Integrated Catchment Management: Learning from the Australian Experience for the Murray-Darling Basin

Overview Report
January 2002

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF BOXES

EXECUTIVE SUMMARY

This report was commissioned by the Murray-Darling Basin Commission to provide an integrated overview of State reviews of Integrated Catchment Management (ICM) from across Australia and an analysis of potential learning for the implementation of ICM in the Murray-Darling Basin. It addresses the Human Dimension Strategy Implementation Plan requirement for on-going research and activity to support ICM, and contributes to the implementation of the Commission's new ICM Policy Statement.

The project's specific objectives are:

Using the available literature, including recent reviews of ICM completed in each state of Australia:

(a) to identify key characteristics of ICM in each State and their effectiveness;

(b) to identify social or institutional arrangements, trends or issues relevant to the further development of ICM in the Murray-Darling Basin;

(c) to identify the core characteristics of 'best practice' ICM for the Murray-Darling Basin;

(d) to identify the implications and potential opportunities for ICM implementation in the Basin to:

  (i) improve participation of local government;
  (ii) provide better integration across jurisdictional boundaries;
  (iii) increase the participation of Basin people in ICM processes.

Our approach to this 'desk top' review has been to develop an analytical framework to guide a comparative analysis of the systems for ICM. The core elements of the framework that structured the approach to the Review are resource use context, governance arrangements, knowledge context and natural resource management (NRM) outcomes. The research team studied each state in turn (see Appendices 2 – 7), conducted a comparative analysis of the different state systems (Section 2), and then identified current trends and issues in the development of ICM and its context (Section 3). Rather than present recommendations for the very different evolving contexts of each state system, we have opted to present principles for the future evolution of ICM in each jurisdiction, and a description of a hypothetical ICM system than would follow those principles (Section 4).

CHARACTERISTICS OF ICM IN EACH STATE

Resource Use Context

This historical resource use context for ICM has been significant in driving the state approaches to catchment management and also the composition of those involved in the decision-making agendas. This determines how problems are framed and the focus for collaborative activity. The triggers for action in natural resource management (NRM) in Australian states were historically focused on the management of water diversions and soil erosion to maintain agricultural expansion and productivity. Western Australia (WA), Victoria, South Australia (SA), New South Wales (NSW) and Queensland had a particular focus on the control of soil erosion that triggered early responses. With motivations for 'opening the discussion' on resource management in all states being based around protecting and enhancing agricultural productivity, the involvement in these initiatives has historically been mainly from those with rural interests and agency production efficiency specialists.

State responses to catchment management problems have evolved differently due to the variation in the context for management of resources. For example, South Australia has a notable focus on

issues of water quality and quantity - being at the lower end of the Murray Darling Basin system. Queensland does not have a significant dryland salinity problem at the moment, given that its farming and irrigation development areas are relatively recent, but has vexed issues of native vegetation clearance and water allocation. In Victoria the economic impact of salinity, soil structure decline, reduced water quality and increased rates of severe flooding related to the clearance of an estimated 70% of its native vegetation is clearly being felt among various sectors of the Victorian economy and this has had a significant impact in shaping involvement in ICM.

Governance Arrangements

Policy frameworks and other institutional arrangements for ICM

ICM approaches vary around Australia but they are all fundamentally based on the concepts of integration of community involvement, technical knowledge, organisational structure and policy objectives. (In some states, the focus is on integrated NRM rather than ICM). ICM is promoted as a community-based collaborative model of governance to address natural resource problems of mutual concern. Community-based catchment management approaches are one of the new trends in "governance" that have fundamentally transformed the institutional "landscape" pertaining to arrangements for natural resources policy-making and implementation.

Current ICM arrangements have evolved away from government-centred, single-issue approaches to integrated approaches where the emphasis is upon community involvement and whole-of-system approaches to land and water management. ICM most differs between the States in the nature of legislative support for ICM and the administrative structures of resource and environmental agencies. Specific catchment management legislation exists in Victoria, NSW and South Australia. In these three states legislation has devolved powers for planning and management directly to the catchment/regional level. Other states have policy commitments to ICM and have made organisational changes to implement catchment management.

Restructuring of agencies with responsibilities for NRM has been a common experience in all states. However, a continuing characteristic has been the lack of coordination within and between agencies and the issue of agencies protecting their territory.

There is a plethora of bodies with a role in NRM across the states. Catchment bodies do not necessarily have a lead or sole role for coordination of catchment management – in NSW and Queensland for instance there are comparable bodies for vegetation management and water allocation planning.

Most catchment bodies are inadequately resourced to carry out what is expected of them and only have limited fund raising capacity (see 'Funding and resourcing capacity' section below). The only regional bodies to have capacity to raise their own funds are CMAs in Victoria and CWMBs in SA, which are entitled to raise funds through catchment levies. Levying powers however are not being exercised by Victoria's CMAs at present – this shift came with the change of government in Victoria in 1999. The 'catchment tax' as it had become known had attracted considerable criticism when introduced by the previous government. But the notion of locally-raised funds being spent on local catchment projects, with local accountability, did gradually win support. However, instead of levies, the State budget now includes an additional allocation to CMAs equivalent to that which might otherwise have been raised locally.

There is heavy reliance on volunteers to participate in ICM decision-making bodies and sub-catchment groups in all States. This is a very demanding role, especially on office bearers such as chairs. Work overload, disillusionment with the extent of empowerment and inability to facilitate the development of progress measures leads to 'burnout' and consequently loss of capacity and experience.

In all states, effective engagement of local government in NRM arrangements and processes remains a vexed issue – but concerted efforts are being made. Most states recognize the involvement of local government as integral to the success of ICM and have local government representation within their systems.

The State reviews comment on under-resourcing of ICM, both in cash terms and in terms of the numbers of agency staff dedicated to its support. The most common approach to funding the collaborative processes of ICM, focused on regional bodies, is a combination of in-kind inputs by members of the bodies (voluntary labour by the self-employed, salaried by agency staff and members of some stakeholder organisations), and recurrent funding from state government budgets through one or more participating agencies. Resourcing to implement plans made through ICM processes is also deficient, and for the most part achieved indirectly, through small grants to bodies such as Landcare and other stewardship groups, through the NHT and its predecessors. These are rarely linked explicitly to the strategic planning of regional bodies, and are short-term projects subject to great funding uncertainties. A philosophy of cost-sharing for implementation of ICM has been promulgated, but methods for doing so are in their infancy. Cost-sharing is inherently challenging because of the difficulties in identifying which parties should contribute, then gaining their acceptance and commitment for doing so.

Achievement of whole of government coordination is a significant, and highly challenging issue, for ICM as much as for other government program areas that require integrated policy and action. Common arenas of weak coordination are between NRM and planning, and among NRM partnership initiatives in ICM, water resource management, and vegetation management. Integration with local government is a further challenge.

There is historically little evidence across all states of strategic effort to monitor the impacts of ICM and the effectiveness of the different approaches employed. Monitoring has focussed on outputs and activity-based assessments rather than measuring progress in facilitating activity toward sustainable outcomes.

Participatory and partnership processes

Partnerships have been an integral aspect from the beginning of ICM in Australia, not added along the way. There has been a shift from government as administrator of policy on behalf of industry, and 'community' as passive recipients, to government as 'enabler' and 'facilitator' to support a more empowered industry/community alliance to articulate context-dependent catchment strategies. A major issue for ICM is the basis for the participatory approach adopted in regional and state bodies. Most have a representational approach in which members are chosen primarily to represent different stakeholder bodies (NSW and Queensland). An alternative is an expert approach, in which committee members are chosen personally for their expertise (eg. Victoria and South Australia). Another key issue is the heavy demands placed on voluntary, non-government members by participating in ICM.

It is generally acknowledged that greater effort is needed to involve Indigenous people. However, the use of representatives as structured in the current ICM frameworks sits uneasily with Indigenous customary governance.

Capacity building is emerging as a key issue in making ICM structures and processes effective. As a concept it is still seen to apply largely to community groups but needs to be equally considered for agencies. The need for more effective communication in ICM approaches is also broadly acknowledged across all states. This includes communication between the members of catchment organisations and their stakeholder groups, and communication among catchment organizations, and across parallel processes of governance such as catchment management, vegetation management and water management.

Catchment planning and implementation arrangements

Most catchment bodies have a key role in catchment planning, but except in Victoria and South Australia they do not have formal powers to implement those plans. They rely on linkages and influences on other bodies (eg. regional, local government) to do so.

In some states catchment bodies are reported to be fatigued with planning processes and frustrated and concerned at the lack of progress in the implementation of ensuing catchment management plans. The implementation mechanisms for catchment strategies appear in general to be unclear. Also there is a concern that if responsibility for planning and implementation is to be devolved, it is critical that there be shared understanding and clear articulation of the functions, powers and responsibilities which are being devolved.

The National Action Plan for Salinity and Water Quality (NAPSWQ) accreditation process places renewed emphasis, and urgency, on the development of robust, integrated plans at catchment and regional scales. However, a major challenge is that integration and linking of the multitude of planning processes at all levels of governance that have relevance to NRM is widely acknowledged to be weak or non-existent.

Knowledge Context

Researching and integrating scientific knowledge has been an underpinning principle of ICM processes in Australia. The demands on scientific input in these processes are evolving, like the legislative and representative frameworks. The participatory processes of ICM are seeking broader stakeholder involvement that recognises different forms of knowledge in framing catchment management problems. There is increasing pressure for informational inputs to be developed through learning processes to be effective in the adaptive management context of ICM. These changes are being manifest in widespread interest in developing more appropriate progress measures for ICM.

A common experience has been lack of access to appropriate available NRM information and also fragmentation of the knowledge base across many agencies and groups. This occurs not only in relation to the need for more integrated information but also in regard to interpretative processes that provide the context and procedures for participatory integration of information. State-wide/programs projects are now being developed to improve capacity to report on NRM condition in most states.

NRM Outcomes

The measurement of ICM outcomes is a clear deficiency in ICM in Australia. ICM outcomes are not measured yet in terms of significant remediation of the natural resource base or catchments or even in terms of the effectiveness of ICM policy initiatives although there is clear recognition that the focus for outcomes from ICM needs to shift from an activity-based approach (eg. number of plans; area of riparian vegetation fenced) to a more performance-based approach (eg. improvement in catchment health). The deficiency to-date reflects the complexity of issues encompassed in measuring and attributing impact on complex governance systems as well as complex relationships in natural systems.

Despite the failure to identify NRM outcomes, ICM initiatives in Australia have achieved some important social and institutional outcomes. ICM has mobilised communities and laid the foundation for improved community participation in NRM. The ICM approach has facilitated greater ownership of issues, allowed stakeholders to get together, promoted sharing of resources and helped to build consensus on NRM problems. A critical mass of people has been established with an understanding of integrated catchment management and skills in its application. The need

to include Indigenous people is now recognized, and strategies are being sought to do so. Local government is now being increasingly involved in catchment management in a variety of ways. Among those involved in, or at the fringes of groups doing ICM, there is a much greater acceptance of the need for a planned and strategic approach than prior to the ICM initiative.

There is a fundamental concern regarding the balance of efforts between planning and implementation. This is raising the profile of the dialogue regarding targets or agreed indices with which to measure change or progress. Negotiating the practical implications of targets or indices has proved to be very difficult, and has heightened the awareness in ICM/NRM of the need to more effectively mediate 'representational' or community/agency capacity issues. In addition, the increased profile of targets is bringing recognition of the need to find ways of operating that run planning and implementation in a more concurrent way than is currently accepted practice.

In sum, the key characteristics common to the different State approaches to ICM in Australia are:
- a strong reliance on positive incentives;
- partnership arrangements (both inter-governmental and public/private, multi-jurisdictional and multi-disciplinary);
- enhanced geographical and inter-governmental integration and/or coordination; and
- use of scientific knowledge in a policy and institutional framework.

TRENDS AND ISSUES EMERGING FROM THE REVIEW

To interpret the learnings from ICM in Australia, an analytical framework was conceptualised. This provided the avenue for a structured approach to the comparative analysis of the different state systems reported above. From this analysis has emerged more clarity regarding the trends and issues of significance for ICM. The trends offer a précis of existing shifts in focus of ICM within the broader NRM agenda. The emerging issues are presented in terms of our *context-structure-process-outcomes* framework which is contiguous with the approach in the comparative analysis by documenting the move to issue synthesis.

Trends

Trends in the NRM policy environment that are currently shaping the evolution of ICM are:
- Broader problem framing
- Devolution of roles and responsibilities
- Adaptive management and partnership approaches
- Learning communities
- Regionalism
- Changing science - policy relationships.

Context Issues

Context issues include an evolving social and institutional context, the nature of organisational cultures and change management, and movement away from technocracy to use of integrated knowledge. The latter is forcing a change in the relationship between science and policy and a greater emphasis on "socially-robust knowledge" based on the integration of best scientific expertise and local knowledge through collective discussion.

Structural issues

Structural issues include: the *ad hoc* and disjointed incremental approach that has characterised institutional change in the NRM arena; the challenges posed by vertical hierarchies and horizontal integration in NRM governance systems; the lack of a 'whole of government' approach such that

'the parts may be rational but the whole is not'; the challenges of effectively involving local government in ICM due to restricted powers, limited resources and access to expertise, and differing obligations under different legislative systems; limited funding and resourcing capacity characterising ICM implementation and the need for broadening the funding base; the lack of effective strategies and mechanisms for moving beyond planning to implementation; the inadequacy of evaluation and review processes for ICM in general and the need to shift from assessments focussed on the achievement of activities to a focus on achievement of desired NRM outcomes; and finally the challenges of catering for differences in jurisdictional arrangements and powers across geographical, legal, administrative and cultural boundaries or divides.

Process issues

Process issues focus on: accountability as identifying core performance expectations has generally been poorly integrated across areas of responsibility and focussed on means (operation of processes) rather than ends (environmental outcomes); the issues of an appropriate basis for selecting membership and of ensuring the integrity of representation on catchment management bodies; recognising the importance and challenges of catering appropriately for Indigenous involvement; limitations on individual and collective capacities to effectively and equitably engage in ICM and the distinct need for capacity building of groups as well as individuals and the need for developing relationships, trust and cooperation; issues relating to how participation and partnerships work in practice including unrealistic assumptions in the 'representative' model, participant overload, inequities in power differences relating to confidence, experience and knowledge; issues of inclusiveness; challenges of forming and maintaining relationships; the need for mechanisms for the integration of knowledge; and the ability to confront and negotiate hard issues.

Outcomes issues

The process aspects of ICM are reasonably well established however it is at the expense of a focus on outcomes. Issues related to outcomes concern: the availability of monitoring and review information and mechanisms to identify whether outcomes are being achieved, and the capacity to use this feedback in an adaptive management framework to adjust strategies to achieve effective catchment management. Another issue is the considerable confusion in terminology as to what constitute 'targets' as opposed to goals, objectives, outputs or outcomes. Targets for catchment health can provide intermediate goals, and a way to measure progress towards achieving a given outcome.

WAYS FORWARD

It is vital to remember that ICM is an evolving system. Each State and Territory system has evolved in different ways, for different reasons, in different contexts. There can be no preferred structure, and it is hard to point to 'best practice' since practices need to suit the systems they sit in. The diversity of approaches currently practiced, combined with the collaborative opportunity presented by membership of the MDBC, allows participants to learn from one another in shaping the continuing evolution of their ICM systems, and continuing to improve their integration with other governance activities in and between the states.

Principles for moving forward with ICM

This study does not seek to provide a definitive assessment of the merits of the different experiences with ICM in Australia, given the limitations in its sources. However, it does provide the basis for drawing together some of the key lessons learnt from the different state experiments to guide future evolution of ICM and for MDBC in facilitating this evolution. We do this by presenting the lessons learnt from this review and other research as a basic set of principles for

ensuring ICM initiatives evolve towards the achievement of sustainable resource use at the catchment level. The principles developed are:

1. ***Fostering institutional arrangements that are enabling***
   - Institutional arrangements that suit, and evolve with, their contexts
   - Institutional arrangements that empower collaborative governance
   - Institutional arrangements that empower integration with other governance systems
   - Institutional arrangements that enable achievement of outcomes
2. ***Ensuring the integrity of participation***
   - Aim for inclusiveness
   - Recognise and adapt to differences in stakeholder cultures
   - Focus on empowerment, but beware of participant fatigue
   - Use mixed modes of participation
   - Look to build ownership, commitment and enthusiasm
   - Reaching agreement
   - Fostering fairness
3. ***Building individual, community and agency capacities***
   - Building capacities of all stakeholders – not just community to participate
   - Build collective capacities as well as individual capacities
   - Build sectoral capacities to participate
   - Broadening the experience base beyond current members
4. ***Moving beyond planning to implementation***
   - A cyclical strategic process
   - Enabling implementation
   - Celebrating achievements
5. ***Turning towards adaptive management***
   - Viewing systems beyond their parts
   - Fostering systemic learning
6. ***Focussing on achieving agreed outcomes***
   - On-going monitoring and review of progress
   - Clarify accountabilities
7. ***Developing socially-robust knowledge.***
   - Understanding is evolving
   - Coming to collective interpretations
   - A broad focus on knowledge
   - Knowledge sharing

Characteristics of an ICM framework to realise the way forward

Rather than offer a set of recommendations or suggestions that invite selective adoption and can easily prove inconsistent with the ICM systems they are intended to enhance, we have opted to describe the characteristics of a hypothetical, idealised ICM system that gives expression to the learnings recorded in the material we have received for this project, the principles listed above, and the ICM values agreed by MDBC's member states.

Context Characteristics

ICM initiatives are flexible and adapted to the variability in resource use context in the Murray Darling Basin and in each State. They drive the community responses to catchment management. This, in turn, determines how natural resource problems are framed and ultimately the focus of on-ground collaborative activity. Key contextual characteristics of the ICM framework necessary to realise the way forward therefore are:

- Broad problem framing by the stakeholders engaging in ICM which recognises the multiple and diverse functions of, and values placed on, catchments.
- The ICM system is adapted to the diversity in geographical, historical, social, political and land use contexts across the Murray Darling Basin.
- Catchment communities and governments at all levels have clear identification with the Murray-Darling Basin and actively manage related cross-jurisdictional issues.
- Government culture supports its role of 'enabler' of community participation and collaborative governance.

Structural Characteristics

ICM provides the vehicle for delivering inclusive, equitable and empowered community-government partnerships as a critical component of the broader governance arrangements for NRM at the catchment and regional levels. Key structural characteristics of the ICM framework to realise the way forward therefore are:

- An enabling legislative and policy environment that gives the imprimatur for diverse groups to come together to consider complex ICM contexts and empower the collective decision making efforts of ICM bodies.
- An hierarchical organisation of governance in which governance activities at higher levels 'nest' and complement those at lower levels through an emergent 'bottom-up' process.
- ICM bodies are the focal point of adaptive planning and management concerning catchments.
- The make-up of the ICM body reflects stakeholder diversity fairly.
- Government is coordinated in its actions and responses on catchment management and not overly bureaucratic in its engagement with other sectors.
- Clear agreement exists amongst all stakeholders on the roles and responsibilities of the different stakeholders in ICM and the functions of horizontal and vertical linkages with other elements of the governance system for NRM.
- Agencies and their staff are committed to developing genuine partnerships with stakeholders.
- Devolution of powers for catchment management from government to the local level occurs in a form, and at a pace and intensity, that is commensurate with community capacity to accept it.
- The catchment bodies have communicative and functional relationships characterised by strength, vitality and integrity with the legislative/policy milieu and catchment constituents.
- ICM is sufficiently resourced in the long term to empower collaborative and adaptive governance.
- Local government is empowered (e.g. skills, powers, resources) as a major player in implementing catchment plans in a strategic way that impacts on the quality and integrity of the catchment environment.

Process Characteristics

Widespread recognition that land use actions will have implications across a catchment, and a social climate that values the catchment as a 'common property' for which all stakeholders are mutually responsible. Key process characteristics of the ICM framework necessary to realise the way forward therefore are:

- Recognition of stakeholder collaboration in ICM as the heart of policy formulation for each catchment.
- An approach that respects and encompasses varying knowledge or 'ways of thinking' regarding catchments.

- Emphasis on relationship building among stakeholders as a fundamental pre-requisite to successful collaboration.
- Authentic and effective Indigenous involvement in ICM resulting from enhanced skills and capacities to participate in negotiation.
- Leadership that focuses continually on strategies for empowerment of all stakeholders to enhance the effectiveness of engagement in ICM.
- Agency activities that are flexible, to facilitate the effective engagement of the different needs and operational styles of various stakeholder groups.
- A creative strategy for building capacity of catchment groups to engage and be able to accommodate increasing responsibility.
- Achievements are recognised by both the catchment community and government, and are celebrated.
- Catchment planning and management is informed through 'socially robust knowledge', developed through the integration of scientific and other technical expertise, local knowledge and the broader community perspective.
- Targets are widely used to establish measurable achievement levels, gauge incremental improvements in catchment resource quality and to maintain stakeholder commitment.

