the extent to which the identified differences in evaluation models were simply due to the different rates of evolution of the regional bodies and how much these rates of evolution differ within contextual differences surrounding each organisation.

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Appendix A. Statistics

List of tables

List of appendix figures

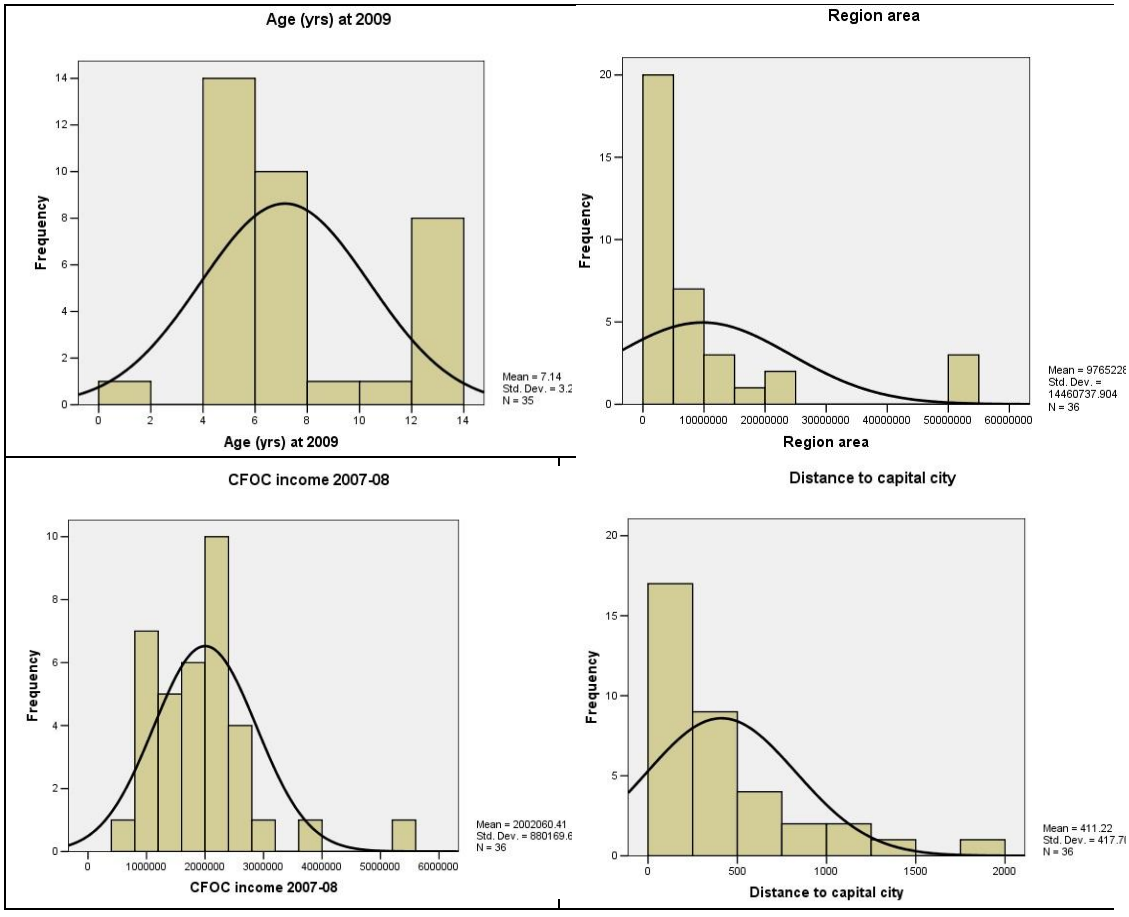
A.1. Demographics

Table A. 1: State and Territory regional NRM organisations

STATE/TERRITORY	REGIONAL NRM ORGANISATIONS	NO.
Australian Capital Territory	• ACT Natural Resource Management Board	1
New South Wales	• Border Rivers-Gwydir Catchment Management Authority • Central West Catchment Management Authority • Hawkesbury-Nepean Catchment Management Authority • Hunter-Central Rivers Catchment Management Authority • Lachlan Catchment Management Authority • Lower Murray Darling Catchment Management Authority • Murray Catchment Management Authority • Murrumbidgee Catchment Management Authority • Namoi Catchment Management Authority • Northern Rivers Catchment Management Authority • Southern Rivers Catchment Management Authority • Sydney Metro Catchment Management Authority • Western Catchment Management Authority	13
Northern Territory	• NT Natural Resource Management Board	1
Queensland	• Queensland Murray Darling Committee Inc • NQ Dry Tropics • Burnett Mary Regional Group for NRM • Cape York Peninsula Development Association • Condamine Alliance • Desert Channels Queensland Inc • Fitzroy Basin Association • Mackay Whitsunday Regional Strategy Group Inc • Northern Gulf NRM Group • South East Queensland Catchments • Southern Gulf Catchments Ltd • South West NRM Inc • Torres Strait NRM Board • Terrain NRM	14
South Australia	• Alinytjara Wilurara NRM Board • Eyre Peninsula NRM Board • Kangaroo Island Natural Resources Board • Adelaide and Mount Lofty Ranges NRM Board • South Australian Murray-Darling Basin Integrated NRM Group • Northern and Yorke Integrated NRM Committee • South Australian Arid Lands NRM Board • South East Natural Resource Consultative Committee	8
Tasmania	• South Regional Natural Resource Management (NRM) Committee • NRM North Committee • Cradle Coast NRM Committee	3

STATE/TERRITORY	REGIONAL NRM ORGANISATIONS	NO.
Victoria	• Corangamite Catchment Management Authority • East Gippsland Catchment Management Authority • Glenelg Hopkins Catchment Management Authority • Goulburn Broken Catchment Management Authority • Mallee Catchment Management Authority • North Central Catchment Management Authority • North East Catchment Management Authority • Port Phillip and Westernport Catchment Management Authority • West Gippsland Catchment Management Authority • Wimmera Catchment Management Authority	10
Western Australia	• Avon Catchment Council • Northern Agricultural Catchments Council • Rangelands Regional NRM Coordinating Group • South Coast NRM Inc • South West Catchments Council • Swan Catchment Council	6

Source: Australian Government NRM Team (2008c)



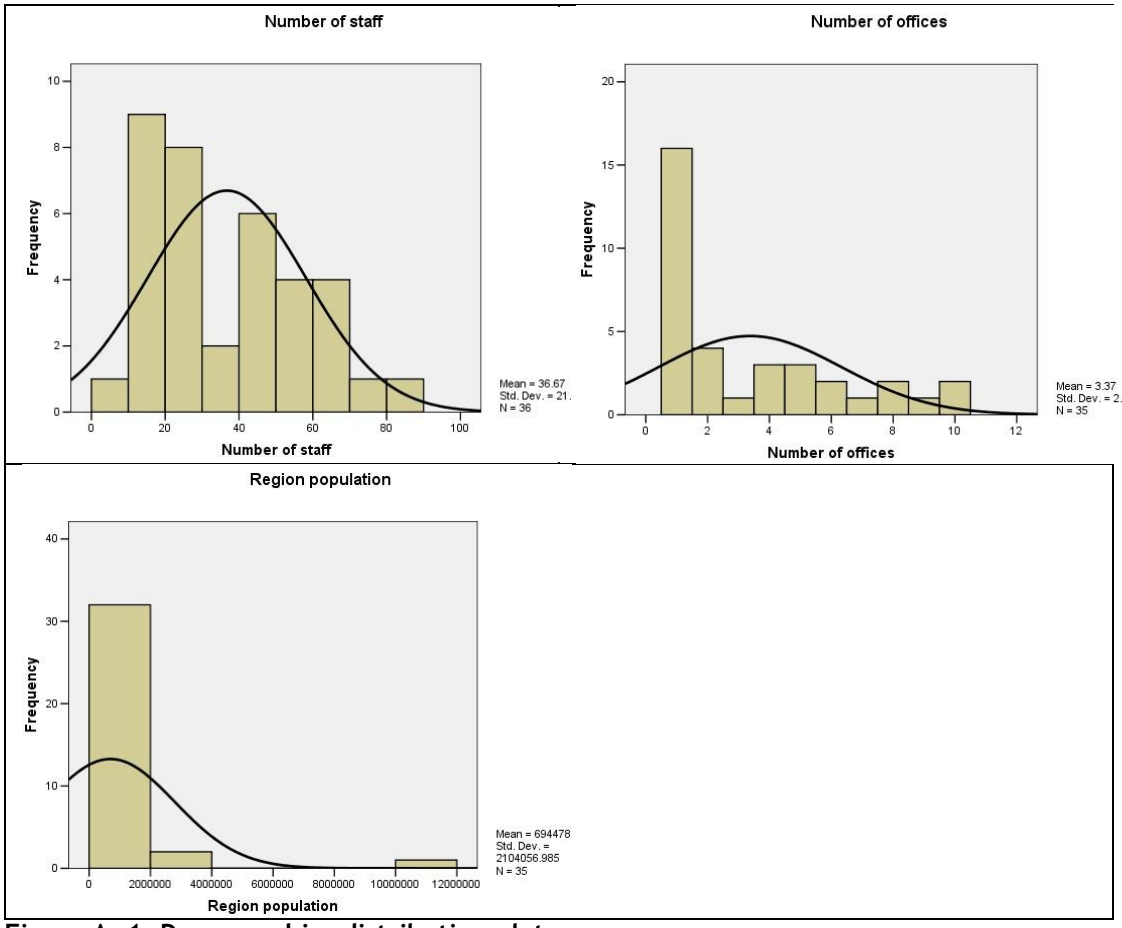


Figure A. 1: Demographics distribution plots

A.2. Demographic cluster analyses

All demographic variables included: State/Territory, statutory status, age, presence of corporate strategic planning, regional area, regional population, number of staff, presence of dedicated monitoring and evaluation staff, amount of Caring for Our Country funding received in 2009-2010, proportion of government funding to total revenue, distance of head office from capital city. The standardisation undertaken for demographic characteristics are provided in **Table A. 2**.