Outcomes Characteristics

ICM policy arrangements, processes and practices contribute substantially towards achieving sustainable and equitable resource use and management outcomes at the catchment level. Key outcomes characteristics of the ICM framework needed to realise the way forward and achieve these outcomes are:

- Monitoring and review of ICM process and products as an integral aspect of the adaptive management approach of ICM.
- Catchment communities that are aware of and responsive to 'duty of care' responsibilities to the environment and other stakeholders.
- Communities and agencies with capacities to negotiate a common interpretation of catchment problems collaborate effectively and focus collective action.
- A high level of integration between ICM systems and other NRM systems.
- Agreed catchment plans that are implemented flexibly and adaptively with measurable on-ground impacts relating to the economic, social and environmental attributes of catchments.

These characteristics define a vision for the evolution of ICM, as a governance system that enables progress towards socially desirable, economically viable and environmentally robust catchments. It is described in a generic way, to apply to any Australian jurisdiction. It combines the current characteristics of ICM and directions for further evolution identified in this report.

1. INTRODUCTION

1.1 BACKGROUND

All state governments in Australia have endorsed a range of policy frameworks, institutional arrangements and implementation processes for integrated approaches to catchment planning and management (ICM) based on collaborative partnerships between government, community, industry and individuals. These ICM models vary significantly across jurisdictions (i.e. States and Territories) and they are largely experimental. However, the translation of the concept into practice has posed enormous challenges for rural communities, government and industry. Whilst there has been considerable discussion about the substance of ICM (what it is), there has been rather less on the matter of how it is best put into effect. Intuitively, most people can relate to the basic idea, but it is difficult to translate into operational terms. And, in Australia, we have limited understanding of the extent to which the institutional arrangements in place have served to make collaborative action possible.

With these concerns in mind, several States have recently undertaken, or are planning, reviews of institutional arrangements and processes in ICM. The House of Representatives Standing Committee on Environment and Heritage recently reported on its inquiry into catchment management (The Parliament of the Commonwealth of Government 2000). In addition, the *National Action Plan for Salinity and Water Quality* (AFFA 2000) supports a strong focus on improved governance and institutional arrangements for land and water management. Meanwhile the Murray Darling Basin Commission (MDBC) has underlined its commitment to ICM with the release of the *Integrated Catchment Management Policy Statement* and its Strategic Investigations and Education (SI&E) Three Year Rolling Plan has identified a pressing need to better understand the practice of ICM and to build upon the collective experience of the States. There is potential for much to be learnt from a systematic study and synthesis of the different experiences across a range of jurisdictions in Australia.

1.1.1 Project Objectives

This commissioned research project aims to provide an integrated overview/consolidation of State reviews of ICM from across Australia and an analysis of potential learning for the implementation of ICM in the Murray-Darling Basin. As such it addresses the Human Dimension Strategy Implementation Plan requirement for on-going research and activity to support ICM. It also contributes to the implementation of the Commission's new ICM Policy Statement.

The project's specific objectives as detailed in the Project Brief (see Appendix 1A) are:

Using the available literature, including recent reviews of ICM completed in each state of Australia:

(e) to identify key characteristics of ICM in each State and their effectiveness;

(f) to identify social or institutional arrangements, trends or issues relevant to the further development of ICM in the Murray-Darling Basin;

(g) to identify the core characteristics of 'best practice' ICM for the Murray-Darling Basin;

(h) to identify the implications and potential opportunities for ICM implementation in the Basin to:

- (iv) improve participation of local government;
- (v) provide better integration across jurisdictional boundaries;
- (vi) increase the participation of Basin people in ICM processes.

1.1.2 Project Products

As specified by the MDBC in the Project Brief, the main product of this project will be a report addressing the terms of reference. It will include:

(a) An overview report of ICM in Australia (which must be accessible to a non-technical audience) including:
   - a summary of the key features of existing ICM models in each State, based on comparative, integrated data sets for each State in the Basin; and
   - a summary of key emerging trends and issues relevant to the evolution of ICM in the Basin.

(b) A list of key characteristics of current best-practice ICM in Australia, and the principles underlying these practices;

(c) Recommendations on activities or approaches to better support the involvement of stakeholders in ICM in the Basin, including across jurisdictional boundaries.

1.1.3 Project Steering Committee

A Project Steering Committee was established to ensure that the project kept focussed on its specific objectives, that it progressed in a way that it met the Commission's requirements, and it had clear links with related work in Land and Water Australia. The members of this steering committee are:

(a) Dr. Rosemary Purdie (Director, Human Dimension Program, MDBC)
(b) Dr. Catherine Mobbs (Integration Manager, Land and Water Australia)
(c) Ms Dominic Benzaken (Environment Australia).
(d) The project is supported by Ms Alison Reid, Project Officer.

1.2 METHODOLOGY

1.2.1 Overall Approach

The review involved a desktop investigation of Integrated Catchment Management (ICM) initiatives in Australia using a multi-method qualitative research approach. Key elements of that approach were:

- The development of an analytical framework to guide the analysis and facilitate synthesis of information across jurisdictions;
- A systematic desk-top review of the different ICM models in Australia and a comparative integrated analysis based on the analytical framework;
- Selected 'thematic' case studies of ICM in practice to inform the review;
- Engagement of key informants to capture unpublished experience through a Project Reference Group;
- Brief review of key issues and trends emerging from the review; and
- The development of recommendations for ways forward.

The overall methodological approach and the inter-relationships of the different project components are shown diagrammatically in Appendix 1B. Several of these components are outlined below in more detail.

1.2.2 Analytical Framework

An analytical framework was developed to guide and structure an integrated and systematic comparison and analysis of the functioning and effectiveness of the different ICM models and

approaches in Australia. ICM encompasses elements relating to natural systems, political systems, social systems and technology. The interdependencies and complexity of these elements makes any assessment of ICM challenging in practice. It is critical to employ an integrated and structured approach to the investigation that will facilitate a comparative analysis of the different state approaches to ICM and the overall synthesis of findings. The analytical framework addresses the institutional, social, economic and technical aspects of ICM initiatives and is presented in Table 1.1. It draws on a framework developed for evaluating NRM by Bellamy *et al.* (1999a; 2001) and an analysis of participatory approaches for NRM undertaken by Buchy and Ross (2000), as well as the personal knowledge and broad experience in research on NRM of the principal investigators.

Table 1.1 Analytical framework for a comparative state analysis

1. Resource use context	**1.1 Nature and tractability of resource use issues and tensions at the catchment level** **1.2 Previous history of resource use issues and environmental management** **1.3 Existence and attitude to cross-border or cross-jurisdictional issues** **1.4 Identification with the Murray-Darling Basin**
2. Governance arrangements	**2.1 Policy frameworks and other institutional arrangements for ICM** 2.1.1 History and political drivers 2.1.2 Legislative basis 2.1.3 State-wide structures for ICM/NRM 2.1.4 Functions, roles and responsibilities of catchment bodies 2.1.5 Role and level of involvement of local government 2.1.6 Funding and resourcing capacity 2.1.7 Degree of whole of government coordination 2.1.8 Monitoring and review mechanisms **2.2 Participatory and partnership processes** 2.2.1 Representational and partnership processes 2.2.2 Capacity building mechanisms/approaches 2.2.3 Communication and interaction mechanisms **2.3 Catchment planning and implementation arrangements** 2.3.1 Powers and resources to implement catchment plans 2.3.2 Linkages with other planning processes
3. Knowledge context	**3.1 Monitoring and review of NRM condition** **3.2 Integration approaches/mechanisms**
4. NRM Outcomes	**4.1 Measuring outcomes**

1.2.3 Thematic Studies

Four 'themes' were chosen with the agreement of the Project Steering Committee to be explored in more detail in the review to illustrate 'issues' relevant to ICM in practice and to share learnings. The themes were:

- Local government involvement
- Managing across jurisdictions
- Role of targets
- Participatory processes and inclusiveness.

For each theme chosen, 2-3 case studies have been developed to provide 'living' examples of ICM in practice, which are not readily available in the published literature. The focus is on what can be learnt from tried approaches.

1.2.4 Project Reference Group

The Project team engaged a Project Reference Group involving a range of expertise to inform and critique the project and its findings. Members included MDBC State Contacts (or their delegates), and other experts with knowledge and experience of ICM in practice or issues relevant to ICM (see Appendix 1C).

Members were engaged on an individual basis rather than as a formal group and their roles encompassed one or more of the following:

- To help identify relevant literature and key reviews and other related information for each state;
- To identify key people to talk to in the states and territories;
- To provide knowledge of ICM in practice; and
- To comment on and review draft reports.

1.2.5 Issues Working Group

The project team made a presentation to the MDBC's Issues Working Group (IWG), which has representatives from each state and the Community Advisory Committee (CAC), on 26 September 2001. Feedback from the IWG has been incorporated into the final report presented here.

2. COMPARATIVE STATE ANALYSIS

This part of the report summarises key characteristics of ICM in each State and observations made in state review documents and other literature about their effectiveness based on the framework presented in Table 1.1. It synthesises information from detailed summaries prepared on each state, which are presented in full in Appendices 2 to 7. Note that following discussions with the ACT Reference Group members and the MDBC Human Dimension program, as well as a review of available documentation, it was decided not to include the ACT in the review at this point of time. This was because the documentation available was not commensurate with that available on the states and further research to obtain sufficient information would be beyond the scope of this study.

Because administrative arrangements in ICM are changing rapidly, and our principal source of information has been reviews commissioned by states over several years, it has been challenging to present updated information where new arrangements are being implemented. We thank the MDBC State contact officers and other agency staff and individuals who have assisted with additional information (see acknowledgements).

2.1 RESOURCE USE CONTEXT

The triggers for action in NRM in Australian states were historically focused on the management of water diversions and soil erosion to maintain agricultural expansion and productivity. Western Australia (WA), Victoria, South Australia (SA), New South Wales (NSW) and Queensland had a particular focus on the control of soil erosion that triggered early responses – Acts of Parliament, and 'district' level committees were set up in each of these states to monitor and provide a reference group on emerging issues.

With motivations for 'opening the discussion' on resource management in all states being based around protecting and enhancing agricultural productivity, the involvement in these initiatives has historically been mainly from those with rural interests and agency production efficiency specialists. This historical resource use context for ICM has been significant in driving the state responses to management and also the composition of those involved in the decision-making agendas. This determines how problems are framed and consequently the focus for collaborative activity. A brief account of historical differences in resource use issues across states is provided in Table 2.1.

State responses to catchment management problems have evolved differently due to the variation in the context for management of resources. Some of these variations in context include the following:

- In SA, there is a notable focus on issues of water quality and quantity - being at the lower end of the Murray Darling Basin system is clearly important in this respect.
- Unlike the other states, Qld does not have a significant dryland salinity problem at the moment, given that its farming and irrigation development areas are relatively recent, but rather has vexed issues of native vegetation clearance and water allocation.
- NSW covers large areas of the Murray Darling and Great Artesian Basins and it is clearly divided between coastal and inland catchments by the Great Dividing Range. Catchments are readily demarked in the public eye and have followed from south to north a progressively expansionist and intensive agricultural trend.
- In Victoria an estimated 70% of native vegetation has been cleared leading to widespread salinity, soil structure decline, reduced water quality and increased rates of severe flooding. The economic impact of this activity is clearly being felt among various sectors of the Victorian economy and this has had a significant impact in shaping involvement in ICM.

- ICM did have a profile in the WA policy arena (eg. the Office of Catchment Management) in late '80s and early '90s. Now NRM is the preferred policy framework within which the concept and principles of ICM have been endorsed as the primary means of NRM.
- The Decade of Landcare program has been extremely influential in expanding the agenda for ICM/NRM through broader community involvement/partnership approach to NRM. Now all states are encountering a much broader range of issues being considered as legitimate in ICM processes.

Table 2.1. History of resource use issues and environmental management

	History of resource use issues and environmental management
New South Wales	• Hunter Valley Conservation Trust established in 1950, to coordinate the management of land and water resources in that catchment. • Catchment Management considered as a state environment planning policy under the *Environment Planning and Assessment Act 1979.* • TCM (Total Catchment Management) concept began to be promoted in the 1980s to replace the former single-issue, single-agency approaches to catchment management, and was enabled through the *Catchment Management Act 1989.*
Queensland	• Land degradation became a popular concern in the 1940s. • River Improvement Trusts established in the 1940s – one of the earliest examples of community- and local government-based arrangements for service delivery. • Community-based District Advisory Committees formed in the 1970s, in declared areas of Soil Erosion Hazard – but later disbanded (1986). • ICM program launched in 1991 initially focussed on eastern seaboard catchment and impact on coastal zone (eg. Great Barrier Reef).
South Australia	• Seriousness of wind and water erosion identified in 1938; led to the *Soil Conservation Act 1939*. An amendment to the Act in 1945 provided for the proclamation of Soil Conservation Districts (SCDs) administered by Boards. • Soil Conservation Boards now cover 80% of the area of the State. • *Water Resources Act 1976* was the first integrated water resources management legislation in Australia; developed in response to concern for the sustainable management of the State's water resources. • *Soil Conservation and Landcare Act 1989* enacted to support SA's commitment to the National Soil Conservation Strategy and the Decade of Landcare. The Act laid the foundation for a regional approach to NRM planning, with the emphasis on 'district' planning within the SCDs. • The introduction of the *Catchment Water Management Act 1995* provided for the appointment of Catchment Water Management Boards to manage water on a total catchment basis. The role of the community in integrated water resources planning has been further empowered in the *Water Resources Act 1997*.
Victoria	• Historically, the timing of initiatives to tackle catchment management issues reflected the priorities of the day e.g. *Thistle Act 1856* and a *Rabbit Suppression Act* in the 1870s • The findings of an interdepartmental Erosion Investigation Committee led to the *Soil Conservation Act 1940* which provided for the creation of a Soil Conservation Board and the appointment of Regional Advisory Committees. The *Soil Conservation and Land Utilization Act 1949* provided for a Soil Conservation Authority (SCA) with greater powers than the previous Board. • By late 1950s, the development of cooperative projects with groups of farmers was becoming an important feature of the SCA's work. The *Soil Conservation and Land Utilization Amending Act 1962* enabled Group Conservation Areas to be formed throughout the State • Landcare program launched in 1986 • State Salinity Strategy released in 1987 • *Catchment and Land Protection Act* introduced in 1994.
Western Australia	• Massive expansion of agriculture from mid 1940s-1960s under a broad philosophy of settlement and development • By 1980s, considerable concern about land degradation and associated socio-economic problems. Salinity had begun to appear in the landscape. • Amendments (in 1982) of the *Soil and Land Conservation Act 1945* which provided the legal basis for Land Conservation Districts (and Committees) – the beginning of formal farmer involvement with the State Government in developing policies for land degradation control • ICM policy released in 1988; independently reviewed in 1991.
Tasmania	• The Water Act 1957 was the means by which catchments were managed with water allocation and quantity as the primary issues until the new Water Management Act 1999. • The local government Act 1993 has laid the way for substantial involvement of local government in regional planning for natural resources in Tasmania, which included ICM.

2.2 GOVERNANCE ARRANGEMENTS

"Governance" in this report means rules, processes and behaviour that affect the way in which powers are exercised, particularly as regards openness, participation, accountability, effectiveness and coherence (Commission of the European Communities 2001). It is "the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting and diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regulations as well as regimes empowered to enforce compliance and informal arrangements that people and institutions have agreed to be in their interest" (Silvio Funtowicz, pers. comm.).

While there is a continuing trend to devolution or decentralisation by federal and state government, current governance arrangements for NRM have a significant influence on the 'possibility frontier' for ICM policy. Across the states, several different approaches to the policy and administrative arrangements in support of ICM are continuing to evolve, reflecting varying historical influences, consequent legislative structures and priority setting procedures.

Much of the conceptual development and experience in ICM programs in Australia relates to experimentation with both the approach undertaken and the organisational structures established (eg. see Syme *et al.* 1994; Bellamy *et al.* 1999a). We briefly compare these different approaches and arrangements in the next sections.

A brief definition of ICM and summary of the history and political drivers of ICM/NRM policy tools in each state is presented in Section 2.2.1. The legislative arrangements that structure this policy and the state-wide bodies that administer it are summarised in Sections 2.2.2 and 2.2.3. How these arrangements are managed at the 'regional' level in each state is documented in Section 2.2.4. The approaches to the engagement of local government in ICM arrangements are overviewed in Section 2.2.5. The level of funding and approach to resourcing of ICM are considered in Section 2.2.6. The degree of whole of government coordination is assessed across the states in Section 2.2.7. A brief accounting of the most significant monitoring and review mechanisms for ICM/NRM is present in Section 2.2.8.

2.2.1 Policy Frameworks and Other Institutional Arrangements for ICM

Definition of ICM

Catchments are the biophysical units in which natural resource use and ecological protection take place. The rationale for the deliberate focus on ICM on the catchment scale is that land and water resources are basic interactive parts of natural ecosystems and their management should be based on river catchments as biophysical units which account for the interactions between these resources.

ICM is promoted as a community-based collaborative model of governance to address natural resource problems of mutual concern. It is the pioneer of formalised partnerships between government and community on NRM in Australia. Importantly, community-based catchment management approaches are one of the new trends in "governance" that have fundamentally transformed the institutional 'landscape' pertaining to arrangements for natural resources policy-making and implementation.

Specifically, MDBC in their ICM Policy Statement (MDBC Ministerial Council 2001: 5) define ICM as:

> … a process through which people can develop a vision, agree on shared values and behaviours, make informed decisions and act together to manage the natural resources of their catchment. Their decisions on the use of land, water and other environmental resources are

made by considering the effect of that use on all those resources and on people within the catchment.

The decision to manage our natural resources on the basis of catchments reflects the importance of water to the Basin environment, and to the people who live and work within the Basin.

The boundaries for ICM in the Basin are based on catchments, but in some cases also take into account political, economic and social boundaries.

ICM approaches vary around Australia but they are all fundamentally based on the concepts of integration of community involvement, technical knowledge and organisational structure and policy objectives (eg. Bellamy *et al.* 1999a). The review identified various 'definitions' of ICM by the different states and territory and these are summarised in Table 2.2.

Two previous national reviews of ICM processes in Australia, Syme *et al.* (1994) and AACM (1995), recognised that ICM is presented as not only a philosophy, but also as a process and a product. Specifically, ICM is:

- a ***philosophy*** –to foster an organisational culture and associated attitudes that view cooperation and collaboration as essential and interactions between natural resources and human activities or responses in a holistic framework;
- a ***process*** –an overarching planning framework and implementation process that reflects the philosophy of ICM and provides the 'vehicle' through which ICM is delivered. The process needs to provide a flexible, adaptive, on-going and dynamic mechanism which coordinates the activity of many people, both in government and the community; and
- a ***product*** –the planning and implementation of sustainable resource use practices which will vary from place to place, depending on conditions and needs. These should, however, incorporate environmental, economic and social considerations and need to clearly relate to specific resource management outcomes.

In the Victorian approach to ICM, management of catchments is also perceived as a business; an enterprise or management system through which government and community investment is directed (Mary Maher and Associates 2000).

History and political drivers

Current ICM/NRM arrangements have evolved from a general trend away from government-centred, single-issue approaches to integrated approaches where the emphasis is upon community involvement and whole-of-system approaches to land and water management. The key ICM policy tools by state are compared in Table 2.3.

Table 2.2 Comparison of 'definitions' of ICM by state.

	Definition of ICM
• New South Wales	Total Catchment Management is defined as the coordinated and sustainable use and management of land, water, vegetation and other natural resources on a water catchment basis, so as to balance resource utilisation and conservation.
• Queensland	ICM is defined as "integrating the management of land, water, vegetation and other biological resources on a catchment basis in order to achieve the sustainable and balanced use of these resources". The ICM Program is founded on notions of: • common understanding of issues between stakeholders (from individual landholders to government) • individual responsibility • voluntary changes in the use of natural resources • the provision of opportunities for individuals to contribute through participation in representative community groups. ICM goals also include community cooperation and coordination (on a local level, regional level and with government) and economic sustainability.
• South Australia	SA does not have an ICM initiative *per se* but the *Water Resources Act 1997* defines catchment management as "the management of water resources in an integrated way to achieve economic, environmental and social goals".
• Victoria	The primary goal of catchment management is "to ensure the sustainable development of natural resource-based industries, the protection of land and water resources and the conservation of natural and cultural heritage". The implementation of catchment management is based on five basic principles: • Community empowerment • Integrated management • Targeted investment • Accountability • Minimising bureaucracy.
• Western Australia	As an 'umbrella' policy, 'pulling together and streamlining activities carried out by local government and a number of State government agencies' and providing opportunity for community involvement, ICM aims to: • include the coordinated planning, use and management of water, land, vegetation and other natural resources on a river or groundwater catchment basis; • involve landowners and local communities at all stages from the identification of issues and problems in the particular catchment to planning and on-the-ground management; and • provide a streamlined "whole-of-government" approach to complex and interconnected issues of balancing resource use and conservation
• Tasmania	There is no formal ICM initiative and while approaches to catchment management appear in all NRM strategies it is only a subset of broader agendas and is not defined.

Legislative and administrative arrangements

Where ICM most differs between the States is in the nature of legislative support for ICM and the administrative structures of resource and environmental agencies. These are summarised by state in Table 2.4 and some of the key points of interest are briefly considered below.

Specific catchment management legislation exists in Victoria, NSW and South Australia. In these three states legislation has devolved powers for planning and management directly to the catchment/regional level (Mary Maher and Associates 2000). Other states have policy commitments to ICM and have made organisational changes to implement catchment management.

Table 2.3 Key ICM/NRM Policy tools

	Key ICM/NRM Policy Tools
New South Wales	• The *Catchment Management Act 1989* provides for *the* coordinated use and management of land, water, vegetation and other natural resources on a catchment basis. • A Review in 1996-7 identified a need for a more strategic approach, greater efficiencies and effectiveness in the structures and roles of regional bodies, an investment approach to implementation, and a need to monitor outcomes. • This led to the *Catchment Management Regulation 1999* and a restructuring of ICM bodies and their roles taking effect in 2000. • Catchment Management Boards have now replaced Catchment Management Committees, but are still in formative stages focussed on preparing Catchment Management Plans
Queensland	• NRM management has evolved over time in an *ad hoc* fashion, involving a mix of government agencies, community groups, individuals, policy planning and allocation systems, laws and regulations • Building on the foundation provided by the National Landcare Program, ICM was introduced in 1991 and saw the development of catchment management strategies by community, industry and government partnerships. • In 1994 an NRM Bill was proposed to integrate planning and regulation of water, vegetation, forest resources and catchment management under one statute. It did not proceed, but as community-based approaches to ICM grew stronger, mechanisms for NRM planning evolved. For example, regional planning frameworks which include NRM themes are being established in many areas under the *Integrated Planning Act 1999.* • Calls for legislative support for ICM are increasingly heard in Queensland to provide stronger recognition and status for community groups and help give effect to their plans and strategies.
South Australia	• There is no formalised structure or recognised process for ICM • There is no specific catchment legislation and no statutory authority or agency with a mandate to integrate NRM activities within the state or within catchments • Apart from the SA portion of the MDB, only the catchments in the Adelaide Hills consider resource management issues on a catchment basis • However, planning and management of natural resources is founded primarily on regional or district bases, normally with separate plans for each resource.
Victoria	• The advent of Landcare was arguably one of the most significant developments in catchment management in Victoria in recent times – it heralded a significant shift in Victoria's approach to land and water management, marked by an increasing emphasis on partnerships between community and government, using an integrated whole-of-system approach to NRM. • However, there was concern (i) that land and water management were still inadequately linked; (ii) that community consultative processes were inefficient; and (iii) that the regulatory framework was inconsistent, narrow and inflexible. This led to the *Catchment and Land Protection Act 1994*. • In 1996, the Victorian Government established 5 basic principles to govern the way in which catchment management is implemented throughout the State: community empowerment, integrated management, targeted investment, accountability and minimizing bureaucracy.
Western Australia	• Rather than ICM, the preferred policy framework in WA is now regional and sub-regional NRM • The State Salinity Action Plan was launched in 1996, with a 30-year vision to address the burgeoning problems of dryland salinity. A State Salinity Council was formed in mid-1997, representing key stakeholder groups with a role in salinity management. • A revised Salinity Strategy was released in 2000, in response to calls for the Action Plan to be more community-focused. The State Salinity Council was restructured. • The Cabinet Committee on Salinity Management endorsed an NRM framework to assist in achieving sustainable NRM. The framework was jointly developed by the chairpersons of 5 regional NRM groups and the CEOs of the (then) 4 NRM agencies. The framework allowed for the development of *partnership agreements* between regional NRM groups and State agencies. • Outcomes from the 'Machinery of Government Review' (reported in June 2001) and the 'Salinity Taskforce' (due to report in August 2001) are likely to result in significant changes in the public sector and a more targeted and cohesive response to NRM in WA.
Tasmania	• There is no specific ICM legislation • State based strategies such as the Water Development Plan for Tasmania, Tasmania Together, the Resource Management and Planning System for Tasmania, the Tasmanian NRM Strategy and Tasmania's Nature Conservation Strategy significantly influence the broader regional ICM possibilities in Tasmania. • Given the complexity of state based regulation regarding NRM in Tasmania, ICM type activities, involving genuine community participation, are mainly occurring at the local government level.

Table 2.4 Legislative support for ICM/NRM

	Legislative support for NRM/ICM
New South Wales	• The *Catchment Management Act 1989* – provided for the establishment of a network of regional Catchment Management Committees (CMCs) and Trusts to coordinate TCM at the catchment level; and a State Catchment Management Coordinating Committee (SCMCC). • In conjunction with the *Catchment Management Act* 1989, the *Catchment Management Regulation 1999* allowed for structural changes to TCM arrangements in NSW. Eighteen Catchment Management Boards (CMBs) have replaced 43 CMCs and 5 Regional Catchment Committees. CMB members were appointed in May 2000, representing community, industry and government.
Queensland	• There is no legislative base for ICM framework in Queensland • The State government is investigating the possibility of statutory support for catchment management. In the meantime, catchment management can be indirectly affected by any of 19 Acts of Parliament administered by the Department of Natural Resources. • In 1994 a proposal was developed by the then Department of Primary Industries for an 'NRM Bill' to bring together planning and regulation of water, vegetation, forest resources and catchment management under one statute. This did not proceed but there has been considerable development of the statutory base for NRM since then. The recent *Water Act 2000* and *Vegetation Management Act 1999* are key parts of the overall regulatory regime for NRM envisaged in the previous proposal.
South Australia	• The *Water Resources Act 1997* is the principal legal framework for policy and planning that can address integrated management of water bodies and associated ecosystems. Water plans, particularly catchment water management plans are the key vehicle for integrating and improving the management of these systems. These plans have legal status. The administration of the Act is primarily through catchment-based structures, primarily Catchment and Water Management Boards (CWMBs). • The *Development Act 1993* covers land development and land use and establishes a system for development planning and assessment. Approval is required from the relevant planning authority – usually the local Council – before development can be undertaken. The *Water Resources Act 1977* gives CWMBs capacity to amend Development Plans; this gives the Boards a direct means of ensuring that new land uses and buildings are aligned with catchment management strategies. • The *Environment Protection Act 1993* allows for the Environment Protection Authority to issue protection policies on various environmental quality issues. • The *Integrated NRM Bill* (Draft) was released for public comment in February 2001. This Bill proposes new overarching legislation to facilitate a consistent and efficient legal framework to integrate NRM in the State. The Bill proposes a Ministerial Board and a network of regional Integrated NRM Groups to coordinate approaches to managing natural resources. The proposed Act is not intended to replace any existing legislation but rather to strengthen community involvement in NRM decision-making and improve administrative arrangements.
Victoria	• The *Catchment and Land Protection Act 1994* – operates in conjunction with a range of other legislation that influences management of Victoria's natural resources (e.g. *Environment Protection Act 1970, Flora and Fauna Guarantee Act 1988, Water Act 1989).* The *Catchment and Land Protection* Act allowed for (i) the establishment of a regional Catchment and Land Protection (CaLP) Board in each of 10 CaLP regions covering the State and (ii) the establishment of a state-wide advisory Catchment and Land Protection Council. Under a later amendment, and the *Water Act 1989,* the 9 non-metropolitan Boards were replaced by 9 Catchment Management Authorities (CMAs) and the CaLP Council was replaced by the Victorian Catchment Management Council.
Western Australia	• The *Soil and Land Conservation Act 1945* (with amendments in 1982) provides the basis for Land Conservation Districts (LCDs), LCD Committees and the Soil and Land Conservation Council. • No single group or agency has overall responsibility for catchment management in WA and there is no legislation that provides a total framework. • A number of government agencies are responsible for catchment management and between them, they are responsible for 77 legislative Acts, many of which have both direct and indirect effects on catchment management.
Tasmania	• The Department of Primary Industries Water and Environment Is the central agency responsible for the sustainable development and conservation of water resources in Tasmania. This responsibility is enabled through the *Water Management Act 1999*, the *State Policies and Projects Act 1993* and the *Environmental Management and Pollution Control Act 1994*. • Tasmania has a five-tiered statutory planning system, which is called the Resource Management and Planning System (RMPS). This encompasses legislation, state policies, regional planning, local council strategic plans and planning schemes and interim orders. The scheme is regulated by legislation that directly impacts on local government. Coordination activities relating to the acts covered by the RMPS are done by the Resource Planning and Development Commission.

Victoria is the only state where the catchment/regional authorities enjoy formal structures, power and funding. NSW Catchment Management Boards are established under legislation, but have no formal powers and limited capacity to raise and manage funds. Catchment Water Management Boards in SA are also established under legislation and have the capacity to raise funds but implement their strategies through other local bodies (such as local government and Local Action Planning Groups). In Queensland, Tasmania and WA, state departments administer many Acts which have some bearing on ICM but catchment authorities have no formal powers (eg. to implement catchment strategies) and limited capacity to raise funds. This creates difficulties for coordination and integration.

Restructuring of agencies with responsibilities for NRM has been a common experience in all states. However, a continuing characteristic has been the lack of coordination within and between departments and the issue of departments protecting *their territory*.

In Queensland, one reason often espoused for resistance to statutorily appointed ICM groups is the potential for these groups to be perceived as another layer of bureaucracy. WA has been reluctant to invoke legislation to support NRM/ICM. The argument put forward is that institutional arrangements in WA were not complex and the public service relatively small, it was believed that the desired cooperation and coordination could be achieved by working within the existing system. In practice this proved difficult because of the particular distribution of responsibilities among several government agencies.

State-wide structures for ICM/NRM

The state-wide bodies that administer ICM are compared in Table 2.5. All large States have state-wide bodies – some statutory, most not. Most are advisory in nature with limited powers, the emphasis is on voluntary involvement, cooperation and consultation. With the exception of the Victorian Catchment Management Council and NSW Catchment Management Board, the statutory state-wide bodies are hangovers from 'old' pieces of legislation.

NSW has strong vertical integration with its linkage between Parliament, State Committee, Catchment Management Boards and voluntary groups. However, recently created separate structures for vegetation management and water management occur in parallel with TCM with weak linkages between them. The tighter focus within each domain thus comes at the expense of integration among them.

In Victoria, the Victorian Catchment Management Council is the state-wide advisory body for land and water condition with strong networks to the regional Catchment Management Authorities who are responsible for the development of Regional Catchment Strategies. This is a comprehensive ICM structure that is in the process of building stronger linkages with key implementing groups such as existing NRM groups and responsible agencies.

South Australia has a regional focus for the management of natural resources that involves a large number of statutory and non-statutory organisations including government, industry and community groups all of which operate at various levels. The Department of Water Resources is the lead agency for the policy management and administration of the state water resources and catchment management falls within the acts administered by this department. However ICM is also affected by Acts administered by the Department of Environment and Heritage. In addition to agency involvement there are a number of peak advisory bodies including the Natural Resources Council, Water Resources Council and the State Salinity Committee. While there is a complex coverage of the ICM/NRM issues in SA much of the engagement lacks statutory strength and must rely on cooperation, goodwill and capacity to negotiate to achieve change. Given the complexity of the regulatory environment this is a difficult task.

Table 2.5 ICM/NRM bodies with state-wide responsibilities

	ICM/NRM bodies	Function(s)
New South Wales	State Catchment Management Coordinating Committee	Statutory establishment but with no statutory backing for implementation of its activities. Provides Ministerial advice on policy issues and manages programs and the establishment of State priorities for catchment management. It consists of senior state agency staff, and representatives or rural land users, environmental interests, Indigenous, local government and Catchment Management Boards (CMBs).
Queensland	Landcare and Catchment Management Council	*Non-statutory:* Provides strategic advice to the Minister for Natural Resources and Mines on (i) Landcare and catchment management; (ii) direction for the administration; and (iii) management, operation, monitoring and evaluation of the NHT program.
South Australia	Natural Resources Council	*Non-statutory:* Peak advisory body on the sustainable use and management of SA's natural resources. It seeks to coordinate and link the NRM activities of State agencies and regional organisations such as Soil Conservation Boards (SCBs) and Catchment and Water Management Boards (CWMBs).
	Water Resources Council	*Non-statutory:* The WRC is a high-level forum with Ministerial advisory powers. Its charter is mainly concerned with reviewing progress on the State Water Plan and its implementation through catchment-based plans. It has no formal link to regional programs of agencies involved in river-management related activities.
	State Salinity Committee	*Non-statutory:* Formed in January 2000 to promote a whole-of-government approach to managing the salinity problem. Membership is made up of 7 agency CEOs.
Victoria	Victorian Catchment Management Council	*Statutory:* The VCMC is a peak advisory body, established under the *Catchment and Land Protection Act 1994*, which advises Government on (i) the state-wide condition of land and water; (ii) the state-wide priorities for catchment management; and (iii) the state-wide priorities for research and investigation.
Western Australia	Soil and Land Conservation Council	*Statutory:* The peak Landcare body for WA, established under the *Soil and Land Conservation Act 1945* and reporting directly to the relevant Minister. The Council's mission is to provide policy and advice to government on the conservation, sustainability and improvement of soil and land resources.
	State Salinity Council	*Non-statutory:* Provided for in the State Salinity Strategy. The Council has a role in leading and supporting the community in addressing salinity. It is formed of representatives from both community and government stakeholder groups. To assist in networking with the community, the Council has established a Salinity Council Reference Group.
	Natural Resources Council (proposed in 'Machinery of Government' Review, 2001)	An advisory Council to provide holistic policy advice and a high profile and direct interface between the Government and the community.

Many agencies and groups have been part of the framework for addressing natural resource problems in Queensland at the local, catchment, regional and state levels. The Draft Discussion Paper on Regional NRM Partnership Arrangements notes that "the ad hoc development of this framework of groups, agencies, infrastructure and policies has led to a complex, sometimes confusing system with some overlapping responsibilities for planning and action (DNR&M 2001a)." While the Queensland ICM framework has evolved significantly over the last decade, it currently has a very low political profile and is subsumed within broader state-wide NRM frameworks that encompass water allocation planning and land clearing/vegetation management agendas.

Membership and appointment arrangements differ – most are based on representation. Members of regional and state bodies are selected primarily to represent a stakeholder body, such as an agency, industry, local government or Indigenous people. Some bodies have members appointed primarily on the basis of their skills (eg. VCMC in Victoria), in other words they are selected for their knowledge and experience rather than linkages to stakeholder bodies (though they may well have these also as part of their experience of a sector).

Increasingly, the brief of these various bodies had been for 'integrated' management with limited legislative support to adequately accommodate cross-jurisdictional issues and to facilitate capacity building within agencies and community groups that supports negotiation.

Functions, roles and responsibilities of catchment bodies

There is a plethora of bodies with a role in NRM across the states. The key bodies focused on ICM are listed in Table 2.6 – more detail can be found in the relevant state assessments (see Appendices 2 to 7).

Table 2.6 Functions, roles and responsibilities of ICM and regional NRM bodies

	Key regional bodies	NRM/ICM roles
New South Wales	Catchment Management Boards	CMBs are established by legislation under the *Catchment Management Act 1989* and the *Catchment Management Regulation 1999.* Board members were appointed in May 2000. In the first year of operation, each Board will produce the ' key components' of a draft Catchment Management Plan. Each draft Plan will provide focus and direction to individual and community initiatives, help coordinate government investment and contribute the implementation of legislation (such as the *Native Vegetation Conservation Act 1997*).
Queensland	Catchment Coordinating Committees (CCCs) now Catchment Management Associations	CCCs have no statutory basis and depend on voluntary implementation of their policy and plans through existing legislation. Develop an integrated approach to water, soil and vegetation management through the development and implementation of catchment strategies; supported by the Department of Natural Resources and Mines.
	Regional Strategy Groups	These have no statutory basis and depend on voluntary implementation of their policy and plans through existing legislation. They develop regional strategies relating to land, water, vegetation and biodiversity issues.
	Rural Vegetation Management Committees	RVMC's are Drafting Regional Vegetation Management Plans. It is expected that most Committees will take 1-2 years to draft their plans and to undertake public consultation.
South Australia	Catchment Water Management Boards (CWMBs)	CWMBs have community, agency and scientific representation and are entrusted to develop and implement a Catchment Water Management Plan (CWMP) for their area. Community members are appointed by the State Government from relevant catchments on the basis of skill (not representation) by the Minister for Water Resources. CWMBs have wide ranging responsibilities and powers under the *Water Resources Act 1997*, including the ability to raise funds through a catchment levy. They are semi-autonomous and report to the Minister.
	Soil Conservation Boards (SCBs)	Established under the *Soil Conservation and Landcare Act 1989.* SCBs have jurisdiction over Soil Conservation Districts, which now cover much of the State and are typically aligned along local government Boundaries. SCBs are comprised of representatives from local government, State agencies, industry and the community. Planning and management of natural resources is founded on a regional basis with the emphasis on 'district' planning in Soil Conservation Districts.
	Local Action Planning Groups (LAPGs)	LAPGs are located within the SA portion of the MDB. Eleven LAPGs are funded by the River Murray CWMB and the SA and Commonwealth Governments to develop and implement on-ground action plans (LAPs) for communities stretching from the Victorian border to the Coorong. They provide advice to the NHT Board on priority actions for funding in their local area.
Victoria	Catchment Management Authorities (CMAs)	CMAs are statutory bodies established under the *Catchment and Land Protection Act 1994* and the *Water Act 1989*. CMAs are primarily responsible for (i) development of regional catchment strategies and for overseeing their implementation; and (ii) provision of advice to government on resourcing priorities in the region. They also have a role in service delivery, particularly through the direction provision of waterway- and floodplain-related activities and in the negotiations of works programs with State agencies. CMAs report directly to the Minister for Environment and Conservation.
Western Australia	Regional NRM Bodies	These are non-statutory regional NRM groups with agency representation. They coordinate efforts between smaller, more localised sub-regional groups, develop priorities and strategies and secure resources.
	Land Conservation District Committees	These were established under a 1982 Amendment to the *Soil and Land Conservation Act 1945*. Districts variously define problems, develop and test solutions, conduct research, plan and implement projects, encourage land conservation and establish standards for land management.
Tasmania	Water Management Planning Advisory Group (WMPAG)	WMPAGs have the role of providing better knowledge of the nature and reliability of water resources in a catchment with the intent of assisting landholders to assess risk. This regional consultative process is supported by the Department of Primary Industries Water and Environment.

Catchment bodies vary in powers and responsibility but most have a role in catchment planning and in engaging with local stakeholders and Landcare and other community groups. They do not necessarily have a lead or sole role for coordination of catchment management – in NSW and Queensland for instance there are comparable bodies for vegetation management and water allocation planning.

Most catchment bodies are inadequately resourced to carry out what is expected of them and only have limited fund raising capacity (see 'Funding and resourcing capacity' section below). Only CMAs in Victoria and CWMBs in SA have the capacity to raise funds through catchment levies. Levying powers however are not being exercised by Victoria's CMAs at present – this shift came with the change of government in Victoria in 1999. The 'catchment tax' as it had become known had attracted considerable criticism when introduced by the previous government. But the notion of locally-raised funds being spent on local catchment projects, with local accountability, did gradually win support. However, instead of levies, the State budget now includes an additional allocation to CMAs equivalent to that which might otherwise have been raised locally.

In Tasmania, where there are no formal arrangements for ICM/NRM, there is a strong relationship between NRM/ICM activities and Bushcare, Landcare and Waterwatch. The broadening of these roles is usually supported by local government. These models have strong community ownership. Agency support is more *ad hoc* but usually more integrative because it is not driving or dominating the process. These models represent emergent structures that have not been constrained in their evolution by, in some cases, distracting state based legislation aimed at determining relevant structures rather than supporting their emergence.

There is still a heavy reliance on volunteers to participate in NRM decision-making bodies, sub-catchment groups etc. in all States. This is a very demanding role, especially on office bearers such as chairs. Work overload, disillusionment with the extent of empowerment and inability to facilitate the development of progress measures leads to 'burnout' and consequently loss of capacity and experience.

While direct expenses are sometimes paid, opportunity costs in time spent away by ICM 'volunteers' from business and family are not well recognised. These pressures are challenging the representative institutional arrangements for catchment bodies and may require creative innovation to evolve more effective and sustainable arrangements.

In some cases, catchment bodies are co-located with a State agency – this may affect the community perception of independence of these groups. An increasingly important function and responsibility of ICM groups is to facilitate the community imprimatur to make decisions regarding complex NRM issues – this is placing increasing demands on these activities to develop adequate processes for representation which requires attention to capacity building, both horizontally and vertically.

Role and level of involvement of local government

In all states, effective engagement of local government in NRM arrangements and processes remains a vexed issue – but concerted efforts are being made. Most emphasise that the involvement of local government is integral to the success of ICM. Only in the last decade has local government expanded beyond a basic municipal services role (e.g. roads, rates, rubbish) into environmental planning and management. Local governments are still at various stages of evolution in taking on these broader roles.

Under planning and development legislation, local government can *potentially* have a major influence on controlling activities that affect natural resources and, in turn, impact upon the health of a catchment and its water resources (e.g. in SA, Victoria and Queensland). Local

government has also been active particularly in Tasmania in defining a role for engagement in NRM.