Table A. 2: Demographic parameter categorisation

RATING	CATEGORY	NUMBER OF REGIONAL BODIES
AREA		
1	<2 Mha	7
3	2-4.9 Mha	13
5	5-9.9 Mha	7
7	10-49.9 Mha	6
10	≥50 Mha	3
POPULATION		
1	<20k	4
2	20-49.9k	5
4	50-99.9k	6
6	100-199.9k	9
8	200-499.9k	5

RATING	CATEGORY	NUMBER OF REGIONAL BODIES
10	≥500k	6
AGE		
1	<5 yrs	3
5	5-9 yrs	23
10	≥10 yrs	9
NUMBER OF STAFF		
1	<20	10
3	20-39	10
5	40-49	6
7	50-59	4
10	≥60	6
CFOC 2007-08 REVENUE		
1	<$1.0m	3
3	$1.0-1.49m	8
5	$1.5-1.99m	8
7	$2.0-2.49m	11
10	≥$2.5m	6

Table A. 3: Clustering distances (all demographic variables)

CLUSTERS JOINING		AT DISTANCE (EUCLIDEAN)	NUMBER OF MEMBERS
Case 12	Case 11	0.905	2
Case 14	Case 8	1.044	2
Case 33	Case 25	1.140	2
Case 36	Case 10	1.206	2
Case 31	Case 20	1.225	2
Case 19	Case 14	1.234	3
Case 28	Case 21	1.414	2
Case 13	Case 7	1.508	2
Case 18	Case 4	1.581	2
Case 5	Case 2	1.667	2
Case 35	Case 17	1.706	2
Case 12	Case 19	1.853	5
Case 33	Case 18	1.916	4
Case 13	Case 31	2.063	4
Case 27	Case 1	2.089	2
Case 28	Case 32	2.098	3
Case 22	Case 36	2.107	3
Case 30	Case 24	2.217	2
Case 23	Case 3	2.276	2
Case 16	Case 12	2.394	6
Case 28	Case 29	2.459	4
Case 13	Case 30	2.572	6
Case 34	Case 22	2.580	4
Case 33	Case 28	2.612	8
Case 35	Case 16	2.792	8
Case 34	Case 6	2.821	5
Case 23	Case 26	2.854	3

CLUSTERS JOINING		AT DISTANCE (EUCLIDEAN)	NUMBER OF MEMBERS
Case 15	Case 35	2.887	9
Case 27	Case 33	2.930	10
Case 9	Case 13	3.286	7
Case 27	Case 5	3.381	12
Case 9	Case 27	3.434	19
Case 34	Case 15	3.529	14
Case 34	Case 23	3.655	17
Case 9	Case 34	3.923	36

Distance Metric: Euclidean Distance
Average Linkage Method

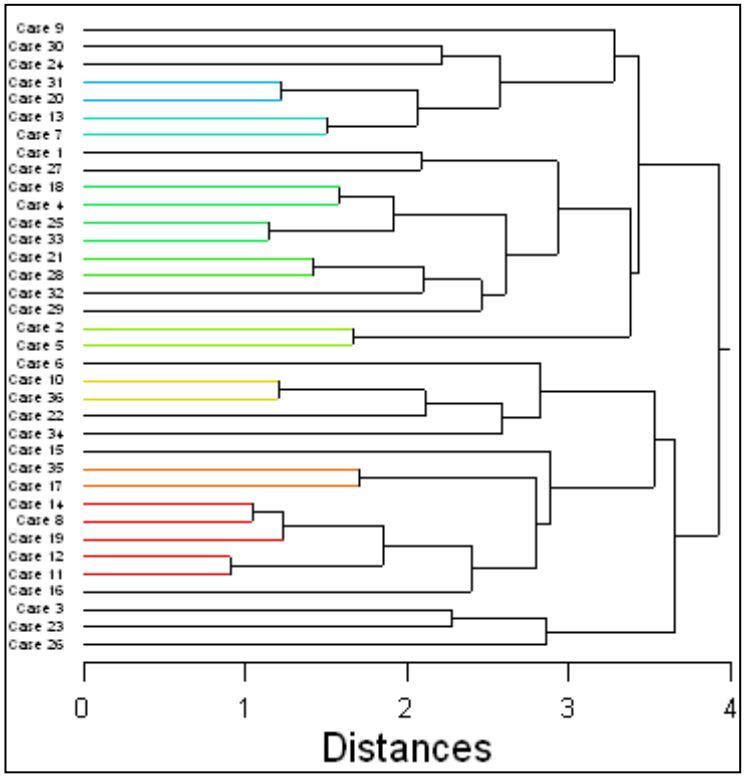


Figure A. 2: Cluster tree diagram (all demographic variables)

Table A. 4: Clustering distances (redundant variables removed)

CLUSTERS JOINING		AT (EUCLIDEAN) DISTANCE	NO. OF MEMBERS
Case 35	Case 17	0.447	2
Case 2	Case 1	0.500	2
Case 25	Case 7	0.632	2
Case 36	Case 10	0.632	2
Case 35	Case 19	0.676	3
Case 12	Case 11	0.894	2
Case 30	Case 9	0.913	2
Case 25	Case 4	0.956	3
Case 28	Case 21	1.000	2
Case 34	Case 22	1.080	2
Case 2	Case 5	1.163	3

CLUSTERS JOINING		AT (EUCLIDEAN) DISTANCE	NO. OF MEMBERS
Case 31	Case 13	1.265	2
Case 35	Case 8	1.329	4
Case 31	Case 20	1.407	3
Case 23	Case 3	1.483	2
Case 33	Case 32	1.483	2
Case 35	Case 14	1.507	5
Case 2	Case 29	1.687	4
Case 28	Case 33	1.733	4
Case 36	Case 34	1.890	4
Case 24	Case 30	1.927	3
Case 18	Case 25	1.932	4
Case 18	Case 27	2.083	5
Case 26	Case 23	2.156	3
Case 12	Case 35	2.157	7
Case 12	Case 16	2.303	8
Case 18	Case 2	2.339	9
Case 24	Case 31	2.707	6
Case 36	Case 6	2.885	5
Case 18	Case 28	3.046	13
Case 15	Case 36	3.207	6
Case 15	Case 12	3.388	14
Case 26	Case 24	3.556	9
Case 18	Case 26	3.909	22
Case 15	Case 18	4.359	36

Distance Metric: Euclidean Distance
Average Linkage Method
Removed redundant variables - Variables included: Statutory status, age, presence of dedicated monitoring and evaluation staff, proportion of government revenue to total revenue, number of offices, distance of head office from capital city.

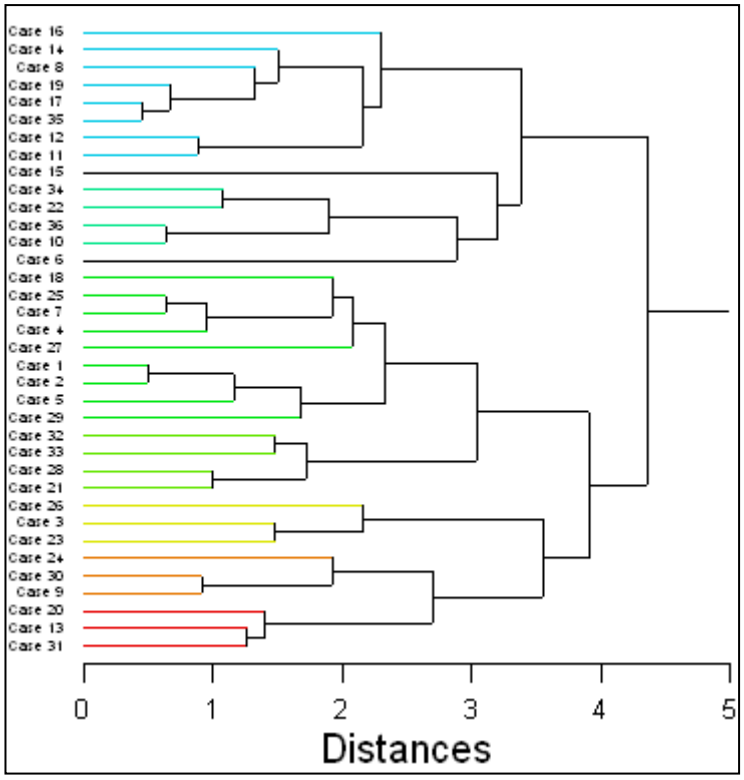


Figure A. 3: Cluster tree diagram (redundant variables removed)

A.3. Survey response distributions

Table A. 5: Driver ranking (n=36)