In NSW, local government is represented at the key levels of TCM, the SCMCC and CMBs with recent changes to CMBs intended to achieve better cooperation with local government. Nevertheless there remains a difficulty that each CMB is on a far larger scale than local government, so that several local government bodies are within the area of a CMB. Few of these governments can have a member on the board, and communication can be difficult from this member to the other local governments. These structures tend to dislocate considerations from the local government context and disempower these groups from what could potentially be a highly effective medium to address ICM concerns.

In Queensland, it has been noted, specifically, that there are institutional barriers to the participation and involvement of local government in catchment management with some evidence that local governments are confused by the actions of various NRM groups and uncertain as to how best to become involved. Moreover ICM is viewed by some as a threat to local government activity. However, there are some good examples of integrating ICM in local government planning schemes and the local government Association of Queensland is actively promoting ICM and has prepared guidelines to support local government's role in ICM.

In SA, since the passage of the *Water Resources Act 1997*, local government has had the potential to have a significant role in water resources management. The Act also gives power to CWMBs to recommend amendments to Development Plans of local government, as part of the catchment planning process – no amendments have occurred to date. The capacity for the catchment body to require amendments for the purpose of achieving consistency between catchment and local planning schemes is a first for catchment management in Australia.

In Victoria, a State section of the planning provisions requires that local governments take account of the Regional Catchment Strategies and their component action plans. Local government is also required to give regard to approved regional vegetation plans when amending planning schemes and reviewing Municipal Strategic Statements.

Funding and resourcing capacity

There are two key elements to funding and resourcing: resources to operate the ICM administrative arrangements, such as funding the workings of regional and state bodies, and resources to implement plans made by ICM bodies or through ICM processes.

Resourcing ICM processes

The most common approach to funding the collaborative processes of ICM, focused on regional bodies, is a combination of in-kind inputs by members of the bodies (voluntary labour by the self-employed, salaried by agency staff and members of some stakeholder organisations), and recurrent funding from state government budgets through one or more participating agencies. Because of the extent of in-kind contributions, it is difficult to identify the actual costs of ICM. Further, inputs to ICM may be hard to identify separately from program activities with which they are inter-related. Some states (SA, Victoria, parts of NSW) have, or have had, levying arrangements to support ICM processes and/or implementation. These are not necessarily taken up where there are concerns about public acceptance.

The State reviews comment on under-resourcing of ICM, both in cash terms and in terms of the numbers of agency staff dedicated to its support. This is closely related to 'burnout' both among voluntary members and agency staff, as well as limiting its potential effectiveness.

Budgetary information for ICM is most often focused on costs of running the system, thus focusing accountability on inputs rather than outcomes (AACM 1996). This makes assessing cost effectiveness difficult, and hence targeting of the resources.

Resourcing for implementation

Capacity to implement plans made through ICM processes is clearly deficient, and for the most part ad hoc. This also contributes to frustration on the part of members of regional bodies, who perceive inability to progress after years of hard work and often difficult negotiation.

Much of the on-ground work is achieved indirectly, through small grants to bodies such as Landcare and other stewardship groups, through the NHT and its predecessors. These are rarely linked explicitly to the strategic planning of regional bodies, though the need to do so has been identified in several states. They are also necessarily short-term projects, subject to great funding uncertainties. Since success rates are limited, there is an opportunity cost for applicants in putting time and effort into preparing applications.

A philosophy of cost-sharing for implementation of ICM is promulgated, but methods for doing so are in their infancy. Cost-sharing is inherently challenging because of the difficulties in identifying which parties should contribute, then gaining their acceptance and commitment for doing so.

The Queensland review notes that targeting of resources has been made difficult by frequent changes in guidelines.

Funding arrangements are summarised in Table 2.7 below.

Table 2.7 Funding and other resourcing for ICM

	Funding for process	Funding for implementation
New South Wales	• State agency budgets and staff time • Voluntary labour by other parties • Funds levied/raised by catchment management Trusts (few)	• Project by project through national competitive grant schemes (e.g. NHT)
Queensland	• State Agency funds and operating grants.	• Some State funding of projects and a number of catchment-related projects have attracted Commonwealth funding (e.g. NHT)
South Australia	• Catchment bodies can charge levies	• Catchment levies on residents of the catchment collected by local Councils. • Use of competitive grants, e.g. NHT, for specific projects
Victoria	• Combination of agency and catchment funds.	• Regional bodies' levying powers rescinded in 1999. State budget now provides equivalent amounts. • NHT funding for specific projects
Western Australia	• In-kind support from agencies, voluntary effort. • Some State funding (e.g. Executive Officer for Northern Agriculture Integrated Management Strategy).	• Competitive funding (e.g. NHT), in-kind support.
Tasmania	• No explicit state body. Funding for preparation of particular plans unclear.	• Proposals for a State fund and levy rejected. Reliant on competitive funding.

Whole of government coordination

Achievement of whole of government coordination is a significant, and highly challenging issue, for ICM as much as other government program areas that require integrated policy and action.

No state can claim yet to have a successful whole-of-government approach incorporating both horizontal (between agencies) and vertical (at different levels) integration within government. Current approaches are summarised in Table 2.8.

At face value Victoria seems to have the most workable system, in which regional ICM bodies provide the point of integration among agencies as well as other participants. Their plans form the basis of clear agreements with government, as well as other service providers. In some states, e.g. Queensland, ICM is seen as the initiative of one agency, and lacks commitment from others. In fact, a 'silo-mentality' has characterised NRM in Queensland with each agency "doing its own thing" and ICM happening in isolation of other related NRM programs (e.g. water allocation management and regional vegetation management). In others, e.g. NSW, combined efforts are attempted but work unevenly in practice. The SA review comments that the legislation providing for comprehensive management of natural resources is not combined with a positive requirement for coordination. As a result, coordination across agencies is limited. The same applies in WA, where historical fragmentation of effort continues despite an integrative framework.

Common arenas of weak coordination are between NRM and planning, and among NRM partnership initiatives in ICM, water resource management, and vegetation management. We comment on integration with local government in an earlier section.

At the political level, bi-partisan commitment is desirable to avoid destabilisation or lack of support for implementation when governments change. Political commitment is vital for adequate resourcing of ICM, and support for the partnership approach and its outcomes.

Table 2.8 Approaches to whole of government coordination

	Approaches to whole of government coordination
New South Wales	• ICM bodies are designed for vertical integration from Cabinet to community groups • There are challenges in inter-agency coordination, not solved by lead agency mechanism • There are challenges in horizontal integration between related initiatives.
Queensland	• ICM is perceived by other state agencies as a one-agency activity, rather than community with whole of government. • Lack of linkages and coordination between ICM and other related parallel NRM initiatives – i.e. a silo mentality. • Lack of coordination between levels of government with a tendency for different levels of government to work in isolation
South Australia	• SA has a strong tiered planning framework, not matched by effective coordination in practice. • Draft Integrated Natural Resource Management Bill currently being considered to provide an umbrella framework of coordination
Victoria	• Regional bodies act as 'peak bodies' in their regions for integration of NRM activities. Regional management plans provide a basis for coordination with agencies and other service providers.
Western Australia	• The NRM framework seeks coordination, but fragmentation between the participating agencies continues.
Tasmania	• A former Council for Land and Water Management was disbanded in 1997. There is currently no coordination mechanism.

Monitoring and review mechanisms

There is historically little evidence across all states of strategic effort to monitor the impacts of ICM and the effectiveness of the different approaches employed. This was a major issue in the NSW ICM Review (AACM 1996) and also in Queensland (Rowland and Begbie 1997). However, it is now recognised that the needs of accountability and performance are increasing. The current monitoring and review mechanisms for ICM and NRM policy are summarised for each state in Table 2.9.

The dearth of strategic effort to monitor outcomes of ICM may reflect the inadequacy of current monitoring mechanisms to reflect progress in integrated NRM/ICM activities. Current monitoring has focussed on outputs and activity-based assessments (e.g. number of catchment organisations established or catchment plans/strategies developed; area of riparian zone fenced)

rather than measuring progress in facilitating activity toward sustainable, and therefore necessarily by definition, emergent outcomes. For example:

- In SA, catchment/regional resource management through the Water Resources Act 1997 is based on an adaptive management approach which requires an effective performance evaluation system that operates at several levels. For example, monitoring and assessment are critical strategies in the State Water Plan. The Act requires annual reporting of the extent to which the State Water Plan has been implemented and the extent to which this has resulted in the achievement of the object of the Act. Reports are not required on river condition etc., but on the efficiency and effectiveness of the Plan's achievements.
- In WA the Salinity Task Force was appointed to recommend to the Government, improvements to the State's salinity program. This involved evaluation of current salinity programs, review of the state-wide structures that support a whole-of-government approach, and review of existing monitoring and evaluation arrangements.
- In Victoria, a 'Governance Improvement' project is underway. One objective is to develop a specific, priority-based agenda and strategy for implementing governance improvements in catchment management. Recommendations are to cover the legislative, strategic and operational, cultural and ethical environments, and impacts of community expectations.

Table 2.9 Monitoring and review mechanisms of ICM/NRM arrangements

	Monitoring and review mechanisms/initiatives	Objective/Purpose/Terms of Reference
New South Wales	Performance indicators for TCM, addressing issues such as policy coordination and community participation to be developed by the State Catchment Management Coordinating Committee (SCMCC)	Regional bodies were challenged to report to the SCMCC against these indicators. The SCMCC would report regularly on the effectiveness of TCM, while the State Government would continue its role on state of the environment reporting.
Queensland	No formal monitoring and review mechanisms for ICM	Lack of monitoring and review mechanisms for ICM beyond *ad hoc* assessments of the number groups established and the number of catchment plans/strategies formally endorsed.
South Australia	Provisions under the *Water Resources Act 1997*	The *Water Resources Act 1997* is based on adaptive management – this requires an effective performance evaluation systems that operates at several levels – State, regional, local. For example, at a State level, the *State Water Plan 2000* requires reporting to the Government and the community about how effectively the polices and actions contained in the Plan are being put into practice.
Victoria	Governance Improvement Project (due for completion in August 2001)	This is designed to enhance current governance arrangements in catchment management. The project will define and promote good governance by clarifying and improving existing frameworks, relationships, standards and supporting administrative processes.
Western Australia	Salinity Taskforce	This is a short-term, four-member, taskforce established in May 2001 to recommend to the Government, improvements to Western Australia's Salinity Program. The Taskforce's work will be assisted by data being collected by a State Salinity Council audit, which is currently reviewing 10 specific salinity projects.
	Machinery of Government Review	A Taskforce was appointed in May 2001, to review the number of departments, statutory authorities, boards and committees in the WA public sector and to recommend a package of proposals which would enhance the operation of the machinery of Government. The Taskforce reported in June 2001.
Tasmania	No one specific catchment management Act but monitoring and review provisions within Regional Management Planning Systems (RMPS)	Goals have been focussed on maintaining water quality and quantity for hydro-power, urban water supplies and agriculture. This has been mainly the responsibility of a single agency depending on use.

The current policy statement of the MDBC *Integrated Catchment Management in the Murray-Darling 2001-2010* identifies the importance of developing and monitoring targets. The target areas identified relate mostly to water quality, water sharing and terrestrial biodiversity as well as riverine ecosystem health and catchment health. This reflects the current ambitions of ICM approaches but does not point toward indicators to reflect progress in dealing with the concerns encountered in proposing ICM by various states, as documented in this review.

2.2.2 Participatory and Partnership Processes

Participation and partnership processes are defining characteristics of ICM. For the most part, ICM bodies were initiated as partnerships between agencies and community groups. Partnerships have been an integral aspect from the beginning, not added along the way. This is markedly different to other approaches such as the scientifically driven approaches adopted through early examples of Ecosystem Management in the USA. The emphasis on partnerships, developed through participatory processes, reflects changed attitudes regarding the roles played by stakeholders in the policy process. While this is not always reflected in practice there has been a shift from government as administrator of policy on behalf of industry, and 'community' as passive recipients, to government as 'enabler' and 'facilitator' to support a more empowered industry/community alliance to articulate context-dependent catchment strategies.

Representational approach/processes/mechanisms

A major issue for ICM is the basis for the participatory approach adopted in regional and state bodies. The representative arrangements for 'regional' ICM bodies is summarised for each state in Table 2.10. Most have a representational approach in which members are chosen primarily to represent different stakeholder bodies (e.g. NSW and Queensland). An alternative is an expert approach, in which committee members are chosen personally for their expertise (e.g. Victoria and South Australia).

An emergent issue is the heavy demand on voluntary, non-government members participating in ICM. The Queensland Murray Darling Committee in a communiqué in 2000 identified one of the major difficulties with community participation as "the plethora of largely Government introduced committees on which community members are asked to participate…This in itself has caused some concerns within the community and a level of friction and frustration between the Landcare movement and the catchment management concept". Expectations are that the demand for community involvement will continue to increase and this raises clear issues of capacity to do so in terms of financial costs, time and skills. In Queensland, for example, other than those on high-level committees (such as the LCMC), community members are not paid honorariums or sitting fees. However, CMA members in Victoria are paid sitting fees as well as having travel costs reimbursed. With high costs for volunteers to be involved, ICM runs the risk of excluding particular stakeholders, for example, those who cannot leave the farm work to someone else.

In Victoria, the Catchment and Land Protection Act 1994 requires that the majority of members on each CMA be involved in primary production - conservation groups argue that the CMAs are, therefore, designed to protect and preserve traditional economies. In NSW, the majority of members on CMB's are required to be landholders or land users within the catchment area. Additional members are to represent the environment, local government, Indigenous interests, and NRM agencies or authorities.

Indigenous representation

It is generally acknowledged that greater effort is needed to involve Indigenous people (see also Section 3.4.3). However, representativeness in ICM processes is particularly an issue for Indigenous people, whose decision-making and rights to speak about land and water focuses on

areas of traditional country that do not coincide with, and are generally smaller than, catchment scales. In addition, the issues encompassed may fall outside what is currently 'culturally' legitimate in catchment management deliberations. In Victoria, the VCMC, in partnership with Indigenous people, is leading a project to promote and develop protocols for indigenous land management, for inclusion in regional approaches to land and water management. It is anticipated that these protocols, once developed, will be implemented through CMAs.

Table 2.10 Representation on regional bodies

	Regional bodies	Appointment process/criteria
New South Wales	Catchment Management Boards	Members are appointed by the Minister for Land and Water Conservation, from nominations provided relevant interest groups and organisations.
Queensland	Catchment Coordinating Committees	Most use a representative model for membership and this is reflected in the different memberships of those groups across the state. They generally represent industry, local government, Landcare groups, community groups and State agencies.
	Regional Strategy Groups	These are composed of representatives of key stakeholder interests, are community based and led, and formally endorsed by the Queensland government on the recommendation of the LCMC.
	Landcare and Catchment Management Council	This involves representatives of peak industry and community bodies and state government departments who are appointed by the Minister.
South Australia	Catchment Water Management Boards (CWMBs)	Membership is skills-based; The Minister appoints members, having regard to advice from the Water Resources Council and to the requirements for a broad spectrum of knowledge and experience areas. They are chaired by a community member.
	Soil Conservation Boards (SCBs)	Boards are comprised of representatives of local government, State agencies, industry and the community.
	Local Action Planning Groups (LAPGs)	Representative membership, including SCB, local government, State agencies, primary producers and Landcare groups.
Victoria	Catchment Management Authorities (CMAs)	Membership is skills-based; Members are appointed by the Minister for Conservation and Environment on the advice of an independent Selection Panel. The *Catchment and Land Protection Act 1994* requires that the majority of Board members should have a background in 'primary production'.
Western Australia	Regional NRM Bodies	Members are nominated by relevant interest groups and organisations, such as sub-regional groups, local government and State agencies. There is some election of community representatives (e.g. Avon Working Group).
Tasmania	Water Management Planning Advisory Group	This process operates through focus group and does not have a formal membership structure.

Capacity building mechanisms/approaches

Capacity building is emerging as a key issue in making ICM structures and processes effective. The concept of 'capacity building' is a relatively recent one. Historically, it has been delivered and/or enabled under a number of different guises in various State and Federal programs. Particularly with the advent of the National Action Plan for Salinity and Water Quality, 'capacity building' is a term in increasing use and now often cited as a core principle in NRM strategy documents. As a concept it is still seen to apply largely to community groups but needs to be equally considered for agencies. NRM partnership approaches are challenging to conventional agency cultures and require people to find new ways of working and relating so as to engage effectively in a multi-stakeholder process of decision-making.

A useful definition of capacity building comes from Queensland: 'any activity undertaken by resource managers (either individually or collectively) to enhance or develop their ability to undertake effective natural resource planning and management' (DNR&M 2001b). 'Natural resource managers' here refers to landholders, communities and key organisations (such as Landcare, regional catchment groups, industry bodies, government service providers and research institutions).

States are identifying particular aspects of community capacity that appear now to be crucial in management of natural resources. For example:

- Leadership and facilitation skills;
- Development of protocols and agreements for catchment management bodies in terms of how they do business (e.g. liaising with government, information exchanges, employment arrangements etc.);
- Capacity-building in the use of information technology;
- Regional development opportunities;
- Strengthening of communication channels; and
- Strengthening of the knowledge base underpinning management actions.

Access to technical support is another aspect of capacity building that is raised. For example, in SA, the Select Committee on the River Murray found that a lack of clear direction and difficulty in accessing professional and technical support is hampering the true potential of community groups to deliver change on the ground.

Importantly in all states, Landcare has played an important role, thus far, in helping to build capacity.

Communication and interaction mechanisms

The need for more effective communication in ICM approaches is broadly acknowledged across all states.

Cross-membership of catchment organisations is an important mode of communication. Sometimes this is through representation of, for example, catchment management associations on a regional body and in turn regional catchment bodies on higher-level state decision-making organisations. In others, it is sharing of ideas between regions. In WA all regional NRM groups are members of the Regional NRM Chairs' group; in Victoria, the Chairs' and CEOs of all the CMAs meet monthly; in NSW there are now regional groupings of the Chairs of CMBs. Also, at a national scale, the Chairs of peak catchment organisations in each State meet regularly with the Australian Landcare Council.

Linking within other stakeholder groups is also important. For example, in the Mount Lofty Ranges (SA), district councils are collaborating in regional amalgamations of several local governments for certain planning and economic development functions. Whilst this does not have a catchment focus *per se*, it may help overcome inconsistent approaches to NRM. In Victoria, the Implementation Committees (of the CMAs) are an important link and conduit for information exchange between the CMA and on-ground implementation in local communities.

Another communication mechanism used is the state-wide catchment management conference, which is held in Victoria every two years under the auspices of the VCMC. This brings together representatives of the CMA and the VCMC with key stakeholders, including local government, water authorities, government agencies, Landcare groups and the Victorian Farmers Federation. In the intervening years, a smaller-scale state-wide forum is held, usually focusing on a specific

issue of relevance to the catchment management framework. The 2001 forum in November will focus on the role of local government in catchment management.

Many regional catchment bodies have specific projects in place to enhance communication with their local communities (e.g. the NAIMS natural resource management group in WA has an NHT-funded project 'Community Access to Local Catchment Information', which aims to help community groups manage the natural resources in local catchment through improved access to base information).

One of the issues in ICM is the extent to which it relies on effective communication between the 'representative' on the catchment organisation and their constituent members/organisations. Committee roles and their associated responsibilities are demanding and mostly so poorly resourced that members may have little time to liaise with their constituencies. The members may not be formally required to maintain communication under the terms of their appointment, and are not generally focused on building communication capacity among the people or groups they represent. The capacity to maintain effective communication between members and their constituencies is a challenge given the additional efforts that would be required and compounded by the often far-flung nature of constituents. The reality – and perhaps the expectation - therefore is that mostly 'representatives' on catchment management committees work as 'experts' able to speak from the point of view of a particular type of stakeholder, but not necessarily in a position to engage in two-way communication with that constituency.

2.2.3 Catchment Planning and Implementation Arrangements

Powers and resources to implement catchment plans

As previously identified (see Section 2.2.1), most catchment bodies have a key role in catchment planning, except in Victoria and South Australia, but they do not have active powers to implement these plans themselves. They rely on linkages and influences on other bodies to do so.

Some states identify 'weariness' by catchment bodies with planning processes and frustration and concern at the lack of progress in the implementation of ensuing catchment management plans. The implementation mechanisms for catchment strategies may be unclear. In Queensland, for example, it has been noted that while regional NRM strategies and catchment plans have been developed and endorsed in most of the State, there is no longer-term, formal commitment to implement these plans. More formalised arrangements are recommended, together with stronger linkages between NRM planning outcomes and local government planning. Also there is a concern that if responsibility for planning and implementation is to be devolved, it is critical that there be shared understanding and clear articulation of the functions, powers and responsibilities which are being devolved.

The NAPSWQ accreditation process places renewed emphasis, and urgency, on the development of robust, integrated plans at catchment and regional scales.

Linkages with other planning processes

Integration and linking of the multitude of planning processes at all levels of governance that have relevance to NRM is widely acknowledged as of key importance. However, linkages among state planning processes are often noted to be weak or non-existent. For example, one of the key challenges for ICM in Queensland has been recognised as aligning local or issues-based planning with state and regional priorities, as there is currently no formal basis for linking ICM with other planning processes.

There are some examples of policy linkages between ICM/NRM and planning at a state level. For example, the WA Planning Commission has had a policy committee dealing with environment and NRM issues (Environment and Natural Resources Management Committee). In Victoria, a Task Force has been established to examine the relationship between catchment planning and strategic and statutory planning. The Task Force is the responsibility of two Ministers: Conservation and Land Management, and Local Government respectively.
NSW has parallel agency-community partnership structures working in TCM, water allocation and vegetation management. These environments are ecologically linked and involve many cross-planning issues and jurisdictions which have difficulty determining a context for linkages despite cross-membership on committees. There is a similar situation in Queensland.

In SA, the *Water Resources Act 1997* requires that catchment water plans should be consistent, as far as practicable with plans, policies and guidelines prepared under other legislation or regulations including local government planning. In Tasmania ICM is largely encompassed within the Resource Management and Planning System which is focused on local government activity.

2.3 KNOWLEDGE CONTEXT

Researching and integrating scientific knowledge has been an underpinning principle of ICM processes in Australia. Nevertheless, the information available in the State reviews on the availability and use of knowledge is limited. The demands on scientific input in ICM processes are evolving in just the same way as the legislative and representative frameworks. Importantly, the participatory processes of ICM are seeking broader stakeholder involvement that recognise different forms of knowledge in framing catchment management problems. There is increasing pressure for informational inputs to be developed through learning processes and to be effective in the adaptive management context of ICM. These changes in the role of information and knowledge in ICM are being manifest in widespread interest in developing more appropriate progress measures for ICM.

Monitoring and review of NRM condition

A common experience has been lack of access to appropriate available NRM information and also fragmentation of the knowledge base across many agencies and groups. State-wide/programs projects are now being developed to improve capacity to report on NRM condition in most states. For example, Victoria has a Catchment Indicators Development Program that has developed a suite of 21 indicators (environmental, social and economic), which will help evaluate catchment health and the performance of catchment management initiatives. Victoria also has The Victorian Water Resources Data Warehouse, a site dedicated to disseminating up-to-date information on Victoria's water resources through the World Wide Web. In addition, the Regional Data Net Project aims to improve GIS use and resources in regional Victoria and increase the coverage and quality of Victoria's catchment condition data. In Victoria, CMAs are required to monitor and report (annually) on the condition of land and water resources in their region, while the VCMC is required to report on the state-wide condition of land and water resources.

NSW is seeking to develop indicators of TCM performance, as a basis for regional body reporting to the SCMCC. In WA, the Land Monitor project systematically monitors and predicts salt-affected land and monitors the condition of both remnant and revegetated areas, over the south-west agricultural areas. In SA, an essential feature of the recently released South Australian Murray Salinity Strategy 2000-2015 is the identification of quantifiable time-based targets that provide a means by which progress towards achievement of outcomes can be measured and reported.

Most states are in the process of developing information services strategies. For example, in Victoria the DNRE (Catchment and Water Division) has developed a strategy that recognises that the profile of demand for information services in the catchment management sector has changed markedly in recent years and will continue to do so in the future. The strategy anticipates that the catchment management community will become more sophisticated in its use of geospatial information, moving from pre-packaged information, through packaging existing information themselves, to wanting the underlying data to analyse and process themselves. The strategy is structured around six key elements: information, systems, data exchange, access, regional support and information management.

2.4 OUTCOMES

Measuring outcomes

The measurement of ICM outcomes is a clear deficiency in ICM in Australia. ICM outcomes are not yet measured in terms of significant remediation of the natural resource base or catchments or even in terms of the effectiveness of ICM policy initiatives. However, there is clear recognition that the focus for outcomes from ICM needs to shift from an activity-based approach (e.g. number of plans; area of riparian vegetation fenced) to a more performance-based approach (e.g. improvement in catchment health). The deficiency to-date reflects the complexity of issues encompassed in measuring and attributing impact on complex governance systems as well as complex relationships in natural systems.

What has been achieved?

Despite the failure to identify NRM outcomes, ICM initiatives in Australia have achieved some important social and institutional outcomes as identified in the state reviews.

Importantly ICM has mobilised communities and laid the foundation for improved community participation in NRM. The ICM approach has facilitated greater ownership of issues, allowed stakeholders to get together, promoted sharing of resources and helped to build consensus on NRM problems. A critical mass of people has been established with an understanding of integrated catchment management and skills in its application.

Local government is now being increasingly involved in catchment management in a variety of ways. Among those involved in, or at the fringes of groups doing ICM, there is a much greater acceptance of the need for a planned and strategic approach than prior to the ICM initiative. In Queensland it has been shown that ICM has supported community learning at all levels including the state level. This includes a substantial increase in awareness of the significance of long term resource management problems, appreciation of the need for integrated as opposed to piecemeal approaches, and the parallel maturing of community/agency cooperation to address the problem and seek improved processes to do this.

There is a fundamental concern filtering through ICM/NRM process regarding the balance of efforts between planning and implementation (e.g. see Dale and Bellamy 1998). This is raising the profile of the dialogue regarding targets or agreed indices with which to measure change or progress. While this has been an issue highlighted in earlier Reviews (e.g. AACM 1995, Dore 1999) negotiating the practical implications of targets or indices has proved to be very difficult. Seeking to agree on targets has heightened the awareness in ICM/NRM of the need to more effectively mediate ‘representational’ or community/agency capacity issues. In addition, the increased profile of targets is bringing recognition of the need to find ways of operating that run planning and implementation in a more concurrent way than is currently accepted practice.

2.7 SUMMARY

In sum, key characteristics common to the different State approaches to ICM in Australia are:

- a strong reliance on positive incentives;
- partnership arrangements (both inter-governmental and public/private, multi-jurisdictional and multi-disciplinary);
- enhanced geographical and inter-governmental integration and/or coordination; and
- use of scientific knowledge in a policy and institutional framework.

The key features and emerging trends of ICM in practice are summarised by State in Table 2.11.

Table 2.11 Summary of features and emerging trends and issues by state.

	Resource use context	Governance arrangements	Knowledge context	NRM Outcomes
New South Wales	• ICM commenced in Hunter Valley in 1950. • Resource use issues originally agricultural e.g. Soil degradation. Urban issues are now included. • Catchment sizes and issues vary either side of the Great Dividing Range. A high proportion of the State is in the MDB • Salinity issues are highly important.	• ICM (known as Total Catchment Management) established under the *Catchment Management Act 1989*. • Arrangements consist of a State-wide Committee and 18 new regional catchment bodies (number recently reduced). • The new catchment bodies are required to develop catchment plans and cost sharing arrangements for their implementation. • Finance for implementation has proved difficult and remains unclear. Reliance on project funding, e.g. NHT, fragments the implementation effort. A few Catchment Management Trusts have powers to levy funds. • Parallel processes in Vegetation Management and Water resources management diminish an integrated approach. Integration with state and local government planning processes presents difficulties.	• Monitoring processes have previously been limited, and unable to identify ecological and economic outcomes. Indicators are being developed and catchment bodies are to report annually to the state body against these. • Lack of accessible, integrated and interpreted information to support problem identification and framing and the implementation of catchment plans/strategies.	• Community acceptance and participation is regarded as the great strength of ICM. • The past weaknesses in feedback and monitoring gave little support for an adaptive approach
Queensland	• Resource use issues initially focussed on soil erosion and impacts of land use on water quality in coastal zones. • Lack of a compelling issue like salinity to focus community attention. • Potential for dryland salinity problems now being recognised as an emerging issue. • 25% of MDB lies in Queensland and important surface water and groundwater resources for NSW and SA originate in Queensland	• ICM policy launched in 1991 as a voluntary partnership approach with no legislative basis • Main focus has been on development of catchment strategies and plans. • ICM requires cooperation of other local and state agencies to implement but impeded by lack of 'whole of government' approach. • Lacks long-term resourcing (funds, human) and strategies or powers to implement plans in a strategic way. • Part of a broader NRM governance system that developed in an ad hoc way with parallel hierarchical programs but little or no formal linkages. • Currently lacks explicit political support. • New NRM policy developments emerging with response to the NAPSWQ focus on negotiatory processes, capacity building and new funding arrangements.	• Lack of quality resource data that is 'fit for its purpose'. • Lack of access to available information and fragmented knowledge base across many agencies, groups and individuals. • Lack of accessible, integrated and interpreted information to support problem identification and framing and the implementation of catchment plans/strategies.	• ICM has raised community awareness and laid a foundation for improved community participation in NRM but has failed to achieve substantive on-ground NRM impacts to date • ICM has increased involvement of local government in NRM by providing a community representative forum with input to local government planning. • ICM lacks feedback and monitoring mechanisms to assess performance and improve impact and therefore little support for an adaptive approach.

	Resource use context	Governance arrangements	Knowledge context	NRM Outcomes
South Australia	• SA's major surface and groundwater resources originate in up-stream states. • Lack of availability of good quality water a major issue driving State agenda. • Past focus on salinity of River Murray waters but dryland salinity now emerging as a major threat. • Historical focus on soil degradation issues has laid foundation for a regional approach rather than on a catchment basis. • SA has been very proactive in developing inter-governmental partnerships with upstream states for both surface and ground water management.	• No formalised structure or policy process for ICM • Under *Water Resources Act 1997* catchment boards established in the Murray Darling portion of the state. • Catchment boards have devolved responsibilities for water management with powers to raise funds through a levy on water users. The focus in catchment plans is on water quantities and flows although water quality and biodiversity issues are recognised. • Plans implemented through local government planning and Local Action Planning Groups. • There is a lack of a coordinated approach to managing natural resources across the state that inhibits NRM but a new Integrated NRM Bill is currently being considered by Parliament.	• Monitoring and review processes have been focused on efficiency and effectiveness of plans and measuring on-ground outputs rather than NRM outcomes. • Lack of accessible, integrated or interpreted information but knowledge integration approaches are a developmental area and now considered very important by State Government	• Quantifiable time-bound targets established and measured for salinity of the River Murray but lacking in other areas/jurisdictions. • Catchment planning processes and State Salinity strategy are now placing a focus on mechanisms such as target setting, data management and performance evaluation which have a clear outcomes focus
Victoria	• Continuing problems of salinity, soil structure decline, reduced water quality have focused community attention on ICM • The area of salt-affected land in Victoria is expected to increase tenfold by 2050 without remedial attention. • Significant impacts on the economic/social structure of rural Victoria through salinity impacts has instilled priority status to ICM	• Landcare signalled a significant shift in NRM toward community and government partnerships. • ICM promoted greater emphasis on community consultative processes. • ICM administered under CaLP Act which administers nine CMA's. VCMC acts as a peak body on state-wide ICM. • A key role of CMA is the strategic overview of NRM. This promotes partnerships with key implementing groups.	• Attention to the design of systems which will facilitate integration between matched data sets. • Use of pressure-state-response model to develop a suite of environmental, social and economic indicators to help evaluate catchment health and management initiatives.	**NOT Completed in State Review**

	Resource use context	Governance arrangements	Knowledge context	NRM Outcomes
Western Australia	• WA has been active in soil conservation initiatives since 1945. • Massive expansion of agriculture fro mis-1940s-1960s under philosophy of settlement and development. • Salinity was first noted early in the 20th century, and is now the State's most serious environmental problem. Other issues are land clearing, eutrophication of water bodies, erosion and soil degradation.	• ICM commenced in1988 as a policy initiative without legislative backing. • No single group or agency has overall responsibility for ICM. • Rather the ICM policy intent was the more effective coordination and strengthening of existing State authorities and legal arrangements. That is, by providing an 'umbrella' policy to pull together and streamline activities carried out by local government and a number of State agencies and providing opportunities for community involvement. • Lack of integration amongst NRM and planning agencies has been greatest hindering factor for ICM. • Rather than ICM, the preferred policy framework is now regional and sub-regional NRM	• Salinity taskforce recently established to review current State salinity programs and recommend improvements. • Knowledge building and the role of knowledge networks is clearly acknowledged in the Salinity Strategy.	• Significant community interest and drive has been achieved and opportunities provided for community to participate in identifying priorities to sole resource use problems. • Lack of commitment by government agencies to integrate their activities and support the implementation of ICM.
Tasmania	• Particular concern regarding the emergence of salinity and the over commitment of water resources. • Water is a key issue in Tasmania not only in terms of agriculture production but also tourism and hydroelectricity.	• At this stage Tasmania does not have an explicit catchment body. • While approaches to CM appear in all NRM strategies and discussion, it is only a subset of broader NRM agendas. • The emphasis in ICM is on voluntary action, cooperation and consultation resulting in ICM emerging at the local and regional levels. • The DPIWE fosters the development of water management plans aimed at providing better knowledge of the nature and reliability of water resources in a catchment.	• Widespread perception of deterioration in water quality has prompted strategy to seek to integrate state NRM policy with the Commonwealth. • While not unique to Tasmania, there remains a need to better include scientific understandings in monitoring and review of NRM condition.	• The emphasis on voluntary and consultative participation have demonstrated the potential for regional agreement on priority NRM concerns.

3. TRENDS AND ISSUES EMERGING FROM THE REVIEW

3.1 TRENDS

This section of the report attempts to very broadly scope trends in the NRM policy environment in which ICM is operating in Australia. Some of these trends will be expanded upon in the following sections to give weight and further interpretation to the complexities currently being negotiated in the ICM context.

Broader problem framing

There is a widespread trend, which is reflected in ICM approaches, of a broadening of the resource management debate from its historical origins of preserving/enhancing agricultural productivity. This broadening debate affects how problems are framed and consequently the focus for collaborative activity. There is a trend to involve a much broader range of concerns and to encompass increasingly varying perspectives and 'ways of knowing' regarding what is legitimate resource use. The need to negotiate this enhanced complexity, and the consequent heightened potential for conflict, is driving the trend to continually seek paths of adaptive resource management in ICM.

Devolution of roles and responsibilities

The Commonwealth Government has made significant policy and program investments in NRM issues, making these issues a significant feature in Federal/state/local government and other constituent relations. There is also a concomitant gradual expansion of local government roles in implementing NRM. Local government is increasingly being involved in catchment management in a variety of ways including stormwater management, rural residential design, wetland management and rural development assessments.

The growth of community-based ICM has coincided with the trend to 'devolution' of responsibilities for managing and planning natural resource use to the community level as well as the withdrawal of public services and institutions from rural Australia (including land management extension services). This also reflects a genuinely recognised requirement for agreement and support by key stakeholder groups if environmental policy decisions are to be accepted and implemented within our three-sphere governance system.

Adaptive management and partnership approaches

Adaptive management approaches are being fostered. While continually encountering difficulties, these have provided the ability to respond to changing circumstance through flexible institutional design. This has manifested in an emerging trend to de-emphasise the structure in NRM/ICM approaches and to seek more effective partnership strategies as a driver for the agenda.

Moreover, there is a greater recognition of the importance of organisational culture in instituting true partnership arrangements. Agencies in many cases still display a belief that they hold the principal power to manage the care, restoration and conservation of natural resources, and that agencies are the primary and most informed players in directing NRM outcomes. This privileging of particular knowledge, presentation and communicative styles is an historical residue that is exceedingly difficult to lift. The most effective ICM approaches emerge when the balance of power is tipped in favour of integrated community engagement with agencies acting as

'enablers'. The changing role of 'Government' as 'enabler' is a widespread contemporary trend in complex policy processes.

Learning communities

ICM has supported the trend to recognise the importance of community learning about NRM. This includes a substantial increase in awareness of the significance of long-term resource management problems, appreciation of the need for integrated as opposed to piecemeal approaches, and the parallel maturing of community/agency cooperation to address the problem and seek improved processes to do this.

Regionalism

Regionalism is increasingly providing a much clearer focus for NRM/ICM approaches throughout Australia. Regionalism is seen as part of the bigger picture of 'sustainable regional development' that is placing a greater emphasis on nesting various participatory strategies. The resulting trend is for more resources to flow to particular activities depending on the extent of public 'ownership' or level of 'commitment' engaged. This is challenging many traditional roles for agencies as the emphasis shifts to adaptive partnership development.

A challenge for participants is the overlapping geographies involved in regionalism, for instance, catchments, bioregions, and administrative regions. This greatly increases complexity and workload for all stakeholders.

Changing science - policy relationships

The emphasis in past policy approaches of getting the 'science' right first to guide action is being overtaken by processes that seek evolving governance structures, which are more effectively able to use current understandings in decision processes. There is widespread recognition of the current inadequacy of scientific and informational data in contributing to decision processes. The exploration of ways to integrate science-knowledge-policy is manifested in activity to 'take-stock' of what information is currently available. This is evidenced through strategies such as the National Land and Water Audit and more comprehensive State of Environment reporting in a 'regional' context.

There is an increasing recognition of the need for government agency roles to focus more on the facilitation of contexts within which information can be used more effectively. This encompasses a recognition that knowledge will include Indigenous knowledge, scientific knowledge, farmer knowledge, community knowledge etc. This diversity of knowledge is emerging as the path to a healthy and effective knowledge system for ICM.

3.2 CONTEXT ISSUES

3.2.1 Evolving Social and Institutional Context

The institutional environment within which ICM initiatives operate is complex and variable from State to State. This reflects the governance systems and institutional arrangements for NRM that have evolved over a long period of time in each jurisdiction. Within this context, there is a clear lack of a uniform institutional approach to ICM in Australia. The diversity in approaches is due to a number of interrelated factors including:

- ICM initiatives across the different jurisdictions in Australia were not defined by any particular common issue. Rather they were experiments with process born largely of perceptions of the failure of previous institutional arrangements or policy approaches;
- The diversity in political history and drivers of ICM across the different states;

- The social, economic and environmental problems that ICM deals with are not only spatially diverse but complex both conceptually and in terms of their multi-dimensional impacts; and
- The fact that understanding of catchment management problems both within government and the community is continually evolving**.**

Moreover community-based ICM in practice is fundamentally context-dependent. Established social networks and interactions, fundamental social values, institutional frameworks, historical problems and past actions and experiences have influenced and will continue to shape the current human association with the natural resource environment in a catchment (Bellamy *et al.* 1999b).

However, existing governance systems and institutional arrangements are not necessarily fundamentally flawed; as both successes and failures in terms of NRM can be found. Diversity and value pluralism are recognised as key elements of healthy social and institutional systems. Community-based ICM as a policy initiative is only one element of a complex system of governance for NRM within each State/territory in the Murray Darling Basin (see Sections 3.3.2 and 3.3.3). It is unlikely that there will be a single tool or best model of governance for ICM to suit all the different contexts across the States and Territories involved in the Murray Darling Basin. A mix of policy approaches involving public and private sectors is likely to be needed.

In the context of a variable and evolving social and institutional context at a catchment or regional level, the emerging theme in NRM policy is to more selectively and strategically implement reforms within the existing framework that promise to more effectively achieve agreed upon goals and procedural reforms. This is preferred to creating a fundamentally new set of structural arrangements. Each state therefore needs to develop its own unique approach appropriate and relevant to its own evolving social and institutional context.

3.2.2 From Technocracy to Integrated Knowledge

It is commonly recognised that decision-making on catchment management issues is characterised by situations with (Funtowicz and Ravetz 1990; Funtowicz pers. comm. 2001):

- *High decision stakes* (including private and public interests; risks of social and economic disruption; and severe and irreversible impacts on populations and life support systems);
- *Plurality of perspectives* (among interests including concerns, values and criteria for justification);
- *Irreducible uncertainties* (including unpredictability of the behaviour of complex systems; impossibility of quantification of immediate risks to health, economy, society and environment; and long delay times of systemic effects).

Changing community awareness of what science can contribute to such complex decision-making situations is forcing a change in the relationship between science and policy and a greater emphasis on "socially-robust knowledge" based on the integration of best scientific expertise and local knowledge through collective discussion (Funtowicz pers. comm. 2001). ICM models have in general emphasised integrating local and scientific expertise. While embracing the importance of scientific knowledge and expertise, the rhetoric behind ICM expands the concept of expertise beyond bureaucratic and organised interest expertise to embrace local knowledge and skills and a community perspective.

Scientific and technical information for complex decision-making contexts such as catchment management is widely recognised as being accompanied by interpretation. Science can identify where we are in relation to a standard, but the standards themselves are judgements made on factors that are socially and politically desirable and/or acceptable (Burchfield 2001). Representations of natural resource conditions and trends using protocols of science will remain essential to the understanding of cause-effect relationships and the consequences of policy decisions. But decisions are made at multiple steps along the way: on relevant facts; on the

boundaries between what we know and don't know; and on what we care about (Funtowicz and Ravetz 1990; Burchfield 2001). Natural systems are so complex and dynamic that explanatory powers quickly diminish with increasing size or expanded timeframes. Moreover different disciplines use different methodologies, different languages and different standards for scaling thresholds of concern making integration exceedingly difficult. As long as the interpretative side of science and the inherent uncertainty surrounding its findings at broader scales are recognised, decisions can be made and catchment problems addressed building on collective understanding and talents.

Where value plurality is irreducible, high quality consultation and negotiation processes, based on *knowledge sharing*, provide the best assurance of satisfactory outcomes for society at the catchment and regional levels. This approach is characterised by a change of emphasis from *quality of inputs* (e.g. technocracy) for a decision problem, to the *quality of the process* itself (e.g. knowledge integration).