DRIVER	MEAN SCORE	% RESPONSES WITH SCORE OF 7 OR MORE
Accountability to funding organisations	8.4	92%
Highlighting project success	8.2	81%
Internal program improvement	8.2	83%
Tracking achievement of project outcomes	8.2	78%
Sourcing future funding	7.5	75%
Reporting progress to the regional/catchment community	7.1	61%
Providing information to support policy decisions	7.0	58%
Improvement of staff and community involvement in projects	6.8	61%

Table A. 6: Barrier ranking (n=36)

BARRIER	MEAN SCORE	% RESPONSES WITH SCORE OF 7 OR MORE
Difficulty isolating the impact of activities from other factors such as seasonal variation	7.1	69%
Lack of available staff time (i.e. staff are too busy with other business aspects)	7.1	69%
Difficulty isolating the impact of specific activities from other activities	7.0	67%
Changes in resource condition take too long to measure	6.3	50%

BARRIER	MEAN SCORE	% RESPONSES WITH SCORE OF 7 OR MORE
Lack of funds to source the required skills and equipment	6.0	50%
Difficulty in obtaining monitoring results that are immediately useful to field staff or land managers (i.e. without extensive data analysis)	5.7	50%
Difficulty communicating the change in resource condition due to the use of indirect/surrogate measures	5.0	33%
Difficulty finding methods that have been tested and proven suitable for our region	5.0	39%
Difficulty finding methods that are seen as appropriate by the reporting audience (i.e. the people the results are for)	4.7	31%
Lack of availability of specialist skills (i.e. can't access the specialists you need)	4.2	25%
Difficulty in explaining complex monitoring results to non-technical people	4.1	28%
Lack of availability of equipment (i.e. can't access the equipment you need)	3.0	11%

Table A. 7: Current practice ranking and descriptive statistics (n=36)

CURRENT PRACTICE	MEAN SCORE	STANDARD DEVIATION	RANGE	% RESPONSES WITH SCORE OF 7 OR MORE
Project output tracking (e.g. length of fencing, number of landholders involved)	8.39	1.554	5	89%
Assessment of project cost and efficiency	7.22	1.914	8	64%
Assessment of changes in awareness, skills, knowledge and attitudes of project participants (relating to the project purpose)	7.03	2.261	8	58%
Assessment of changes in land/water/ nature managers' practices due to the project	6.81	2.606	10	56%
Assessment of changes in resource condition at the site of on-ground work	6.53	2.580	9	44%
Assessment of appropriateness of project methods (engagement, on-ground works etc.) against the project purpose	6.28	2.700	9	56%
Assessment of other changes at the site of on-ground work as surrogates for resource condition change (e.g. ground cover as surrogate for water quality)	6.17	2.501	10	47%
Assessment of appropriateness of site selection against the project purpose	6.06	2.540	9	42%
Assessment of flow-on effects of projects (i.e. expansion of learnings or practices from participants to non-participants outside the project)	5.61	2.707	9	39%
Assessment of the need for the program (i.e. the cumulative suite of projects such as water quality projects mentioned above)	5.53	2.646	10	39%

CURRENT PRACTICE	MEAN SCORE	STANDARD DEVIATION	RANGE	% RESPONSES WITH SCORE OF 7 OR MORE
Assessment of cumulative impact of multiple projects within a program (e.g. effect of all water projects on the region's water quality)	5.50	2.741	9	42%
Assessment of the need for individual projects	4.81	2.703	10	31%
Assessment of economic impacts of the project on participants	4.14	2.565	10	25%

Table A. 8: Comparison of mean ratings for current practices

CURRENT PRACTICE	MEAN SCORE	COMPARISON[1]
Economic impact assessment	4.14	-
Outputs analysis	8.39	t=-9.943, df=35, p<0.01
Cost efficiency evaluation	7.22	t=-7.207, df=35, p<0.01
Resource condition change assessment	6.53	t=-5.593, df=35, p<0.01
Surrogate indicator assessment	6.17	t=-4.751, df=35, p<0.01
KASAP change analysis	7.03	t=-6.762, df=35, p<0.01
Practice change evaluation	6.81	t=-6.248, df=35, p<0.01
Flow-on effects analysis	5.61	t=-3.441, df=35, p<0.01
Method appropriateness assessment	6.28	t=-5.001, df=35, p<0.01
Site appropriateness evaluation	6.06	t=-4.494, df=35, p<0.01
Cumulative impact assessment	5.50	t=-3.184, df=35, p<0.01
Project need evaluation	4.81	t=-1.570, df=35, p>0.05
Program need evaluation	5.53	t=-3.254, df=35, p<0.01

[1] Comparison of economic impact assessment scores against mean score of other practices

Table A. 9: Satisfaction ranking

IMPACT AREA	MEAN SCORE	N	% OF RBS WITH 7 OR MORE SCORE
Water	5.2	34	31%
Biodiversity	5.2	35	33%
Land	5.0	35	22%
Social	3.6	36	17%
Economic	2.5	33	6%

Table A. 10: Partner ranking

PARTNER TYPE	MEAN SCORE	N	% OF RBS WITH 7 OR MORE SCORE
State Government	6.4	36	58%
Local Government	2.9	36	11%
Consultant	5.2	36	39%
Community Group	5.2	36	33%
Land Manager	5.9	35	43%
Industry Group	3.5	36	17%
Non-Government Organisation	4.1	36	22%
Researcher	4.3	36	28%

A.4. Correlation tables

Table A. 12: Demographic correlations (Spearman's Rho)

CHARACTERISTIC	STATUTORY STATUS	AGE (YRS) AT 2009	NUMBER OF STAFF	REGION AREA	REGION POPULATION	CFOC INCOME 2007-08	NUMBER OF OFFICES	DISTANCE TO CAPITAL CITY	CORPORATE STRATEGIC PLANNING	PROPORTION OF GOVT FUNDING
Statutory Status	-	-.370(*) n=35	.635(**) n=36	-.172 n=36	.000 n=35	.129 n=36	.550(**) n=35	-.008 n=36	.236 n=35	-.396(*) n=34
Age (yrs) at 2009	-.370(*) n=35	-	-.127 n=35	.024 n=35	-.117 n=34	-.030 n=35	-.507(**) n=34	.127 n=35	-.062 n=35	.300 n=34
Number of staff	.635(**) n=36	-.127 n=35	-	-.056 n=36	.243 n=35	.544(**) n=36	.549(**) n=35	-.112 n=36	.370(*) n=35	-.431(*) n=34
Region area	-.172 n=36	.024 n=35	-.056 n=36	-	-.461(**) n=35	.154 n=36	.263 n=35	.525(**) n=36	-.023 n=35	.139 n=34
Region population	.000 n=35	-.117 n=34	.243 n=35	-.461(**) n=35	-	.141 n=35	-.066 n=34	-.470(**) n=35	.390(*) n=34	-.149 n=33
CFOC income 2007-08	.129 n=36	-.030 n=35	.544(**) n=36	.154 n=36	.141 n=35	-	.394(*) n=35	-.108 n=36	.104 n=35	-.174 n=34
Number of offices	.550(**) n=35	-.507(**) n=34	.549(**) n=35	.263 n=35	-.066 n=34	.394(*) n=35	-	.114 n=35	.230 n=34	-.619(**) n=33
Distance to capital city	-.008 n=36	.127 n=35	-.112 n=36	.525(**) n=36	-.470(**) n=35	-.108 n=36	.114 n=35	-	-.087 n=35	.115 n=34
Corporate Strategic Planning	.236 n=35	-.062 n=35	.370(*) n=35	-.023 n=35	.390(*) n=34	.104 n=35	.230 n=34	-.087 n=35	-	-.228 n=34
Proportion of Govt funding	-.396(*) n=34	.300 n=34	-.431(*) n=34	.139 n=34	-.149 n=33	-.174 n=34	-.619(**) n=33	.115 n=34	-.228 n=34	-

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 13: Demographic correlations with drivers (Spearman's Rho)

DRIVER	DEMOGRAPHIC CHARACTERISTIC									
	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)	CORPORATE STRATEGIC PLANNING (N=35)	PROPORTION OF GOVT FUNDING (N=34)
Accountability	-.120	.078	-.160	.019	-.106	-.093	-.260	.123	-.349(*)	.054
Sourcing funding	-.057	.108	-.164	-.317	-.017	-.108	-.257	-.265	-.220	.064
Informing policy	.011	.089	.062	-.263	.169	.053	-.122	-.142	-.012	-.072
Program improvement	-.317	.108	-.281	.026	.025	-.209	-.358(*)	-.038	-.006	.239
Outcome tracking	-.233	.113	-.100	.076	-.004	-.048	-.225	-.066	-.105	.050
Highlighting successes	-.151	.151	-.113	.025	.124	-.038	-.203	-.014	.095	.060
Community engagement	-.174	.112	.109	-.051	.242	-.091	-.066	.000	.239	-.040
Reporting to community	-.280	.259	-.156	-.080	.098	-.069	-.324	-.234	.003	.237

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 14: Driver correlations (Spearman's Rho) (n=36)

DRIVER	ACCOUNTABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVEMENT	OUTCOME TRACKING	HIGHLIGHTING SUCCESSES	COMMUNITY ENGAGEMENT	REPORTING TO COMMUNITY
Accountability	-	.659(**)	.166	.301	.645(**)	.451(**)	.332(*)	.455(**)
Sourcing funding	.659(**)	-	.150	.174	.341(*)	.236	.265	.503(**)
Informing policy	.166	.150	-	.394(*)	.311	.379(*)	.243	.390(*)
Program improvement	.301	.174	.394(*)	-	.624(**)	.702(**)	.505(**)	.625(**)
Outcome tracking	.645(**)	.341(*)	.311	.624(**)	-	.815(**)	.530(**)	.702(**)
Highlighting successes	.451(**)	.236	.379(*)	.702(**)	.815(**)	-	.533(**)	.700(**)
Community engagement	.332(*)	.265	.243	.505(**)	.530(**)	.533(**) n=36	-	.691(**)
Reporting to community	.455(**)	.503(**)	.390(*)	.625(**)	.702(**)	.700(**)	.691(**)	-

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 15: Demographic correlations with barriers (Spearman's Rho)

BARRIER	DEMOGRAPHIC CHARACTERISTIC									
	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)	CORPORATE STRATEGIC PLANNING (N=35)	PROPORTION OF GOVT FUNDING (N=34)
Equipment	-.120	.196	.131	.124	.111	-.130	.063	.015	-.015	.114
Skills	.046	.132	.265	.222	-.021	.056	.290	.018	.131	-.103
Time	-.033	.067	.039	.164	-.071	-.014	.064	.008	-.190	.132
Funds	-.109	.248	.055	.183	-.021	.061	-.144	.038	-.143	.115
Impact time	.060	.006	.014	.307	-.003	-.068	.033	.065	.128	.268
Use of surrogates	.220	.222	.322	.138	.066	.336(*)	.242	-.149	-.085	.015
Method complexity	.152	.052	.356(*)	-.079	.313	.065	.252	-.255	.265	-.085
Immediacy of results	-.041	.382(*)	.149	.426(**)	-.199	.014	.047	.347(*)	-.023	.173
Appropriate methods	.100	.199	.454(**)	.126	.066	.165	.152	-.060	.076	.068
Proven methods	-.062	.102	.243	.251	.094	-.044	-.004	.087	.032	.097
Activity isolation	.269	.236	.295	.224	-.023	-.011	.014	.140	.076	.182
Seasonality isolation	.338(*)	.160	.330(*)	.217	-.119	.031	.042	.313	-.009	.097

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 16: Barrier correlations (Spearman's Rho) (n=36)

BARRIER	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Equipment	1.000	.698(**)	.037	.371(*)	.153	.424(**)	.542(**)	.404(*)	.589(**)	.497(**)	.202	.088
Skills	.698(**)	1.000	.196	.477(**)	.160	.499(**)	.579(**)	.521(**)	.644(**)	.556(**)	.266	.052
Time	.037	.196	1.000	.390(*)	.147	.306	-.017	.172	-.050	.230	.131	-.095
Funds	.371(*)	.477(**)	.390(*)	1.000	.313	.383(*)	.157	.279	.327	.358(*)	.196	.037
Impact time	.153	.160	.147	.313	1.000	.463(**)	.314	.304	.276	.416(*)	.511(**)	.432(**)
Use of surrogates	.424(**)	.499(**)	.306	.383(*)	.463(**)	1.000	.485(**)	.397(*)	.524(**)	.401(*)	.508(**)	.321
Method complexity	.542(**)	.579(**)	-.017	.157	.314	.485(**)	1.000	.381(*)	.645(**)	.403(*)	.338(*)	.170
Immediacy of results	.404(*)	.521(**)	.172	.279	.304	.397(*)	.381(*)	1.000	.682(**)	.765(**)	.605(**)	.519(**)
Appropriate methods	.589(**)	.644(**)	-.050	.327	.276	.524(**)	.645(**)	.682(**)	1.000	.737(**)	.509(**)	.469(**)
Proven methods	.497(**)	.556(**)	.230	.358(*)	.416(*)	.401(*)	.403(*)	.765(**)	.737(**)	1.000	.632(**)	.517(**)
Activity isolation	.202	.266	.131	.196	.511(**)	.508(**)	.338(*)	.605(**)	.509(**)	.632(**)	1.000	.782(**)
Seasonality isolation	.088	.052	-.095	.037	.432(**)	.321	.170	.519(**)	.469(**)	.517(**)	.782(**)	1.000

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 17: Demographic correlations with practices (Spearman's Rho)

PRACTICE	DEMOGRAPHIC CHARACTERISTIC									
	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)	CORPORATE STRATEGIC PLANNING (N=35)	PROPORTION OF GOVT FUNDING (N=34)
Outputs	.067	-.160	.023	.077	-.217	.098	.055	.261	-.096	-.144
Cost efficiency	-.049	-.047	.165	.015	-.026	.394(*)	-.055	.018	-.120	-.120
Resource condition	.090	-.073	.092	-.075	-.065	.090	.172	.080	.096	-.188
Surrogate indicators	.115	.017	.264	-.121	.212	.172	.197	-.265	.097	-.187
KASA	-.030	.122	-.035	.147	.067	.071	-.200	-.096	.044	-.131
Practice change	-.016	.114	.037	.053	.082	.020	-.139	.001	.152	-.234
Economics	.196	-.018	.263	-.265	.146	.059	.201	-.197	-.032	-.425(*)
Flow on effects	.103	.055	.138	-.261	.260	.087	-.020	-.407(*)	-.015	-.250
Method appropriateness	-.011	.079	.112	-.170	.090	.144	-.100	-.185	-.148	-.150
Site appropriateness	-.090	.120	.046	.107	-.052	.170	-.130	.122	.023	-.130
Cumulative effects	-.071	.195	.030	-.163	.218	.126	-.075	-.075	.020	-.217
Project need	-.052	.099	.098	-.162	.158	.261	.160	-.155	-.169	-.179
Program need	.033	-.085	.230	-.069	.357(*)	.269	.268	-.041	.222	-.292

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 18: Practices correlations (Spearman's Rho) (n=36)

PRACTICE	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATENESS	SITE APPROPRIATENESS	CUMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Outputs	-	.454(**)	.364(*)	.014	.198	.264	-.184	.058	.071	.374(*)	-.039	-.148	-.014
Cost efficiency	.454(**)	-	.487(**)	.025	.305	.429(**)	.216	.298	.456(**)	.541(**)	.342(*)	.121	.220
Resource condition	.364(*)	.487(**)	-	.484(**)	.249	.469(**)	.516(**)	.465(**)	.504(**)	.548(**)	.543(**)	.296	.487(**)
Surrogate indicators	.014	.025	.484(**)	-	.415(*)	.368(*)	.466(**)	.679(**)	.464(**)	.291	.520(**)	.379(*)	.414(*)
KASA	.198	.305	.249	.415(*)	-	.779(**)	.235	.689(**)	.568(**)	.434(**)	.584(**)	.097	.094
Practice change	.264	.429(**)	.469(**)	.368(*)	.779(**)	-	.325	.652(**)	.559(**)	.492(**)	.700(**)	.187	.294
Economics	-.184	.216	.516(**)	.466(**)	.235	.325	-	.623(**)	.636(**)	.296	.509(**)	.443(**)	.444(**)
Flow on effects	.058	.298	.465(**)	.679(**)	.689(**)	.652(**)	.623(**)	-	.695(**)	.354(*)	.581(**)	.328	.261
Method appropriateness	.071	.456(**)	.504(**)	.464(**)	.568(**)	.559(**)	.636(**)	.695(**)	-	.539(**)	.641(**)	.486(**)	.440(**)
Site appropriateness	.374(*)	.541(**)	.548(**)	.291	.434(**)	.492(**)	.296	.354(*)	.539(**)	-	.424(**)	.243	.430(**)
Cumulative effects	-.039	.342(*)	.543(**)	.520(**)	.584(**)	.700(**)	.509(**)	.581(**)	.641(**)	.424(**)	-	.552(**)	.572(**)
Project need	-.148	.121	.296	.379(*)	.097	.187	.443(**)	.328	.486(**)	.243	.552(**)	-	.741(**)
Program need	-.014	.220	.487(**)	.414(*)	.094	.294	.444(**)	.261	.440(**)	.430(**)	.572(**)	.741(**)	-

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 19: Practice and driver correlations (Spearman's Rho) (n=36)

PRACTICE	DRIVERS							
	ACCOUNTABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVEMENT	OUTCOME TRACKING	HIGHLIGHTING SUCCESSES	COMMUNITY ENGAGEMENT	REPORTING TO COMMUNITY
Outputs	.352(*)	.186	-.023	.323	.347(*)	.319	.151	.134
Cost efficiency	.548(**)	.322	.184	.099	.413(*)	.242	.187	.249
Resource condition	.384(*)	.338(*)	.481(**)	.371(*)	.443(**)	.410(*)	.417(*)	.395(*)
Surrogate indicators	.152	.113	.495(**)	.243	.317	.259	.295	.456(**)
KASA	.418(*)	.219	.284	.342(*)	.493(**)	.327	.187	.410(*)
Practice change	.591(**)	.423(*)	.328	.364(*)	.521(**)	.351(*)	.416(*)	.484(**)
Economics	.046	.065	.456(**)	.049	.236	.129	.331(*)	.222
Flow on effects	.324	.345(*)	.471(**)	.262	.423(*)	.310	.289	.470(**)
Method appropriateness	.232	.095	.530(**)	.384(*)	.466(**)	.279	.331(*)	.426(**)
Site appropriateness	.480(**)	.156	.217	.554(**)	.669(**)	.609(**)	.375(*)	.377(*)
Cumulative effects	.448(**)	.256	.555(**)	.275	.373(*)	.259	.315	.402(*)
Project need	-.020	.006	.416(*)	.153	.131	.031	.075	.162
Program need	.080	-.055	.454(**)	.377(*)	.281	.334(*)	.427(**)	.312