3.2.3 Organisational Cultures and Change Management

ICM approaches need to be evolutionary. What this means in practice is that strategy cannot be fully worked out in advance, which seems to be a requirement for agencies who are concerned about bounding their levels of commitment, gaining clarity in duty of care and setting limits to community expectations of influence. This of course is difficult to quantify in the abstract, hence agencies continually need to redraft plans and redefine strategy before fully engaging in community partnership.

Evolutionary approaches require a context or focus for activity and through the building of trust and strengthening of partnerships in action, limits and possibilities are more clearly identified. This is largely culturally incompatible with how agencies see their role and requires devolution of power and decision-making capacity beyond what has been historically 'comfortable'. ICM processes are about the physical management of natural resources but how this is manifested or articulated is about human communication and organisational culture. These attributes determine the capacity for genuine partnership and therefore effective outcomes. However there has been little attention in ICM initiatives to the deeper systemic cultural change required within bureaucracies and communities for ICM to succeed. In particular, the ability to form, manage and maintain multiple relationships is often undervalued.

Change and change management are needed for all stakeholders to adjust to working together through partnerships. This aspect of ICM and the skills to recognise organisational cultural impediments to change and develop stakeholder relationships needs to be given greater recognition in ICM approaches in Australia. It has been demonstrated that more successful ICM approaches embody a heightened awareness of these characteristics, which are usually facilitated through a particular community or agency 'champion' of process.

3.3 STRUCTURE ISSUES

3.3.1 Institutional Change

As previously noted, community-based catchment management approaches are one of the new trends in governance that have fundamentally transformed the institutional 'landscape' pertaining to arrangements for natural resources policy-making and implementation. Institutional change has been a vital element of these developments driving change in the way we manage our natural resources at a catchment or regional scale. Change has been driven by concerns with the functioning of the existing institutional framework that relate to (e.g. Gunderson *et al.* 1995; Dovers 1999):

- Highly formalised and often adversarial modes of decision-making leading to high costs (both time and money) of decision-making;
- Frequency of gridlock or institutional inertia, that is a situation where the distribution of power is sufficiently diverse and conflicts sufficiently prevalent to impede/inhibit decision-making and problem solving;
- Prevalence of inter-governmental and inter-agency competition;
- Failure of current arrangements to embrace integrative and creative solutions;
- The perceived sub-ordinated decision-making role of local interests and other community sectors; and
- The disappointing on the ground track record of many past initiatives designed to protect resources.

However institutional change in the NRM arena generally has been in the form of *disjointed incrementalism* that lacks continuity and is characterised by what Dovers (1999) refers to as *adhocery* and *organisational amnesia.*

A tension now exists, as there continues to be widespread belief in some policy arenas that formally changing the institutional structure will lead to better management of the problem. While this macro activity 'opens the door' for greater collaboration necessary for effective ICM, it by no means ensures this outcome. To facilitate this requires attention to process to build trust, working relationships and community/agency capacity to negotiate and therefore to evolve a common interpretation of the problem to focus collective action. This cannot be forced upon agency and community people. To do this requires commitment and flexibility, which can provide the basis for long-term relationships in a cross-cultural, multi-value and inter-disciplinary working environment. Any reform efforts should be designed and implemented strategically in a way aimed at addressing agreed problems and subject to critical review and periodic assessment.

In developing approaches to more clearly drive institutional change the MDBC should be careful not to identify any particular model as a preferred option – variations in institutional structures are vital to on-going improvement and to ensuring institutions can adapt to local requirements and pressures. Significantly, community-based catchment management initiatives should be viewed as "*complements*" rather than "*replacements*" for traditional approaches to policy design and implementation such as regulation and litigation-based approaches. ICM is moving beyond the more traditional consultative approach to public participation to provide the vehicle for bringing true community partnerships into the existing formal governance arrangements for NRM.

3.3.2 Vertical Hierarchies and Horizontal Integration

How an institution fits into its operating environment is fundamental to effectiveness. ICM deals with vertical or nested hierarchies of agencies across three tiers of government and the horizontal integration of multiple and diverse players as well as disciplinary perspectives. The difficulties of this operating environment are acknowledged in Environment Australia's submission to the House of Representatives Inquiry into Catchment Management (EA 1999):

> Without planning coordination either by statute or agreement, catchment management will remain a concept with merit but without the capacity to realise its full potential for on-ground application. There is a need to improve vertical integration, in terms of national sustainability principles cascading through State-wide or regional planning, and given effect in local planning, zoning and rating schemes. Delivery of better horizontal integration is also essential, where management of rivers, catchments, coastlines, vegetation, wildlife and land use is considered as an inextricable whole and planned accordingly.

Our *Vital Resources: National Action Plan for Salinity and Water Quality in Australia* (October 2000) described current institutional arrangements for natural resource/catchment management as

'disjointed Commonwealth-State/Territory frameworks'. In each state and territory, legislation has been piecemeal rather than comprehensive – enacted incrementally over a long time frame of use of our natural resources to deal with emerging issues. The allocation of roles and responsibilities both between different spheres of government (*vertical hierarchies*) and among government processes or between government and catchment or regional organisations and community (*horizontal integration*) is often not clear and has evolved in an *ad hoc* manner, leading to tension and conflict, which undermine the potential for improved cooperation.

Moreover Duanne (1999) argues that "horizontal" interactions (i.e. those in which all parties are viewed as equal participants) are key to building social capital. As previously noted, NRM involves multiple roles and responsibilities spread across multiple agencies. However, most natural resource or catchment management agencies are structured under vertical networks of control that lack horizontal integration. There are also concerns about the adequacy of communication and integration between agencies, and between agencies and catchment community groups in most jurisdictions. Catchment management depends on a complex set of relationships between different actors (including business groups, community organisations, government agencies and politicians). It hinges on the quality of these relationships and the extent to which different actors are able to understand the perspectives of others and to take collective action.

3.3.3 'Whole of Government' Approach

All three spheres of government (local, state and federal) have a significant interest in catchment and regional scale initiatives. However, the complex legislative and bureaucratic structures for each state divide and fragment NRM responsibilities across a wide range of federal, state and local government agencies. Our natural resource governance system clearly lacks coordination and policy-level integration. Commonly the system is characterised by a range of NRM policy initiatives (e.g. ICM, water use planning, vegetation management), which 'run in parallel' but with very weak and even non-existent linkages. The House of Representatives Inquiry into Catchment Management notes that multiple pieces of legislation (often contradictory) combined with administration by multiple government departments "provides an opportunity for administrative inertia, or worse, failure" (The Parliament of the Commonwealth of Australia 2000, p. 72). In this sense, the parts may be rational but the whole is not. In addition, Government policies and programs can sometimes be inconsistent with or discourage sound NRM (e.g. hinder structural adjustment and the adoption of sustainable practices) (AFFA 1999), while competition between administrative departments can lead to differing advice and recommendations.

Common issues across the states include layers of bureaucratic duplication and poor cooperation and coordination between spheres of government and between (and even within) different government departments. Coordination does not necessarily mean aligning the values and visions of all individuals and groups, but it can mean ensuring that areas of commonality are identified and exploited and resources used as efficiently as possible.

For integrated catchment management to be successful, joint action is required from all levels of government, together with stakeholders and the community. There is growing public expectation that all spheres of government will deliver more on their side of the partnership. In response, a number of strategies have been tried in Australia including establishing a lead agency for ICM, multi-agency committees, and preparation of position papers, but with little success. More recently some states have established cooperative arrangements within catchments as the central focus for land and water management. The Victorian Government, for instance, has established nine Catchment Management Authorities to coordinate the various organisations and activities at the catchment level. Those Authorities provide a coordination unit for farmers, Landcare groups, industry, catchment groups and government. Similar organisational changes have occurred in South Australia with the establishment of Catchment Water Management Boards. Those boards

have devolved responsibility to the local communities to manage their own water resources and raise revenue to implement works programs within their catchments.

The House of Representatives Inquiry into Catchment Management found that current natural resource and catchment management policies are generally reactive, not proactive. In particular, "policies have been developed to respond to specific issues or circumstances, rather than as part of a long term planning process" (The Parliament of the Commonwealth of Australia 2000, p. 66). There is a need for a concomitant clarification of powers, functions and linkages to make the governance system more compatible with community aspirations. Improving the situation does not depend on major restructuring of the current three sphered system of government – rather the emphasis should be on improving the coordination of spheres at the catchment and regional scales.

3.3.4 Involving Local Government

Role of local government in ICM

This review has shown that local government is a key player in the success of ICM and NRM in general. This reflects its role and responsibilities in land use planning, drainage management, the management of development, rates and a variety of services including road infrastructure development and maintenance, water supply and disposal of wastewater. As local governments have a primary role in the planning, regulation and approval of development, they play a significant part in determining whether development is ecologically and socially sustainable at the local or catchment level. Importantly, local government has the capacity to affect private development by attaching conditions that protect the environment and the public interest while having regard for productive development. For example, Binning *et al.* (1999, p. 5) identified local government as a key player in managing native vegetation because:

- As the level of government that is closest to the community, they are able to translate the policies of Commonwealth and state governments into on-ground projects for the conservation of native vegetation; and
- As managers of public land and land use planners, local governments are responsible for regulating a wide range of activities that may impact on native vegetation management.

Whilst strategic policies may be developed by higher levels of government, it is local government that must make detailed decisions that balance ongoing development with the need to protect natural resources.

Hullick *et al.* (2001) found that local government sees its role in NRM as linked to its local activities underpinned by its day-to-day functional responsibilities, that is with a very strong local focus. Similarly, Binning *et al.* (1999) suggests that local government can be involved in NRM through opportunities within their existing powers and responsibilities. These opportunities exist across all tenures and land uses, although the mechanisms and approaches that can be used depend on the circumstances faced in each state or territory. For example, with regard to the conservation of native vegetation, Binning *et al.* (1999) identified three clear core and three discretionary functions of councils which are also more broadly relevant to ICM, as presented in Box 1. As noted above, because of the diversity of local government in Australia across the different states and territories, not all councils necessarily perform all of these functions.

The nature and extent of local government's responsibilities for catchment or NRM varies across the different States and Territories. Overall, however, the general powers conferred by local government Acts in the various States provide a wide degree of flexibility for Councils to act in the public interest to address catchment management issues (Hullick *et al.* 2001). This flexibility is derived from a combination of both statutory and voluntary or tailored incentive approaches

(Lusis *et al.* 2001). For example, the benefits of statutory mechanisms, such as planning schemes, include:

- Providing policy direction in the context of seeking to achieve ecological sustainability;
- Providing measures for implementing policy when development occurs;
- Incorporating periodic review.

Similarly, the benefits of actions through non-statutory cooperative planning include:

- Addressing many contemporary issues immediately;
- Resulting in a more positive, supportive attitude;
- Fostering longer term educative change;
- Rewarding people who do the 'right thing' through incentives; and
- Providing a catalyst for community driven action.

Box 1: Functions of councils and related opportunities for improving the conservation of native vegetation (Binning *et al.* 1999)**.**

Core functions:

***Land use planning and development approvals*:** In regions undergoing significant land use change through urban or agricultural development, local government responsibilities for land use planning and development approvals are the most significant way in which they can contribute to the conservation of native vegetation.

Managing Crown lands: In their role as manager of public lands, local governments can make a substantial and direct contribution to conserving native vegetation. By breaking away from their traditional focus on managing public lands exclusively for recreation, there is an opportunity for councils to actively manage these lands for conservation.

Managing environmental risks: Councils are responsible for the management of a wide range of environmental risks, including flood and fire, which may have a direct impact on the management of native vegetation. There is potential for councils to integrate risk management with conservation programs.

Discretionary functions:

Facilitating community involvement: Because local government is the level of government closest to the community, it is in a strong position to support community-based programs for the protection and management of native vegetation.

Managing grant and incentive programs: grant and incentive schemes are a primary means of supporting land use planning outcomes on private lands through voluntary participation of landholders in conservation activities.

Providing financial and administrative support: Because local governments are elected and directly accountable to their communities, have a statutory basis, and have highly professional financial administration systems in place, they are ideally placed to manage the collection and expenditure of public funds for regional natural resource management.

Challenges in Practice

While NRM is still not seen to be core business by some councils, its growing importance is recognised. For example the local government Association of Queensland has recently developed comprehensive guidelines to support local government's role in ICM in Queensland (Lusis *et al.* 2001) and has developed a proposal for a coordination framework for NRM in Queensland (LGAQ 2001). However there is great variation in the willingness of local governments to develop and take part in ICM, owing to restricted powers, limited resources and access to expertise, and differing obligations under State and Territory legislation.

In general, NRM has been seen by local government as the domain of State and Commonwealth Government. In the main local government has been drawn into catchment management within each State as a participant in the implementation of a particular policy. This participation is

mostly through representation on catchment management organisations as a stakeholder and as such local government is part of the strategic planning process and the delivery mechanism for ICM (Hullick *et al*. 2001). There has only been limited progress across all states in the level of involvement and degree of active implementation of ICM strategies by local government.

There are a number of contextual factors that make active involvement of local government in ICM and related NRM initiatives challenging (Vella 1999). A key issue is that the boundaries of local councils do not often correspond to natural physiographic units such as catchment areas, so planning is not necessarily integrated or consistent over a whole catchment. Also councils are concerned with many other activities not necessarily related to catchment management. Roads, rates and rubbish have been very much the core issues and much of a Council's resources (personnel and funds) are committed to these. Many local governments have small and often widespread populations, and consequent low revenue raising capacity when their actual costs (e.g. road maintenance etc) are relatively high. As such, catchment management is not often seen as a priority area.

In addition, for local government to play an effective role in ICM a number of underlying structural impediments need to be addressed. These include (Binning *et al.* 1999; Vella 1999):

- ***Culture of local government***: Many local governments focus on their traditional roles (as identified previously) and see little role for themselves in NRM.
- ***Legislative and institutional impediments***: The complex legislative and bureaucratic structures that exist in each state divide and fragment responsibilities for NRM across a wide range of public and private institutions. This impedes the development of innovative solutions.
- ***Lack of continuity and security of funding***: The majority of local governments are unwilling to put in place new programs to protect and sustainably manage natural resources in the absence of secure funding to meet ongoing costs of managing programs and activities.
- ***Provision of data, information and expertise***: In order to be able to sustainably manage catchments, local governments require appropriate scientific and technical information and ongoing access to expertise to be able to interpret this information and develop and implement management strategies.
- ***Poor policy coordination and targeting***: Improved coordination and targeting of NRM programs is required at Commonwealth, State and regional levels to improve the access that councils have to these programs.

The demands placed on local governments through the devolution of responsibilities/change in priorities relating to NRM therefore have raised key issues concerning the need for capacity building of local government and for matching of these new roles and responsibilities by adequate powers and resources.

Opportunities

Importantly there is a range of different non-regulatory incentives and support systems used by local governments to improve NRM including (see Lusis *et al*. 2001; AFFA 1999; Binning *et al.* 1999).

- ***Grants or assistance*** to landholders for specific activities in accordance with catchment plans. For example, grants for large-scale revegetation activities, for fencing to exclude stock from remnant vegetation areas and from streams, or for revegetation of stream banks and weed management. The grants could be obtained through project-based funding through Commonwealth-State Partnership Agreements such as NHT.
- ***Environmental management agreements or covenants***. For example, arrangements between landholders and local government that are entered into voluntarily and are

traditionally focussed on conservation. AFFA (1999, p. 41) also proposes a region/local government promoting itself as an 'environmentally sound production' region to gain market advantage and so enter into management agreements with landholders to meet specific production system benchmarks.

- ***Badging or site demonstrations***. For example, signage to acknowledge biodiversity conservation efforts or capital investments in areas such as drainage and groundwater management.
- ***Rate rebates/differential rating systems*** to improve NRM practices. For example, lower rates could apply to land that is maintained solely for conservation purposes or where remnant vegetation is maintained to reduce adverse impacts such as salinity or water quality decline. Rate rebates could be conditional on a property plan that is consistent with the catchment plan (AFFA 1999).
- ***Environmental levies and subsidies***. For example, to encourage producers to reduce infiltration to groundwater, subsidies could be provided to retain native vegetation or to plant trees. Low levies could be applied to land used for lucerne production and high levies on land used for annual crops. Environmental levies could also be targeted at residents or a particular industry.
- ***Development benefits*** to conserve ecosystems, native vegetation and biodiversity to facilitate fundamental land use change. For example, in areas that are strategically important for preventing degradation in a catchment or to maintain conservation values, landholders could be paid an income to retain areas of remnant vegetation or wetlands that are important for biodiversity, for abating dryland salinity or for reducing water quality decline.
- ***Guiding frameworks for strategic decisions on infrastructure maintenance*** is a vexed issue for local government with few criteria on which to base contestable decisions such as shire road maintenance. The ability exists to tie in infrastructure maintenance decisions with commitment to NRM processes and consequently greater policy alignment and 'whole of government' coordination. Local government can support a strategic direction that maintains the resource base of a shire by linking infrastructure maintenance decisions to the resource base.

Two examples of local government involvement in integrated catchment management in different settings around Australia are provided in Boxes 2 to 4. They show that there is clear scope for increasing the role of local government in catchment management through:

- Incorporating aspects of catchment management through statutory planning schemes (see Boxes 2 and 4)
- Use of non-regulatory incentives and support mechanisms (see Box 3)
- Locating catchment and Landcare coordinators in local government offices (see Box 3)
- Supporting the development of community-based information centres (see Box 4)
- Providing in kind support for ICM activities (see Box 3).

Importantly, devolution of decision-making power to the local level requires clear definition and clarification of the powers of local government relative to the roles of state and Commonwealth Governments. The greater involvement of local government may therefore require support through appropriate legislation, resourcing and capacity building with acknowledgement that many local governments do not have the skills or resources to take greater responsibility for NRM.

Box 2: Incorporating integrated catchment management into local government planning.

The way that natural resources are used to support economic and social development underpins the achievement of ecological sustainability. Land use planning and management of development are integral to ensuring this outcome.

As local governments have a primary role in the planning, regulation and approval of development, they play a significant responsibility in ensuring that development is ecologically sustainable at the local level. In recognition of the importance of this role, a National Heritage Trust project, "Incorporating integrated catchment management into local government planning", was conducted between 1996 and 1999 to assist local governments to work towards sustainability through their planning schemes.

The project brought together councils and catchment coordinating committees in four shires to amend local government planning schemes to better address catchment management issues (see Queensland Government 2001; Lusis *et al.* 2001; Vella 1999). As a result a number of catchment management measures were successfully implemented.

Bulloo Shire and Lake Eyre Basin Steering Committee. Reducing the potential for adverse impacts on water quality by intensive agricultural development in the Bulloo, Paroo, Wilson and Cooper Creek catchments was identified as a common priority for the partners in this case study. Detailed objectives were developed for the Bulloo Shire strategic plan with clear implementation criteria to address proposals for intensification of agricultural operations. The planning scheme permits grazing as a right, but limits grazing density to sustainable stocking rates. All other animal husbandry activities (including grazing beyond sustainable stocking rates) require the approval of council. Intensive agriculture (defined as any agriculture in which water, chemicals or other productivity boosters are applied) also requires council approval.

Warwick Shire Council and Condamine Catchment Management Association. The focus issue for this case study was the management of the floodplains and riparian zones of the Upper Condamine River catchment. As the Council was developing a new planning scheme under the *Integrated Planning Act 1997* (Qld.), the case study facilitated the incorporation of strong ICM-related principles in all key elements of the new scheme – the vision, desired environmental outcomes, performance indicators, guidelines for development assessment, objectives and strategies.

Noosa Shire Council and the Noosa River Catchment Coordinating Committee. The management of the riparian lands of the Noosa River catchment was the key issue of concern of the partners of this case study. A combination of ten statutory and voluntary measures for improving riparian land management was developed and recommended. To facilitate effective management of each of the 25 riparian issues identified, a generic implementation document was compiled. This document included a targeted list of the issues to be tackled, matched with objectives, preferred outcomes and the most appropriate measure(s) to address each issue.

Hinchinbrook Shire Council and the Herbert River Catchment Coordinating Committee. In this case study, the participants chose to incorporate the management of wetlands, riparian areas and drainage schemes of the Herbert River catchment into the Hinchinbrook Shire's planning scheme. This resulted in a strengthening of provisions in the existing planning scheme: development of intensive agriculture in rural zones now requires council approval under certain circumstances; the definition of 'intensive agriculture' was tightened to include 'the use of land for the intensive production of crops… at rates of production beyond the natural capacity of the land, where the land relies upon the regular and systematic application of fertilisers and chemicals'; landholders were required to maintain conservation values on good quality agricultural land; development standards were strengthened; and objectives and implementation criteria for rural and conservation areas were refined.

Another outcome of the project was the recognition that it was necessary to facilitate a consistent approach to natural resource management across all shires in a catchment or region. A new project is underway, 'Incorporating natural resource management initiatives into local and regional planning instruments' to address this issue. This project aims to trial methods for incorporating natural resource issues into regional planning frameworks in a way that allows them to be more readily translated into local government planning schemes.