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 20: Practice and barrier correlations (Spearman's Rho) (n=36)

PRACTICE	BARRIER											
	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Outputs	-.351(*)	-.407(*)	-.041	-.142	-.139	-.442(**)	-.466(**)	-.054	-.364(*)	-.209	-.159	-.059
Cost efficiency	-.250	-.261	-.153	.102	-.146	-.040	-.053	.097	.024	-.078	-.028	-.019
Resource condition	-.098	-.230	-.363(*)	-.244	-.308	-.273	.078	.020	-.025	-.162	-.048	.076
Surrogate indicators	.105	.113	-.055	-.002	-.382(*)	-.088	.191	-.025	.127	-.049	-.035	-.054
KASA	-.226	-.278	.034	.127	-.252	-.219	-.271	-.197	-.327	-.230	-.002	-.041
Practice change	.014	-.167	-.061	.197	-.196	-.128	-.070	-.149	-.258	-.200	-.007	-.068
Economics	.181	.087	-.252	-.113	-.379(*)	.048	.283	-.023	.244	.037	-.081	-.001
Flow on effects	.053	-.129	-.067	.131	-.328	-.057	.057	-.247	-.043	-.237	-.159	-.131
Method appropriateness	-.123	-.381(*)	-.147	-.109	-.418(*)	-.135	-.199	-.160	-.120	-.164	-.033	.019
Site appropriateness	-.355(*)	-.422(*)	-.216	-.163	-.029	-.260	-.084	.153	-.066	.016	.055	.239
Cumulative effects	-.066	-.139	-.180	.097	-.358(*)	-.116	.076	-.145	-.130	-.237	.000	-.099
Project need	-.036	-.170	-.178	-.303	-.363(*)	.072	.053	-.043	.014	-.207	-.065	-.034
Program need	-.020	-.068	-.218	-.280	-.250	.021	.154	.117	.111	.057	.121	.040

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 21: Demographic characteristics and satisfaction levels correlations (Spearman's Rho)

MONITORING AND EVALUATION AREA	DEMOGRAPHIC CHARACTERISTIC									
	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)	CORPORATE STRATEGIC PLANNING (N=35)	PROPORTION OF GOVT FUNDING (N=34)
Water quality and waterway health	.103	.250	.195	-.271	.101	.261	-.094	-.249	.026	-.372(*)
Biodiversity and habitat condition	.084	-.070	.013	-.075	-.046	.203	.001	-.106	.160	-.302
Land condition and soil health	-.046	-.190	-.053	.000	-.030	.027	-.016	.067	.032	-.190
Social impacts	-.054	-.016	-.091	-.011	.093	.012	-.129	-.017	.073	-.307
Economic impacts	.014	-.101	-.007	.013	-.093	-.130	.186	.057	.219	-.414(*)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 22: Satisfaction level correlations (Spearman's Rho) (n=36)

MONITORING AND EVALUATION AREA	WATER QUALITY AND WATERWAY HEALTH	BIODIVERSITY AND HABITAT CONDITION	LAND CONDITION AND SOIL HEALTH	SOCIAL IMPACTS	ECONOMIC IMPACTS
Water quality and waterway health	-	.552(**)	.316	.472(**)	.198
Biodiversity and habitat condition	.552(**)	-	.756(**)	.618(**)	.296
Land condition and soil health	.316	.756(**)	-	.524(**)	.234
Social impacts	.472(**)	.618(**)	.524(**)	-	.469(**)
Economic impacts	.198	.296	.234	.469(**)	-

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 23: Satisfaction and planned changes correlations (Spearman's Rho)

CHANGE ASPECT	WATER IMPACTS	BIODIVERSITY IMPACTS	LAND IMPACTS	SOCIAL IMPACTS	ECONOMIC IMPACTS
Changes planned (n=36)	.124	.103	-.013	.193	-.090
Timeframe for changes (n=33)	-.381(*)	-.381(*)	-.286	-.318	-.056

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 24: Partnership correlations (Spearman's Rho)

PARTNER	STATE GOVERNMENT (N=36	LOCAL GOVERNMENT (N=36)	CONSULTANT S (N=36	COMMUNITY GROUPS	LAND MANAGERS (N=35)	INDUSTRY GROUPS (N=36)	NGOS (N=36)	RESEARCHERS (N=36)
State government	-	.294	.218	.329(*)	.248	.153	.179	.482(**)
Local government	.294	-	-.103	.459(**)	.380(*)	.434(**)	.217	.429(**)
Consultants	.218	-.103	-	.087	.293	.030	-.057	.083
Community groups	.329(*)	.459(**)	.087	-	.442(**)	.209	.340(*)	.440(**)
Land managers	.248	.380(*)	.293	.442(**)	-	.088	-.079	.167
Industry groups	.153	.434(**)	.030	.209	.088	-	.559(**)	.549(**)
NGOs	.179	.217	-.057	.340(*)	-.079	.559(**)	-	.488(**)
Researchers	.482(**)	.429(**)	.083	.440(**)	.167	.549(**)	.488(**)	-

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 25: Partnership correlations with demographics (Spearman's Rho)

PARTNER	STATUTORY STATUS	AGE (YRS) AT 2009	NUMBER OF STAFF	REGION AREA	REGION POPULATION	CFOC INCOME 2007-08	NUMBER OF OFFICES	DISTANCE TO CAPITAL CITY
State government	.005 N=36	-.159 N=35	.131 N=36	-.355(*) N=36	.321 N=35	.009 N=36	-.130 N=35	-.233 N=36
Local government	-.210 N=36	-.206 N=35	.091 N=36	-.116 N=36	.472(**) N=35	.001 N=36	-.044 N=35	-.200 N=36
Consultants	.222 N=36	.179 N=35	.147 N=36	.061 N=36	-.283 N=35	.293 N=36	.002 N=35	.065 N=36
Community groups	-.068 N=36	.073 N=35	.118 N=36	-.232 N=36	.159 N=35	-.033 N=36	-.109 N=35	-.274 N=36

PARTNER	STATUTORY STATUS	AGE (YRS) AT 2009	NUMBER OF STAFF	REGION AREA	REGION POPULATION	CFOC INCOME 2007-08	NUMBER OF OFFICES	DISTANCE TO CAPITAL CITY
Land managers	.210 N=35	-.182 N=34	.270 N=35	.143 N=35	.002 N=34	.003 N=35	.001 N=34	.160 N=35
Industry groups	-.106 N=36	.090 N=35	-.035 N=36	.045 N=36	.157 N=35	.013 N=36	-.177 N=35	-.138 N=36
NGOs	-.016 N=36	.103 N=35	-.054 N=36	-.352(*) N=36	.349(*) N=35	-.081 N=36	-.145 N=35	-.368(*) N=36
Researchers	.030 N=36	-.150 N=35	.039 N=36	-.190 N=36	.233 N=35	-.027 N=36	-.041 N=35	-.036 N=36

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 26: Model correlations with demographics (Spearman's Rho)

ITEM	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)
Evaluation model	.052	.005	-.151	.222	-.289	.010	.111	.276

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 27: Model correlations with barriers (Spearman's Rho) (n=36)

ITEM	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Evaluation model	-.099	.011	.122	.049	.149	.115	-.115	-.022	-.185	-.251	-.151	-.037

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 28: Model correlations with practices (Spearman's Rho) (n=36)

ITEM	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATE-NESS	SITE APPROPRIATE-NESS	CUMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Evaluation model	-.216	-.206	-.490(**)	-.484(**)	-.269	-.403(*)	-.429(**)	-.482(**)	-.417(*)	-.481(**)	-.367(*)	-.149	-.483(**)

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 29: Model correlations with culture and capability scores (Spearman's Rho) (n=36)

ITEM	CULTURE SCORE	LINK TO EXPERTS	INCREMENTAL PROCESSES	COMMITMENT TO ROLES	STRATEGIC APPLICATION	CONTRIBUTION TO KNOWLEDGE	CAPABILITY SCORE
Evaluation model	-.559(**)	-.283	.021	-.098	-.483(**)	-.649(**)	-.577(**)

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table A. 30: Demographic cluster correlations with drivers

STATISTIC [AB]	ACCOUNTABILITY	SOURCING FUNDING	INFORMING POLICY	PROGRAM IMPROVEMENT	OUTCOME TRACKING	HIGHLIGHTING SUCCESSES	COMMUNITY ENGAGEMENT	REPORTING TO COMMUNITY
Chi-Square	4.666	3.549	5.071	2.339	4.217	1.292	3.441	7.464
df	3	3	3	3	3	3	3	3
Asymp. Sig.	.198	.314	.167	.505	.239	.731	.329	.058

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 31: Demographic cluster correlations with barriers

STATISTIC [AB]	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Chi-Square	.280	.868	.587	2.202	5.832	3.550	1.466	.291	.430	.243	3.626	7.831
df	3	3	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	.964	.833	.899	.532	.120	.314	.690	.962	.934	.970	.305	.050

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 32: Demographic cluster correlations with practices

STATISTIC [AB]	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATE-NESS	SITE APPROPRIATE-NESS	CUMMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Chi-Square	3.780	1.285	1.569	1.775	.956	.742	1.825	2.783	4.084	1.472	3.435	1.146	1.576
df	3	3	3	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	.286	.733	.666	.620	.812	.863	.610	.426	.253	.689	.329	.766	.665

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 33: Demographic characteristics correlations with capability and culture scores (Spearman's Rho)

SCORE	STATUTORY STATUS (N=36)	AGE (YRS) AT 2009 (N=35)	NUMBER OF STAFF (N=36)	REGION AREA (N=36)	REGION POPULATION (N=35)	CFOC INCOME 2007-08 (N=36)	NUMBER OF OFFICES (N=35)	DISTANCE TO CAPITAL CITY (N=36)	CORPORATE STRATEGIC PLANNING (N=35)
Capability	.005	.030	.157	-.109	.143	.213	.050	-.129	-.029
Culture	.084	.085	.377(*)	-.168	.333	.370(*)	-.040	-.282	.336(*)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 34: Barrier correlations with culture scores (Spearman's Rho, N=36)

SCORE	EQUIPMENT	SKILLS	TIME	FUNDS	IMPACT TIME	USE OF SURROGATES	METHOD COMPLEXITY	IMMEDIACY OF RESULTS	APPROPRIATE METHODS	PROVEN METHODS	ACTIVITY ISOLATION	SEASONALITY ISOLATION
Culture	-.079	-.128	-.101	-.007	-.208	-.050	-.025	.011	.048	.030	.118	-.038

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 35: Practice correlations with culture scores (Spearman's Rho, N=36)

SCORE	OUTPUTS	COST EFFICIENCY	RESOURCE CONDITION	SURROGATE INDICATORS	KASA	PRACTICE CHANGE	ECONOMICS	FLOW ON EFFECTS	METHOD APPROPRIATE-NESS	SITE APPROPRIATE-NESS	CUMMULATIVE EFFECTS	PROJECT NEED	PROGRAM NEED
Culture	.309	.409(*)	.254	.202	.372(*)	.500(**)	.155	.347(*)	.356(*)	.393(*)	.368(*)	.302	.527(**)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table A. 36: Partner contribution type ranking (n = 36)

PARTNER CONTRIBUTION TYPE	MEAN SCORE	% OF RBS WITH 7 OR MORE SCORE
Volunteer	3.9	25%
In-kind	5.2	36%
Paid	5.8	53%

Table A. 37: Demographic cluster correlations with partners

STATISTIC [AB]	STATE GOVERNMENT	LOCAL GOVERNMENT	CONSULTANTS	COMMUNITY GROUPS	LAND MANAGERS	INDUSTRY GROUPS	NGOS	RESEARCHERS
Chi-Square	1.013	4.359	1.545	2.289	6.481	7.031	7.394	4.053
df	3	3	3	3	3	3	3	3
Asymp. Sig.	.798	.225	.672	.515	.090	.071	.060	.256

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 38: Demographic cluster correlations with satisfaction levels

STATISTIC [AB]	WATER IMPACTS	BIODIVERSITY IMPACTS	LAND IMPACTS	SOCIAL IMPACTS	ECONOMIC IMPACTS
Chi-Square	7.057	1.654	.540	.880	.842
df	3	3	3	3	3
Asymp. Sig.	.070	.647	.910	.830	.839

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 39: Demographic cluster correlations with planned changes

STATISTIC [AB]	CHANGES PLANNED	TIMEFRAME FOR CHANGES
Chi-Square	1.525	3.136
df	3	3
Asymp. Sig.	.677	.371

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 40: Demographic cluster correlations with model groups

STATISTIC [AB]	EVALUATION MODEL
Chi-Square	4.673
df	3
Asymp. Sig.	.197

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 41: Demographic cluster correlations with capability

STATISTIC [AB]	CAPABILITY SCORE
Chi-Square	1.084
df	3
Asymp. Sig.	.781

A Kruskal Wallis Test; B Grouping Variable: Cluster

Table A. 42: Demographic cluster correlations with culture aspects

STATISTIC [AB]	CULTURE SCORE	LINK TO EXPERTS	INCREMENTAL PROCESSES	COMMITMENT TO ROLES	STRATEGIC APPLICATION	CONTRIBUTION TO KNOWLEDGE
Chi-Square	.821	2.114	.799	1.413	1.576	2.339
df	3	3	3	3	3	3
Asymp. Sig.	.845	.549	.850	.703	.665	.505

A Kruskal Wallis Test; B Grouping Variable: Cluster

A.5 Tests of internal consistency

Table A. 43: Driver items reliability

DRIVER ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
Accountability	53.03	116.485	.549	.656	.845
Sourcing funding	53.89	114.730	.457	.613	.857
Informing policy	54.42	122.021	.338	.190	.868
Program improvement	53.22	110.349	.602	.548	.839
Outcome tracking	53.19	106.904	.780	.709	.820
Highlighting successes	53.25	110.821	.701	.632	.830
Community engagement	54.61	104.244	.597	.604	.842
Reporting to community	54.31	98.561	.846	.770	.807

1 Chronbach's alpha = 0.857, standardised alpha = 0.860.

Table A. 44: Barrier items reliability

BARRIER ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
Equipment	62.31	472.104	.552	.484	.886
Skills	61.11	456.102	.677	.687	.879
Time	58.22	503.149	.275	.452	.899
Funds	59.31	455.990	.508	.458	.890
Impact time	59.00	469.143	.520	.456	.888
Use of surrogates	60.33	464.171	.651	.596	.881
Method complexity	61.19	473.361	.572	.576	.885
Immediacy of results	59.61	444.302	.735	.690	.876
Appropriate methods	60.67	434.343	.776	.795	.873
Proven methods	60.36	428.409	.791	.804	.872
Activity isolation	58.36	462.923	.668	.795	.880
Seasonality isolation	58.19	476.961	.517	.756	.887

1 Chronbach's alpha = 0.892, standardised alpha = 0.892.

Table A. 45: Practice items reliability

PRACTICE ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
Outputs	71.67	453.371	.183	.555	.903
Cost efficiency	72.83	427.514	.464	.621	.895
Resource condition	73.53	396.028	.635	.660	.888
Surrogate indicators	73.89	403.187	.582	.732	.890
KASA	73.03	410.771	.567	.811	.891
Practice change	73.25	391.336	.677	.799	.886
Economics	75.92	396.250	.637	.670	.888
Flow on effects	74.44	383.054	.731	.869	.883
Method appropriateness	73.78	379.378	.772	.713	.881
Site appropriateness	74.00	401.314	.591	.538	.890
Cumulative effects	74.56	378.311	.770	.794	.881
Project need	75.25	405.450	.507	.772	.894
Program need	74.53	401.113	.564	.742	.891

1 Chronbach's alpha = 0.897, standardised alpha = 0.892.

Table A. 46: Satisfaction items reliability

SATISFACTION ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
Water impacts	15.69	69.304	.587	.428	.826
Biodiversity impacts	15.53	62.999	.768	.730	.772
Land impacts	15.75	70.021	.699	.674	.795
Social impacts	17.03	66.485	.717	.529	.788
Economic impacts	18.33	79.771	.469	.292	.851

1 Chronbach's alpha = 0.841, standardised alpha = 0.840.

Table A. 47: Demographics and barriers items reliability

ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
Age category	84.41	696.734	.213	.704	.860
Area category	85.91	702.689	.165	.633	.862
Population category	84.82	721.483	.013	.521	.871
Staff no. category	85.76	646.246	.467	.776	.850
CFOC revenue category	84.62	713.698	.086	.608	.865
Equipment	87.29	655.608	.499	.564	.848
Skills	86.03	636.393	.629	.808	.842
Time	83.09	688.022	.255	.609	.859
Funds	84.26	634.019	.480	.542	.850
Impact time	83.88	646.774	.498	.634	.848
Use of surrogates	85.35	637.750	.675	.721	.841
Method complexity	86.29	652.759	.575	.687	.845
Immediacy of	84.62	613.819	.742	.881	.836

ITEM	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	CRONBACH'S ALPHA[1] IF ITEM DELETED
results					
Appropriate methods	85.79	604.653	.803	.886	.833
Proven methods	85.29	597.184	.770	.893	.833
Activity isolation	83.24	635.882	.676	.817	.841
Seasonality isolation	83.09	650.810	.535	.805	.847

1 Chronbach's alpha = 0.857, standardised alpha = 0.856.

A.6 Factor analyses

Table A. 48: Drivers' measures of sampling adequacy

DRIVER	MEASURE OF SAMPLING ADEQUACY[1]
Accountability	0.695
Sourcing funding	0.639
Informing policy	0.801
Program improvement	0.877
Outcome tracking	0.844
Highlighting successes	0.850
Community engagement	0.793
Reporting to community	0.794

1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.791;
Bartlett's Test of Sphericity $\chi 2=149.81$, df=28, $p<0.01$