Box 3: Coorong & Districts Council and Local Action Planning

In South Australia as in other States, the State Government has worked to devolve responsibility and accountability for natural resource management related activities to local authorities and communities. Within the South Australian portion of the Murray Darling Basin 11 Local Action Planning Groups have been established as a part of the Murray Darling Bain Initiative. Local Action Plans (LAPs), prepared by these groups provide the framework for applying an integrated approach to the management of the environment and natural resource management issues at a local scale.

Importantly, Local Action Planning Groups are powerful 'champions for change'. A recent report of the Select Committee on the River Murray concluded that local action planning represents the only truly integrated catchment management framework operating within South Australia (Parliament of South Australia 2001). However, the mid-Term Review of NHT (Dames and Moore 1999) found that the current level of support (administrative, technical and professional) and existing funding arrangements are two major issues that threatened to undermine the ability of Local Action Planning Groups to achieve significant on-ground strategic outcomes. "In some cases, Landcare coordinators have felt somewhat abandoned by institutional support and overwhelmed by the administrative work associated with undertaking on-ground works. Tasks such as employee appointment and benefits, contracts management (payments and accountability) and office management are difficult for coordinators without institutional support".

A recent review (EFECT Pty Ltd 2000) revealed comprehensive planning processes in each LAP region to address priority NRM issues. However the review found that several of the LAPs are yet to make the transition from planning to on ground works. Whilst all LAPs had undertaken extensive on ground works during the process of plan development, few have progressed into large works programs. The Coorong and Districts LAP was a notable exception which has not only successfully made the transition from planning to on ground works, but has integrated the two into a near seamless activity (EFECT Pty Ltd 2000). The LAP was developed by a committee of the Coorong & Districts Council (Coorong District Local Action Planning Committee 2000). It provides a framework for management of regional projects, dryland salinity control, and remnant native vegetation, wetlands and habitat protection and rehabilitation. Other issues include wind erosion, non-wetting sand, lakeshore erosion, weeds, feral animals, water quality and leaking bores. Long term goals have been set, along with shorter term targets for tackling the district's land degradation problems (see Box 12). The Plan also sets out proposed guidelines for implementation and has recommended a cost-sharing framework using the results of a benefit cost analysis and based on the 'beneficiary pays' principle.

The Coorong & Districts Council has provided support to two local coordinators with great success. The LAP Landcare coordinators work within the Council framework, but are careful not to be seen as "Council/Government employees" (Dames and Moore 1999). The Council undertakes the administrative support, including contract payments and accountability. This structure supports the administration of devolved grants for on-ground works, and this allows the coordinator(s) to get on with the job of Landcare/catchment management promotion, extension and landholder support. The on-ground incentive program is now reaching some 200 landholders (over 50%). Funding is primarily being directed at the establishment of deep rooted perennial plants, giving groundwater control, and for the protection of native vegetation and wetlands.

The LAP has received considerable recognition, both locally and interstate, and processes developed by the LAP Committee are being adopted elsewhere including the rest of the Murray Darling Basin in South Australia and in Western Australia.

Box 4: Hinchinbrook Shire Council and the Herbert Resource Information Centre

The Hinchinbrook Shire Council in North Queensland has had a critical involvement in ICM in the Herbert River catchment through its collaborative support for a community-based resource information facility, which aims to facilitate a common geographic view of the catchment and to enable synergistic planning.

Based in Ingham, the joint venture, the Herbert Resource Information Centre (HRIC) is a catchment-based GIS (Geographic Information System) facility that supports the management of natural resources in the Herbert River catchment by providing and allowing access to geographic information, GIS tools, education and expertise (see Walker *et al*. 1997; 1998; http://hric.tag.csiro.au).

Established in 1994, the HRIC has a ten-year life span and involves partners from three tiers of government, industry and primary producers. The HRIC was initially funded by a seed grant by the then Commonwealth Department of Transport and Regional Development. Today the HRIC is funded by six Joint Venture partners. Cash contributions are provided by the Hinchinbrook Shire Council, CSR Sugar Mills, Herbert Cane Protection and Productivity Board; the Hinchinbrook Shire Council and Canegrowers Herbert River. Over the 10 year life-cycle of the HRIC these contributions will amount to $1.75 million. In addition CSIRO and the Queensland Department of Natural Resources and Mines provide matching in-kind contributions such as data and technical and professional support.

By providing a strategic approach to collection and management of GIS information, the HRIC facilitates better decision making in natural resource management through improved access and quality of data available for the Herbert catchment, and also it is improving collaboration between stakeholder groups with an interest in the management of the local catchment. The cooperation of the partners in the HRIC removes duplication and its associated costs and has helped to ensure availability of high quality data sets that meet user requirements and business needs.

Like catchment committees throughout Australia, the local ICM group, the Herbert River Catchment Association (HRCA), has developed a catchment management strategy to foster better natural resource management within their catchment. The HRIC, through provision of a facilitated and strategic approach to spatial information, has enabled the ICM strategies to be linked with those of local government, which has the statutory responsibility of ensuring development is ecologically sustainable.

This means that these two groups are sharing the same data sets for planning and are taking a more community problem solving approach. The result is that the HRCA strategies for management of riparian zone, wetland areas and drainage areas dovetail with those developed under the Council's Shire Planning Scheme.

In addition, these data sets are being used to underpin a new agricultural property development process in the lower Herbert River catchment. This process involves the Hinchinbrook Shire Council, the Local Sugar Board, the Environment Protection Authority and the Department of Natural Resources and Mines for the purpose of preparing property development plans required by both Council under the shire planning scheme and Local Boards for new caneland allocation decision-making processes.

3.3.5 Funding and Resourcing Capacity

The state reviews of ICM have identified un-supportive administrative arrangements, lack of on-going resourcing capacity, and short term funding cycles as key issues for ICM effectiveness in Australia.

Specifically, volunteerism emerges as a major issue. With a proliferation of committees and planning processes at the catchment and regional scale in most states requiring voluntary community involvement, a number of clear problems are emerging that have implications for equity, integrity and sustainability of the ICM process. These include overload on individuals and agency staff leading to burnout, over-dependency on good will and a concomitant difficulty

with tackling hard issues. One strategy proposed is the use of sitting fees for community/ voluntary participants to reflect the value of their contribution.

The adequacy of resourcing (i.e. human resource and funding capacity) is clearly a major problem for ICM, risking planning without implementation and 'burn out' both among agency personnel and private individuals involved in ICM (e.g. Bellamy *et al.* 1999c). There is concern that resources to community organisations are inadequate to enable them to participate equitably and effectively in planning and management processes of agencies. Communities have shown their long-term commitment but funding support is invariably only for short-term political cycles (e.g. 1-3 years). A common call has been for resourcing on a continuing long-term basis and with increased levels of investment.

Political nature of funding

In the past, programmatic approaches to Federal/State funding arrangements (such as the National Landcare Program and more recently the Natural Heritage Trust) have had a critical influence on the level and type of on-ground activities undertaken in a catchment (e.g. Bellamy *et al.* 1999c). Meanwhile, the political nature of this funding also influences power relationships within a catchment. In particular, the NHT has forced a shift in focus from individual unrelated small group projects within a catchment/region to a more strategic catchment/regional approach to funding priority on-ground activities. The NAPSWQ is now attempting to force a move to a more 'whole of government' and community partnership approach through 'block funding' strategies.

To remedy existing administrative impediments to funding on-ground works and to minimise duplication between different levels of government, the concept of block funding directly to regional bodies has emerged as a core element of the NAPSWQ. AFFA's discussion paper recommended packaged or block funding by governments to implement strategies developed by regional or catchment communities that "accord with government priorities and contains core elements and provides an integrated and innovative approach to tackling NRM problems. Strategies that involved a mix of actions – such as economic instruments, regulatory approaches and project activity – and a range of investors should be given higher weighting than those seeking only to target government support programs" (AFFA 1999, p. 31). Under this investment strategy, the region would be responsible for project implementation and would be held accountable to investors and the stakeholders in the regional community for the use of funds and for reporting on progress towards agreed outcomes. Agreements should state the expectations and mutual obligations of all parties including for financial contributions, and in meeting milestones and targets. Processes should be put in place so that funding is responsive to the rate of progress in meeting targets.

Broadening the funding base

ICM activities/strategy implementation has relied heavily on Commonwealth/State funding sources such as NHT with their related short-term programmatic funding limitations. More recently there has been a withdrawal of state core funding for ICM as well as agricultural extension support services in most states and territories which has clear implications on catchment/community capacity to implement agreed strategies. As previously noted a key issue for local government is the prior commitment of the majority of their funds to traditional responsibilities.

There is a critical need for ICM initiatives to develop strategies to draw on funding from a range of sources with an emphasis on broadening these over time. Potential sources include landholders, community and industry groups, philanthropists and government.

Some authorities have levied rates for resource management where there is a clear physical link between the natural resource problems and the resource managers, such as within a catchment. For example, the Catchment Management Authorities in Victoria have the ability to levy rates from local landholders within identified catchments. Catchment Water Management Boards in South Australia have the powers to charge a levy on water users based on requirements for future infrastructure and resource management. The importance of this levy is that it differs from traditional funding bases in that funding is directly provided to a management strategy based on regional policy (that is the catchment plan itself). Moreover the income sourced from the levy remains in the catchment and as such has the potential to raise community awareness and engender a sense of ownership and interest in catchment management.

3.3.6 Moving from Planning to Implementation

Considerable effort has been placed on the development of catchment management strategies and plans by catchment management organisations. However, a lack of effective implementation strategies and mechanisms has hindered the implementation of these plans (e.g. Bellamy *et al.* 1999c; Appendices 2 to 7). Implementation needs to occur through a wide range of mechanisms including local governments, Landcare groups and other sub-catchment groups planning on-ground activities. However as noted in Section 3.2.4 of this report, there has been only limited progress in the implementation of ICM policies in local government planning.

The House of Representatives Inquiry into Catchment Management notes that catchment/ regional bodies often do not have sufficient powers to ensure effective implementation of catchment management plans (The Parliament of the Commonwealth of Australia 2000, p. 72). Devolution of responsibilities to catchment and local forums and community participation are often articulated in terms of community empowerment. However it is still early in the evolution of catchment bodies and much of the effort has focussed on forming catchment management bodies and developing plans and strategies. The challenge is to implement the plans and strategies that they have been encouraged to develop. But as Dore and Woodhill (1999) point out, responsibility without resources cannot be called empowerment. Catchment management bodies will not be effective unless they have appropriate powers (e.g. decision-making authority) and resources, and are also seen as legitimate by a majority of stakeholders including community, industry and all three spheres of government. Moreover, for catchment plans to be effective, they need to be linked with and endorsed by other legislative planning processes and voluntary mechanisms which relate to NRM.

Another issue is that in planning for ICM there is often too great emphasis on getting the data first so as to be able to develop effective action. This orientation reflects the historical influence of the 'scientific method' in planning NRM. The Precautionary Principle repositions this orientation toward making environmentally responsible decisions based on available knowledge and nested within the recognition of the limited potential to accurately assess future outcomes of complex natural systems. There continues to be an emphasis in ICM on getting the 'science' right first to guide action rather than evolving governance structures, which are more effectively able to use current understandings in decision processes. This orientation continually pushes back effective ICM implementation interventions through a perceived need to collect and collate more data. This insight does not aim to devalue the role of science but more clearly positions the role, value and effective inclusion of science in a resource governance context. ICM processes are about governance and not pure scientific research; there is a need to get current science in a context to be more readily useable by emergent governance structures.

In light of these issues, a major challenge for ICM is the identification and establishment of appropriate implementation arrangements (structure, policy and resources). With the devolution of more responsibility for implementation to the local level where natural resource issues are being dealt with on ground in all States, it is important that governments clearly articulate which functions are being devolved and clearly identify roles and responsibilities of all the parties

involved. Importantly, catchment management planning needs to be seen as part of a process of continuous improvement, rather than a one-off task, and it requires continued commitment, monitoring, evaluation and revision.

3.3.7 Evaluation and Review Processes

Evaluation and review processes are essential elements of an adaptive approach to ICM policy. Evaluation should be built into the governance arrangements in order to provide a mechanism for learning and adapting as the policy and program implementation develops (e.g. Bellamy *et al.* 1999a; 2001). Accountability is a core element of evaluation and review processes. However it is dealt with in more detail in Section 3.4.1; here we consider performance issues relating to governance arrangements for ICM.

Overall ICM across the states has suffered from a lack of evaluation mechanisms to provide information on the impacts of ICM policy initiatives and the effectiveness of the ICM approach in improving NRM. In particular, to-date there has been little accountability for action due to lack of supporting legislation in most states, lack of agreed target setting at the local catchment level and failure to allocate resources based on natural resource condition. Most evaluation and review mechanisms have focussed on activity-based performance assessment (e.g. number of catchment plans developed, number and value of on-ground projects). There is a need to shift from evaluating progress in implementing activities alone (activity-based assessment) to including the evaluation of the effectiveness of the policies against their desired NRM outcomes (i.e. outcome-based assessment).

The needs of accountability and performance are increasing and it will be a challenge for ICM to find ways to identify and monitor the tangible benefits that accrue from ICM. Improving catchment-based responses to NRM issues requires consistent and effective monitoring of resource condition and other indicators of catchment quality, including biodiversity. Any approach to monitoring within catchments needs to involve the full range of local organisations and groups to ensure ownership. This is essential to avert the risk of establishing monitoring regimes which are not capable of long-term implementation (because of lack of local support), or local groups developing parallel systems of data collection, which may not be consistent nor meet catchment-wide needs (EA 1999). Moreover the first few years of the establishment of community-based catchment management groups are generally focussed on relationship building and planning, and the evaluation of catchment management needs to take into account the fact that many of the benefits are intangible, but are an essential part of the catchment management process. Performance indicators therefore need to be designed for the particular stage of that process.

3.3.8 Cross-jurisdictional Issues

Among the challenges for Australian integrated catchment management is catering for the many differences in jurisdictional arrangements and powers. These include geographical jurisdictions, especially state and local governments, and also the different statutory areas of responsibility divided within states by separate, often mismatched, legislation.

Managing across geographical boundaries

Managing across State and local government boundaries, while keeping the geographical basis (catchments) pre-eminent, involves trying to combine administrative and landscape geographies. State boundaries are particularly important, as NRM issues are strongly identified with State legislative and administrative powers. The House of Representatives Inquiry into Catchment Management identified that there were difficulties for ICM associated with cross-border issues and acknowledged that current arrangements were poorly coordinated both within and between

states (The Parliament of the Commonwealth of Australia 2000, p. 42). Notwithstanding existing multi-jurisdictional cooperative management arrangements (e.g. Murray Darling Basin), there are concerns that some States are not taking sufficient account of the impacts of their management of land and water resources outside their boundaries.

While local government boundaries do not involve such major differences in legislation and administrative arrangements, cross-jurisdictional issues nevertheless arise because a catchment may comprise numerous local government areas, and of course many local government areas straddle catchment boundaries. This necessarily involves coordination among the local governments participating in any one catchment's management activities, and for many, participation in the activities of more than one catchment under the auspices of catchment bodies which may vary in their approaches. Local governments vary in their extents of staffing and financial resources (see Section 3.3.4), policy stances (which may also alter between elections), and catchment management may hold quite different levels of priority from one local government to another.

The case studies chosen here (see Boxes 5 and 6) illustrate alternatives to the MDBC administrative arrangements and community engagement processes. Like regional ICM bodies within States, these arrangements face the challenges of combining a region-wide body with community engagement, with the added dimension of different governments to include, with different powers and policies. Both do so by having a multi-party leading committee, with a blend of expertise drawn from different sectors in which neither states, as total jurisdictions, nor government agencies, predominate over other members. Both have chosen non-authoritarian concepts for their leading committees, a Coordinating Group (LEBRI) and a Consultative Council (GAB). Both are chaired by landholders who have a wide range of personal expertise. Both leading committees have mixed memberships representing their ranges of partners. To our observation, both committees blend the 'expert' and 'representative' modes of composing committees in useful ways. LEBRI's Coordinating Group is drawn partly from its catchment committees, providing a strong 'vertical' link, complemented by individual expert members (such as a scientist and a policy maker) who may come from outside the region. The Great Artesian Basin Consultative Council's (GABCC) members represent parties, but the individuals are also chosen for the expertise and communication opportunities they can also contribute. They too may come from outside the region.

The Lake Eyre Basin's nested, more participatory level, is based on catchment committees which cross state borders and have strong community engagement. These are also supplemented with considerable whole-of-community participation (Andrews 2000), which is feasible in terms of population numbers but involves vast travel distances. Basing an Indigenous Facilitator within the Initiative's staff has been an effective way of engaging ongoing communication with Indigenous members of the basin community – this strategy was preferred to a one-off consultation exercise (Kate Andrews, pers. comm. 2000).

Box 5: Lake Eyre Basin Regional Initiative

The Lake Eyre Basin is roughly equivalent in area to the Murray Darling Basin, though it has a far smaller population. It encompasses parts of South Australia, Queensland, New South Wales and the Northern Territory. The parties to the initiative have agreed to work towards the sustainable natural resources management and regional development of the Lake Eyre Basin, explicitly acknowledging the links between environment, economy and community (see Andrews 2000; Dore *et al*. 2001).

It is an interesting example of an approach to cross-jurisdictional issues, since the structure and processes of the Initiative match catchments and sub-regions, not State boundaries. Particular agencies and governments played an important supportive role in organising initial meetings and financing the work (along with the NHT) but the process is driven by stakeholders and has strong community ownership. A formal inter-governmental agreement came later, and established a direct link to the Initiative.

The Initiative grew from a well designed and facilitated public meeting of diverse interest groups in Birdsville in 1995, interested in the implications of possible World Heritage Listing of the Basin. The participants chose to proceed further, by establishing a Steering Group with a mandate to produce an issues paper and explore options for coordinated basin-wide regional resources management. Some contributed start-up funds, followed by funding from NHT and two state governments. A project officer was appointed by the Steering Group, and was seen as accountable to the various stakeholders and communities via the Steering Group.

Widespread consultation followed, about issues, then about the advantages and disadvantages of creating some form of regional management. This enabled design of a form of management, endorsed at a large 1997 public meeting, that addressed these factors. The process is overseen by a Lake Eyre Basin Coordinating Group (LEBCG), composed of members from catchment committees and individual experts from outside the region. The other tier is catchment management committees (or alternatives) under development through consultative processes for the five major catchments or subregions contributing to Lake Eyre. The first two of these to be established, for the Coopers Creek and Georgina Diamantina catchments, have a mixture of geographical and interest-based members. Broader community engagement is supported by continuing consultation by the now enlarged staff of the Initiative, which includes an Indigenous Facilitator funded under an NHT program. This consultation can take a variety of forms including regular public forums in different parts of the catchment, sub-group meetings based on issues or regions that may involve more than committee members, action teams to progress priority initiatives, and a regular basin-wide conference.

A Formal Agreement on the management of the Lake Eyre Basin was signed by Queensland, South Australia and Commonwealth Ministers in 2000 and a Ministerial Forum established. The Lake Eyre Basin Coordinating Group was invited to perform the role of the community advisory committee to the Ministerial Forum.

Managing across legal and administrative divides

Many of the issues of horizontal integration identified elsewhere in this report reflect a structuring created by sets of legislation created for different purposes, and at different times. Thus any state's legislative base is partly an historical artefact, updated at uneven rates in different sectors. Legislation frequently establishes the administrative arrangements for achieving its goals, including which agencies will be responsible for a set of goals. Legislation may for example establish an organisation for management of a particular region, such as the *Great Barrier Reef Marine Park Authority Act*, or set of arrangements, such as the NSW *Catchment Management Act 1989*. It is also common for any major state (or Commonwealth) agency to administer a number of Acts, which may become administratively separated in different parts of one organisation or even across a number of agencies. The lack of integration of NRM within legislation is one factor contributing to moves in a number of states to address the ineffectiveness and inertia from the diversity of arrangements and management regimes for NRM (e.g. Queensland, South Australia, Western Australia). For example, in South Australia there are eight different Acts administered by several departments, which relate to planning and NRM. Currently a Draft Integrated Natural Resource Management Bill is being considered by

Parliament that would propose new overarching legislation to improve administrative arrangements by providing a common set of policies and processes across all NRM legislation.

Box 6: Great Artesian Basin

Like the Lake Eyre Basin, the Great Artesian Basin traverses four State and Territory jurisdictions, Queensland, the Northern Territory, New South Wales and South Australia. As with surface catchments, the nature of land uses in some areas can affect the biophysical values and resource access of people elsewhere. Governments and concerned community members have been compelled to take action to manage water use and wastage in the basin owing to the serious overdrawing of the groundwater, leading to drying and reduced pressures and flows in bores, and damage to biodiversity including mound spring ecosystems.

A Great Artesian Basin Consultative Council (GABCC) was formed in 1997 following a 1995 forum of industry and community groups, and government agencies (see website http://www.gab.org.au/). It was constituted by agreement between the relevant government ministers of the four states and territories, and the Commonwealth, to bring together the diverse and geographically dispersed stakeholders of the Basin to promote sustainable use of the groundwater resource. The Council's role is to advise State and Commonwealth governments on strategic directions for the management of the GAB water resources on a whole of basin basis, taking into account land and biological resources. Its first step towards addressing the urgent issues of artesian water use was to prepare a Strategic Management Plan, released in 2000. Preparation of the Plan involved a comprehensive Resource Study which provided empirical documentation and analysis of the complex issues involved in management of the Basin, and lengthy public consultation.