Table A. 49: Total drivers' variance explained

FACTOR	INITIAL EIGENVALUES			EXTRACTION[1] SUMS OF SQUARED LOADINGS			ROTATION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %
1	4.181	52.268	52.268	3.857	48.207	48.207	3.033	37.916	37.916
2	1.377	17.214	69.482	1.080	13.501	61.708	1.903	23.792	61.708
3	.889	11.110	80.591						
4	.574	7.171	87.763						
5	.355	4.435	92.198						
6	.263	3.286	95.484						
7	.216	2.696	98.180						
8	.146	1.820	100.000						

1 Extraction Method: Principal Axis Factoring.

Table A. 50: Drivers rotated factor matrix

DRIVERS	FACTOR[1]	
	1	2
Reporting to community	.811	.384
Program improvement	.810	
Highlighting successes	.745	
Community engagement	.733	
Outcome tracking	.684	.494

DRIVERS	FACTOR[1]	
	1	2
Informing policy	.313	
Accountability		.913
Sourcing funding		.755

1 Extraction Method: Principal Axis Factoring; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 3 iterations.

Table A. 51: Initial barriers' measures of sampling adequacy

BARRIER	MEASURE OF SAMPLING ADEQUACY[1]
Equipment	0.914
Skills	0.853
Time	0.464
Funds	0.767
Impact time	0.808
Use of surrogates	0.785
Method complexity	0.785
Immediacy of results	0.918
Appropriate methods	0.798
Proven methods	0.781
Activity isolation	0.808396
Seasonality isolation	0.760352

1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.802; Bartlett's Test of Sphericity $\chi 2$=242.42, df=66, p<0.01

Table A. 52: Refined barriers' measures of sampling adequacy

BARRIER	MEASURE OF SAMPLING ADEQUACY[1]
Equipment	0.914
Skills	0.853
Time	0.464
Funds	0.767
Impact time	0.808
Use of surrogates	0.785
Method complexity	0.785
Immediacy of results	0.918
Appropriate methods	0.798
Proven methods	0.781
Activity isolation	0.808396
Seasonality isolation	0.760352

1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.837; Bartlett's Test of Sphericity $\chi 2$=226.75, df=55, p<0.01

Table A. 53: Total barriers' variance explained

FACTOR	INITIAL EIGENVALUES			EXTRACTION[1] SUMS OF SQUARED LOADINGS			ROTATION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %
1	5.621	51.100	51.100	5.257	47.793	47.793	3.434	31.215	31.215
2	1.583	14.395	65.495	1.288	11.706	59.498	3.111	28.283	59.498
3	.908	8.251	73.746						
4	.800	7.272	81.018						
5	.493	4.480	85.498						
6	.440	3.998	89.495						
7	.398	3.617	93.112						
8	.270	2.459	95.571						
9	.201	1.824	97.395						
10	.175	1.589	98.984						
11	.112	1.016	100.000						

1 Extraction Method: Principal Axis Factoring.

Table A. 54: Barriers rotated factor matrix

BARRIERS	FACTOR[1]	
	1	2
Skills	.900	
Appropriate methods	.743	.448
Equipment	.720	
Proven methods	.599	.567
Method complexity	.595	
Funds	.499	
Activity isolation		.924
Seasonality isolation		.871
Immediacy of results	.535	.583
Impact time		.540
Use of surrogates	.451	.474

1 Extraction Method: Principal Axis Factoring; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 3 iterations.

Table A. 55: Initial practices' measures of sampling adequacy

PRACTICE	MEASURE OF SAMPLING ADEQUACY [1]
Outputs	0.475
Cost efficiency	0.713
Resource condition	0.813
Surrogate indicators	0.650
KASA	0.728
Practice change	0.732
Economics	0.823
Flow on effects	0.687
Method appropriateness	0.883
Site appropriateness	0.900
Cummulative effects	0.744

PRACTICE	MEASURE OF SAMPLING ADEQUACY [1]
Project need	0.574
Program need	0.668

1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.730;
Bartlett's Test of Sphericity $\chi 2$=298.189, df=78, p<0.01

Table A. 56: Revised practices' measures of sampling adequacy

PRACTICE	MEASURE OF SAMPLING ADEQUACY [1]
Cost efficiency	0.728
Resource condition	0.833
Surrogate indicators	0.685
KASA	0.726
Practice change	0.759
Economics	0.796
Flow on effects	0.699
Method appropriateness	0.889
Site appropriateness	0.870
Cummulative effects	0.804
Project need	0.604
Program need	0.687

1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.756;
Bartlett's Test of Sphericity $\chi 2$=277.116, df=66, p<0.01

Table A. 57: Total drivers' variance explained

FACTOR	INITIAL EIGENVALUES			EXTRACTION[1] SUMS OF SQUARED LOADINGS			ROTATION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %	TOTAL	% OF VARIANCE	CUMULA-TIVE %
1	5.869	48.905	48.905	5.533	46.111	46.111	3.347	27.893	27.893
2	1.595	13.294	62.200	1.323	11.024	57.134	2.466	20.550	48.443
3	1.408	11.735	73.935	1.059	8.825	65.959	2.102	17.516	65.959
4	.797	6.643	80.578						
5	.608	5.071	85.649						
6	.470	3.920	89.568						
7	.376	3.130	92.698						
8	.293	2.440	95.138						
9	.221	1.844	96.983						
10	.178	1.482	98.465						
11	.117	.974	99.439						
12	.067	.561	100.000						

1 Extraction Method: Principal Axis Factoring.

Table A. 58: Practices rotated factor matrix

PRACTICES	FACTOR[1]		
	1	2	3
KASA	.858		
Flow on effects	.848	.301	
Practice change	.774		.313

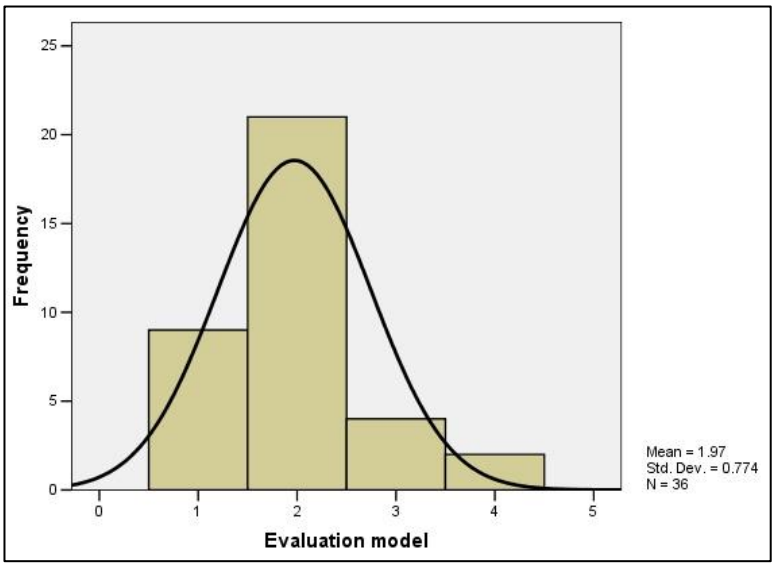
PRACTICES	FACTOR[1]		
	1	2	3
Cumulative effects	.589	.502	
Surrogate indicators	.585	.452	
Method appropriateness	.525	.387	.490
Project need		.828	
Program need		.797	
Economics	.426	.503	
Cost efficiency			.843
Site appropriateness			.669
Resource condition		.366	.564

1 Extraction Method: Principal Axis Factoring; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 5 iterations.

A.7 Evaluation Models

Table A. 59: Average driver scores by Model

MODEL	EXPANDED CONTEXTUAL	CONSTITUTIVE / BOUNDED RATIONALITY	ORGANISATIONAL EXCELLENCE	POLITICAL/ SYMBOLIC	GRAND AVERAGE
Accountability	9.2	8.1	8.3	7.5	9.2
Sourcing future funding	8.8	7.0	8.3	6.0	8.8
Inform policy	9.2	6.2	6.0	7.0	9.2
Program improvement	9.4	8.7	5.5	2.5	9.4
Outcome tracking	9.8	7.9	7.8	5.5	9.8
Highlighting success	9.8	8.0	6.8	5.5	9.8
Community involvement	9.3	6.5	5.5	1.0	9.3
Community reporting	9.3	6.8	5.8	3.5	9.3



Note: 1 = Expanded Contextual model, 2 = Constitutive and Bounded Rationality models, 3 = Organisational Excellence model, 4 = Political and Symbolic models

Figure A. 4: Regional body distribution across the model groups

A.8 Evaluation capability

Table A. 60: Ranked capability scores

CAPABILITY SCORE
121
118
110
109
108
102
99
98
95
94
91
90
90
89
89
83
82
80
80
76
75
75
75
75
75
71
69
63
62
60
59
51
47
46
46
29

A.9 Culture scores

Table A. 61: Ranked culture scores

CULTURE SCORE
46
45
45
45
45
44
41

CULTURE SCORE
41
40
40
39
39
38
38
37
37
36
35
34
34
33
33
32
31
31
31
31
31
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23
23
21
20

Appendix B: Survey form

Survey questionnaire

Reasons for evaluation

The following section lists a number of reasons for undertaking monitoring and evaluation. Please indicate the level of importance of each of these reasons in your organisation's current monitoring and evaluation. **0 indicates no importance** and **10 indicates very high importance**.

Possible reasons for evaluation:	0	1	2	3	4	5	6	7	8	9	10
1. Accountability to funding organisations	○	○	○	○	○	○	○	○	○	○	○
2. Sourcing future funding	○	○	○	○	○	○	○	○	○	○	○
3. Providing information to support policy decisions	○	○	○	○	○	○	○	○	○	○	○
4. Internal program improvement	○	○	○	○	○	○	○	○	○	○	○
5. Tracking achievement of project outcomes	○	○	○	○	○	○	○	○	○	○	○
6. Highlighting project successes	○	○	○	○	○	○	○	○	○	○	○
7. Improvement of staff and community involvement in projects	○	○	○	○	○	○	○	○	○	○	○
8. Reporting progress to the regional/ catchment community	○	○	○	○	○	○	○	○	○	○	○
9. Other (please specify):											
	○	○	○	○	○	○	○	○	○	○	○

10. If you wish to provide further comment on reasons for evaluation, please do so in the box below.

Barriers to evaluation

The following section lists a number of barriers that might affect monitoring and evaluation. Please indicate the level of influence of each of these barriers on your organisation's current monitoring and evaluation. **0 indicates no influence** and **10 indicates very high influence**.

Possible barriers to effective evaluation:	0	1	2	3	4	5	6	7	8	9	10
11. Lack of availability of equipment (i.e. can't access the equipment you need)	○	○	○	○	○	○	○	○	○	○	○
12. Lack of availability of specialist skills (i.e. can't access the specialists you need)	○	○	○	○	○	○	○	○	○	○	○
13. Lack of available staff time (i.e. staff are too busy with other business aspects)	○	○	○	○	○	○	○	○	○	○	○
14. Lack of funds to source the required skills and equipment	○	○	○	○	○	○	○	○	○	○	○
15. Changes in resource condition take too long to measure	○	○	○	○	○	○	○	○	○	○	○
16. Difficulty communicating the change in resource condition due to the use of indirect/surrogate measures	○	○	○	○	○	○	○	○	○	○	○
17. Difficulty in explaining complex monitoring results to non-technical people	○	○	○	○	○	○	○	○	○	○	○
18. Difficulty in obtaining monitoring results that are immediately useful to field staff or land managers (i.e. without extensive data analysis)	○	○	○	○	○	○	○	○	○	○	○
19. Difficulty finding methods that are seen as appropriate by the reporting audience (i.e. the people the results are for)	○	○	○	○	○	○	○	○	○	○	○
20. Difficulty finding methods that have been tested and proven suitable for our region	○	○	○	○	○	○	○	○	○	○	○
21. Difficulty isolating the impact of specific activities from other activities	○	○	○	○	○	○	○	○	○	○	○
22. Difficulty isolating the impact of activities from other factors such as seasonal variation	○	○	○	○	○	○	○	○	○	○	○
23. Other (please specify):											
	○	○	○	○	○	○	○	○	○	○	○

24. If you wish to provide further comment on barriers to evaluation, please do so in the box below.

Current monitoring and evaluation practices

Please indicate the level of importance of the following processes within your organisation's current monitoring and evaluation. **0 indicates no importance** (doesn't contribute to monitoring and evaluation outcomes) and **10 indicates very high importance** (critical to monitoring and evaluation outcomes).

Possible monitoring and evaluation process:	0	1	2	3	4	5	6	7	8	9	10
25. Project output tracking (e.g. length of fencing, number of landholders involved)	○	○	○	○	○	○	○	○	○	○	○
26. Assessment of project cost and efficiency	○	○	○	○	○	○	○	○	○	○	○
27. Assessment of changes in resource condition at the site of on-ground work	○	○	○	○	○	○	○	○	○	○	○
28. Assessment of other changes at the site of on-ground work as surrogates for resource condition change (e.g. ground cover as surrogate for water quality)	○	○	○	○	○	○	○	○	○	○	○
29. Assessment of changes in awareness, skills, knowledge and attitudes of project participants (relating to the project purpose)	○	○	○	○	○	○	○	○	○	○	○
30. Assessment of changes in land/water/ nature managers' practices due to the project	○	○	○	○	○	○	○	○	○	○	○
31. Assessment of economic impacts of the project on participants	○	○	○	○	○	○	○	○	○	○	○
32. Assessment of flow-on effects of projects (i.e. expansion of learnings or practices from participants to non-participants outside the project)	○	○	○	○	○	○	○	○	○	○	○
33. Assessment of appropriateness of project methods (engagement, on-ground works etc.) against the project purpose	○	○	○	○	○	○	○	○	○	○	○

Possible monitoring and evaluation process:	0	1	2	3	4	5	6	7	8	9	10
34. Assessment of appropriateness of site selection against the project purpose	○	○	○	○	○	○	○	○	○	○	○
35. Assessment of cumulative impact of multiple projects within a program (e.g. effect of all water projects on the region's water quality)	○	○	○	○	○	○	○	○	○	○	○
36. Assessment of the need for individual projects	○	○	○	○	○	○	○	○	○	○	○
37. Assessment of the need for the program (i.e. the cumulative suite of projects such as water quality projects mentioned in Question 35)	○	○	○	○	○	○	○	○	○	○	○

Please indicate your organisation's level of satisfaction with its current monitoring and evaluation practices where **0 indicates no satisfaction** and **10 indicates practices are considered highly effective and appropriate**. Please select -1 where the practice is not applicable.

Monitoring and evaluation practice:	-1	0	1	2	3	4	5	6	7	8	9	10
38. Assessment of project impacts on water quality and waterway health	○	○	○	○	○	○	○	○	○	○	○	○
39. Assessment of project impacts on biodiversity and habitat health	○	○	○	○	○	○	○	○	○	○	○	○
40. Assessment of project impacts on land condition and soil health	○	○	○	○	○	○	○	○	○	○	○	○
41. Assessment of the social impacts of projects	○	○	○	○	○	○	○	○	○	○	○	○
42. Assessment of the economic impacts of projects	○	○	○	○	○	○	○	○	○	○	○	○
43. Other assessment (please specify)												
	○	○	○	○	○	○	○	○	○	○	○	○

44. If you wish to provide further comment on your organisation's/region's monitoring and evaluation processes and practices, please do so in the box below.

Current monitoring and evaluation partnerships

Please indicate the level of involvement of the following groups and individuals in assisting with monitoring and evaluation within your region where **0 indicates no involvement** and **10 indicates very high involvement**.

Potential contributors:	0	1	2	3	4	5	6	7	8	9	10
45. State government staff	○	○	○	○	○	○	○	○	○	○	○
46. Local government staff	○	○	○	○	○	○	○	○	○	○	○
47. Consultants	○	○	○	○	○	○	○	○	○	○	○
48. Community group members	○	○	○	○	○	○	○	○	○	○	○
49. Landholders/land managers	○	○	○	○	○	○	○	○	○	○	○
50. Industry groups (e.g. Cotton Australia)	○	○	○	○	○	○	○	○	○	○	○
51. Non-government organisations (e.g. Greening Australia)	○	○	○	○	○	○	○	○	○	○	○
52. Research organisations (e.g. CSIRO)	○	○	○	○	○	○	○	○	○	○	○
53. Other (please specify):											
	○	○	○	○	○	○	○	○	○	○	○

Listed below are a range of ways that external individuals, groups and organisations can participate in regional monitoring and evaluation. Please indicate the current level of contribution of each form of participation to your region's monitoring and evaluation outcomes. **0 indicates no current contribution** and **10 indicates very high contribution**.

Potential contribution types:	0	1	2	3	4	5	6	7	8	9	10
54. Volunteer (i.e. unpaid contribution by non-recipient of funds)	○	○	○	○	○	○	○	○	○	○	○
55. In-kind (i.e. unpaid contribution by recipient of funds)	○	○	○	○	○	○	○	○	○	○	○
56. Paid contribution	○	○	○	○	○	○	○	○	○	○	○
57. Other (please specify):											
	○	○	○	○	○	○	○	○	○	○	○

58. If you wish to provide further comment on monitoring and evaluation partnerships in your region/catchment, please do so in the box below.

Future needs and planned changes

59. What would be the most useful assistance your organisation/region could receive to improve your monitoring and evaluation processes? (maximum of one paragraph)

60. Do you have current plans to change your monitoring and evaluation processes?

○ Yes ○ No

61. If yes, is this incremental continuous improvement or large scale change?

○ Incremental ○ Large scale

Please provide a short description of the proposed change/s. (maximum of one paragraph)

62. Over what timeframe do you expect to implement the proposed change/s?

○ Within 3 months

○ 3 to 6 months

○ 6 to 12 months

○ Longer than 12 months

General information

63. Please provide your position title?

64. Is there a staff member who coordinates monitoring and evaluation within your organisation?
○ Yes ○ No

If yes, approximately how long have they been in that role? years

Contact details for further information

If you or others in your organisation are happy to be contacted for more information about your answers in this survey, please provide the relevant contact details below.

Theme/topic area:

Staff member name:

Position title:

Telephone number:

Email address:

Theme/topic area:

Staff member name:

Position title:

Telephone number:

Email address:

If you have any further comment you would like to make regarding monitoring and evaluation, this survey or the research in general, please do so in the box below.