The Commonwealth committed over $30 million over five years from 1999 towards a program of rehabilitating bores and replacing bore drains with piping. This program works as a partnership between the Commonwealth and State governments and bore owners, who contribute to the cost of the works. The GABCC coordinates investments towards achievement of the Plan.

The GABCC has some 18 members, who are representative based and appointed for their individual expertise as well as ability to represent the interests of and coordinate with the member organizations of the GABCC. These member organizations are six sectoral organizations (for farming, minerals and petroleum, conservation, Indigenous peoples, and local government), four state and two Commonwealth agencies, four GAB State Advisory bodies, and the GAB Technical Working Group (made up of jurisdictional science experts).

The GABCC structure is thus a partnership between government and sectoral bodies, with further roles for public participation and the input of technical information. The members have succeeded in putting aside sectional interests for the common good, and the governments have essentially taken non-partisan roles (Seccombe, 1998).

Recognising Indigenous customary law as a type of jurisdiction, one can also view the differences in roles and goals between Indigenous law and non-Indigenous law as a type of jurisdictional issue. While Indigenous people might not put it this way, this is surely one of the reasons many Indigenous Australian people are offended by being treated as simply another stakeholder of equivalent (or lesser) status to any other sectoral group. In the USA, Indigenous people prefer to deal on a government-to-government basis with state and federal governments, and have many formal arrangements for doing so (Ross, 1999). Land Rights and Native Title legislation now at least bring some parity, by ensuring legal rights and responsibilities are dealt with on the same platform, though this legislation inevitably distorts customary law by attempting to capture it in western legal terms.

3.4 PROCESS ISSUES

3.4.1 Accountability

The concept of accountability expresses whom (or which body) a person, organization or process is answerable to, in meeting its responsibilities. The concept is generally used to refer to formal reporting and performance responsibilities, which may be legal (expressed in an act or regulation), or otherwise formalized in organizational arrangements. It is generally framed in terms of specific responsibilities, and reporting mechanisms and timeframes. Accountability is a useful clarifying concept, identifying core performance expectations and often providing a monitoring system so that a senior party responsible can stay informed of the junior party's progress and any difficulties in meeting these expectations. Accountability arrangements may be tiered, for instance a regional body to a state one, the state one to a Minister or Parliament. They may also appear to be 'downward' or 'outward', for example a politician with constituents, an office bearer with association members.

Comparison of the State reviews suggests that notions of accountability have been uneven, and if anything, have been focused more strongly on means (operation of the processes) than ends (environmental outcomes). The issues of horizontal and vertical linkage of arrangements contributing to NRM is also pertinent here: viewed holistically, a number of institutional arrangements can be seen as *mutually accountable* for achieving environmental outcomes.

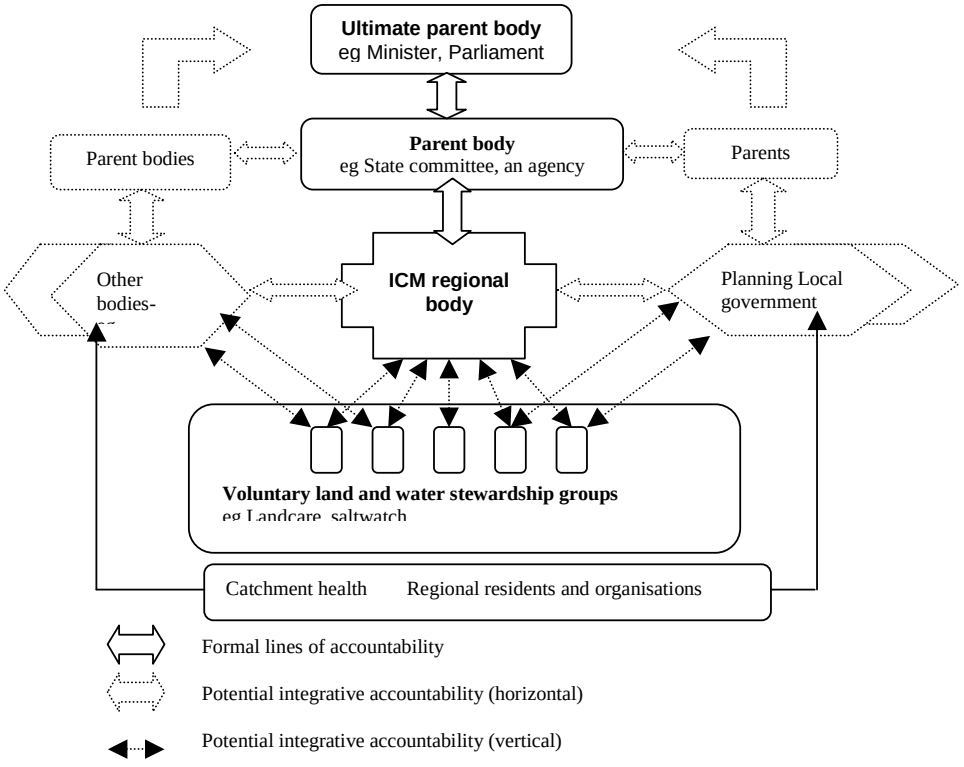
It is useful here to compare the formal accountability relationships in the ICM structures and processes in each state, with some potential ones which could assist integration among bodies with interacting functions. We try this exercise to suggest the different sets of interests in the performance of an ICM process, and open discussion as to how clarity about these interests could perhaps be factored into each body's efforts to perform well and communicate its performance. (We well recognize that it may be unwise to formalize all such potential accountability relationships – that might prove cumbersome and conflictual. More fluid, communicative arrangements, provided they achieve their purposes, may be effective).

Accountability in an inherently integrating process such as ICM is *potentially* multilateral. For instance, regional bodies are most likely to have formal accountability 'upward' to a state body if it exists, a state agency, or state parliament (see Figure 3.1). They could also have 'downward' accountability to say Landcare and other voluntary groups in their regions (if these are linked into the regional process), and to the communities, organizations and land for which they plan. Meanwhile, individual members of regional bodies may have formal or moral responsibility to represent constituencies or issues, in those states which rely on a representative mode of membership. Another *potential* type of accountability is lateral, for instance to bodies dealing with related issues such as vegetation management. These ideas are expressed in Figure 3.1.

Our idea is that these potential accountability linkages be considered carefully, as a conceptual framework for improving horizontal and vertical integration among the institutional arrangements in each state, which have a bearing on catchment management and health (see above). As well as identifying existing, formal accountability arrangements, it is worthwhile to ask:

- What are the other institutional arrangements contributing to NRM, exclusively (such as vegetation or water resources management) or as part of a wider range of responsibilities (such as planning, local governance)?
- How can mutual communication and coordination best be achieved among them, towards more effective integration of efforts in NRM in all sectors (vegetation, water, planning) and at all scales (local, regional, state, cross-jurisdictional basins)?

Figure 3.1: potential accountability relationships in ICM, focused on a regional body



- How can mutual communication and coordination best be achieved with bodies focused more locally, such as the work of voluntary stewardship groups?
- How can local accountability be achieved?
- How can accountability for environmental outcomes (catchment health) be made more focal?
- How can the types of environmental outcomes sought be integrated with social and economic well-being at local and regional scales?

If all of these bodies have a formal or voluntary responsibility to achieve an aspect of integrated resource management, how can they work collectively towards some common set of purposes or vision – without any party dominating the directions taken?

It is worth bearing in mind the Victorian Government's five principles here - community empowerment, integrated management, targeted investment, accountability and minimizing bureaucracy. Can mutual accountability for achieving common or interrelated goals become a way of integrating management and targeting all parties' investments, while fostering community empowerment (the lower tier vertical links) and still minimizing bureaucracy? This is a worthwhile challenge. Some ingredients and potential models are available to build upon:

- Victoria's local government system requires local governments to take account of the Regional Catchment Strategies and their component action plans, and to give regard to approved regional vegetation plans when amending planning schemes and reviewing Municipal Strategic Statements. It appears to be trying to build this into a reciprocal link, through a forum held recently to help develop a whole-of-government approach to the

revision of Municipal Strategic Statements and Regional Catchment Strategies. A CMA-local government forum is also planned for November 2001.

- New South Wales is aiming for interchanging memberships among catchment management and other bodies such as in vegetation management, so that at least some members of each body will be able to transfer information and ideas among these bodies. This is a means of communication, though not formalised into an accountability system (requiring systematic reporting).

3.4.2 Membership and Representation Issues

Australian ICM is distinguished by its partnership basis between government and non-government bodies or people. Through the regional body structure adopted in most states, it attempts to integrate the various biophysical and management aspects of land, water and vegetation management, and the perspectives of stakeholders. Lee (1993) expresses this need to combine ecological science with human communication and decision-making processes in environmental management through his metaphor of the compass and the gyroscope:

> I have come to think of science and democracy as compass and gyroscope – navigational aids in the quest for sustainability. Science linked to human purpose is a compass: a way to gauge direction when sailing beyond the maps. Democracy, with its contentious stability, is a gyroscope: a way to maintain our bearings through turbulent seas. Compass and gyroscope do not assure safe passage through rough, uncharted waters, but the prudent voyager uses all instruments available, profiting from their individual virtues (Lee 1993, p. 6-7).

Mobbs (2000) illustrates the challenges of balancing the attainment of sound environmental outcomes with inclusive participatory processes, in case studies on Cape York Peninsula and the northern New South Wales Regional Forests Agreement process. With the exception of Tasmania, which does not have regional bodies, most states rely on regional (and sometimes state) bodies with a limited number of members, usually apportioned according to stakeholder categories or areas of experience.

The state reviews of ICM highlight questions about the most appropriate basis for membership:

- Should members be selected for their skills, or nominated as representatives by stakeholder bodies?
- Should they be elected or appointed?

The strength of a representative basis for membership is its direct connections with sectional interests or geographical areas, as a basis for gaining diverse inputs into catchment planning and ownership of the plans and implementation responsibilities. A weakness is that members may be tempted to put sectional interests ahead of those of the catchment, or experience tension between their party's interests and the needs of other parties and the catchment. The argument in favour of a skills basis for membership is that it ensures members have the best available skills to contribute to catchment management - this can include familiarity with, and skills in communicating with, segments of the community (AACM 1996).

Similarly, election could be argued to strengthen ownership within a representative basis for membership, while appointment strengthens the likelihood of achieving an excellent set of skills. For the purpose of discussion here, we describe these as distinct alternatives, though some states blend the approaches, for instance, appointing from sectional nominations (AACM 1996).

These imply underlying issues about the roles of the regional bodies, in deliberating (and perhaps coordinating the members constituencies and parent bodies) towards catchment plans and management activities that are technically sound (implying use of appropriate expertise), and widely supported (implying the need for participation and ownership by the range of parties

affected). These are not mutually exclusive – stakeholders may well put forward skilled and experienced representatives – but do imply some trade-offs in priorities.

It is easy to assume that all stakeholder bodies are equally familiar and comfortable (or uncomfortable) with a representative approach. This is far from the case. Members of a peak body, such as a farmers' federation, or industry body, may be reasonably well organised to work on a representative model. So are government agencies. Environmental groups are far less so, and some have a more critical constituency to answer to. Indigenous groups have no customary basis for representative governance, and feel distinctly uncomfortable (as well as open to criticism from other Indigenous people) if asked to give views pertaining to country other than their own. Organisations such as the Aboriginal and Torres Strait Islander Commission (ATSIC) and Land Councils are organised, if not sufficiently well staffed, to provide capacity to engage in representative processes, but are aware that to perform this role well they need reasonable time and resources to consult their constituents between meetings (See also sections 2.2.2 and 3.4.3).

A further issue is the personal accountability of members to the stakeholder bodies they supposedly represent. The sheer workload, at opportunity cost to making a living and family roles, mitigates against members having sufficient time to keep constituents informed and to confer with them between meetings. The geographical scale covered by the regional bodies – for example 18 to cover all of NSW – and lack of financial support for communications, also suggests huge difficulties for members to communicate effectively with constituents. Further, some stakeholder bodies are effectively organised to enable convenient communication (for example, through reports to branch meetings) whereas others are less tightly organised, if at all (e.g. landholders). The reality is probably that members bring their experience of their stakeholder group and its perspectives on certain issues, but are logistically unable to work in a truly ‘representative’ manner.

In our view, there are merits in both models, but further thought needs to be given to ways of combining expertise with stakeholder ownership and commitment, then improving capacity for linkage between members, their particular constituencies, and the public at large. One model worth considering was designed for the Timber-Fish-Wildlife Agreement in Washington State, USA (Ross 1999). This incorporated a scientific committee, whose members met and deliberated as experts, but were provided by each stakeholder group with a view to having the necessary range of expertise between them (for instance if the timber industry supplied a geomorphologist and hydrologist, the Indian Tribal Governments might supply a fisheries biologist and the government agencies another specialisation). This committee, and several others, worked under the auspices of a policy committee, with a stakeholder-based membership focused on senior people able to speak with authority on behalf of their constituencies. Thus both expert and representative models of committee membership were combined in a single system.

These issues of membership and constituency engagement obscure a wider set of issues, of participation and ownership more generally. Buchy and Ross (2000) classify bodies such as ICM regional bodies as ‘composite stakeholder bodies’. These are convenient to use at large scales, but are by no means the only form of participation possible. Indeed, strategies of nesting different participatory arrangements at different scales can be highly effective in achieving breadth and depth of participation. Andrews (2000) explains the approach taken by the Lake Eyre Basin Regional Initiative (see Box 5), in which a basin-wide committee is complemented by intensive participatory engagement at local levels. The latter is conducted by the small but energetic secretariat staff, who link this level with the committee. This idea of ‘nesting’ participatory strategies is already being adopted to some extent by those states trying to link their regional bodies more strongly with landcare and other voluntary stewardship groups. In principle, any form of public participation could be articulated with the work of regional bodies, with the resources committed to this depending on the worth of the public ‘ownership’ so engaged.

3.4.3 Indigenous Issues

In considering Indigenous people's interests in catchment management, all parties concerned with ICM need to recognise both that many catchments include areas of Indigenous-owned land (freehold, leasehold or recognised under native title agreements), and most areas of Australia – land and waters - remain owned under Indigenous customary law. Some of the Crown and leasehold land is claimable under native title provisions, but the eligibility, success or otherwise of such claims does not reduce the underlying sense of attachment and responsibility Indigenous Australians bear for land, sea, and their natural resources. The authors of this report believe it appropriate to follow the spirit of the native title legislation, and reconciliation, rather than to take a legalistic view of formal entitlement (which might involve dealing only with successful native title claimants, leaving those not entitled to claim out of consideration).

Indigenous people throughout Australia are asserting stronger interest in environmental management issues on all types of land, as part of exercising their customary responsibilities for the health of their 'country'. Catchment management is becoming part of their focus. In this section we make limited observations: a MDBC scoping study on Indigenous involvement in NRM soon to commence will provide richer information.

There is very little information on Indigenous people in the review materials we have used. There is an issue of timing here: in the 1970s and 80s, most Indigenous organizations and activists were preoccupied with acquiring land and meeting urgent health, housing, education and employment priorities. The following observations draw on our own experience.

Indigenous people have until recently been a neglected party in ICM, though a few Indigenous groups have engaged strongly – from outside the system – with catchment management issues. In the mid-1990s, the MDBC funded a research and community planning project: Increasing Indigenous Involvement in Land and Water Management (P. Melser and T. Skuthorpe, pers. comm. 1998). This was an intensive project with Indigenous communities in northern and southern NSW, which used art as a means of expressing Indigenous knowledge of, and visions for the land. It advocated that facilitators working with Indigenous communities on catchment management take time to get to know communities and involve them at an appropriate pace. The results of part of this project are given in an excellent video and handbook (MDBC n.d.). The video is a superb communication and teaching tool, conveying Indigenous spiritual connections to their country and ecological way of understanding landscapes and natural resources.

The Victorian Catchment Management Council (VCMC), in partnership with Indigenous peoples, is leading a project to promote and develop protocols for Indigenous land management for inclusion in regional approaches to land and water management. It is expected that these protocols will be implemented through CMAs. Several States now include Indigenous people on regional bodies. Indigenous facilitators are engaged with catchment management in Victoria, and the Lake Eyre Basin Regional Initiative.

Engagement between Indigenous and non-Indigenous parties in catchment management needs to be through supportive processes which facilitate mutual understanding of interests and assumptions, and which are careful not to disempower or marginalise Indigenous participants.

As we stated in section 3.4.2 above, Indigenous participation in catchment management is not simply a matter of making places for representatives on state and regional bodies – though this is a necessary step. Traditional owners are the prime decision-makers for their country, and in Indigenous law, one group cannot speak 'for' another's land. Indigenous organisations such as land councils - in the states and regions that have them - have ways of enabling participation in non-indigenous fora, while maintaining contact with Traditional Owners through formal channels or regular consultation. This of course entails administrative and communication costs for these bodies. The Aboriginal and Torres Strait Islander Commission, through its elected members of

regional bodies and their staff, is also gearing up to take a stronger interest in land management issues than it has in the past. Representative mechanisms that assume an individual can speak with any authority for others and their land are problematic, both for the individuals concerned (of whom many will be uncomfortable with these expectations), and for the landowning groups. Therefore, the invitations to join a catchment body need to be issued with care. Then the role and expectations of a person appointed to a regional or state body need to be made clear. Are they present as a personal expert (key informant) on Indigenous issues? As a two-way conduit for information and viewpoints between Indigenous people and the regional or state body (in which case the member needs communication channels and resources to enable these flows)? As empowered to speak on behalf of indigenous people or organisations (a role also requiring their constituents to be able to communicate with and instruct the member)? Pending advice from the MDBC's commissioned research on Indigenous interests, we can only advise that Indigenous people be consulted in each state as to the best ways of ensuring they have an effective voice on regional and state ICM bodies, and how to establish effective links between the individuals sitting on the bodies and the Indigenous constituency (along the lines of Victoria's project to establish protocols).

We have suggested above that regional bodies be a focal, but not the sole, way of engaging with all stakeholders. Thus the Indigenous members of regional and state bodies need:

- Communication channels with Indigenous traditional owners, catchment communities, and the Indigenous organisations engaged in land and sea management within their catchment or State
- The capacity (time, resources) to undertake this communication. Support from specific consultations on important issues which require an informed Indigenous input.

3.4.4 Capacities and Capacity Building

Our comments on capacity need to be considered alongside a more intensive report on this issue in preparation for the Murray Darling Basin Commission. Issues which have emerged from this study are:

- The learning process that individual members and regional bodies have engaged in, so that their understanding of the issues in catchment management and ability to work together have grown through *experience* and mutual exposure to ideas and information (e.g. Bellamy and Dale. 2000). Catchment bodies are undoubtedly maturing in their understanding, though at different rates. While there is concern about loss of experienced members due to 'burnout', we can also expect enrichment as new people take turns in the bodies. Turnover of members does need special management, for instance in inducting new members into the collaborative culture built up by the group (Ross 1999), as well as bringing them up to date with the group's knowledge, progress and directions.
- Severe limitations on individual and collective capacity to effectively engage in and implement ICM are being imposed by insufficient *resourcing* of ICM (see Section 3.3.5). Shortage of resources (human and financial) affects the quality of inputs possible, for instance by making it harder to collect information or liaise with constituents, and the outcomes. One of the most major limitations is the general lack of resources to *implement* plans, once made.
- Neither local people nor agency staff necessarily have the 'people skills' – such as community leadership and facilitation skills - and understanding of context to engage successfully in a participatory process without assistance. This is a clear area for sympathetic training to be made available, much as environmental mediators often recommend training for participants prior to a negotiation.
- The need for infrastructure and appropriate skills for catchment communities to use information and other new technologies has been undervalued in ICM initiatives. To be effective catchment groups need these to improve communication, retain ownership and

control of information and to make effective use of systems such as GIS and decision support tools.

It is important that capacity building be recognised as a distinct need, to enhance the performance of ICM, ensure appropriate investment of resources, and reduce strain on the participants. As Marshall (2001) points out, capacity building must be seen in terms of group as well as individual skills. It clearly involves relationship-building, trust, and cooperation.

The Queensland state report (Appendix 2) outlines three approaches proposed to support and address capacity requirements for implementation of the *National Action Plan for Salinity and Water Quality*: strengthening natural resource managers in the region; strengthening information and communication channels between resource managers; and strengthening the knowledge base underpinning management actions.

Several initiatives in WA (see Appendix 6) illustrate ways of building capacity:

- the 'Rapid Catchment Appraisal Process', a state-wide program in which landholders, with technical assistance, make an assessment of their farming operation and of the alternative options they have for future management of the farm and its natural resources.
- the 'Supporting Communities' initiative, which takes a broader 'non-technical' view of farming and community futures, helping local communities to collectively consider their future. This has involved direct mentoring within existing catchment and community groups, and the formation of 'clusters' of groups to provide a forum in which regional communities can consider options such as regional branding, the formation of marketing cooperatives and similar schemes which serve the collective interests of local people.
- the 'Rural leaders' and 'Community builders' training programs
- the new 'FarmBis' model for strategic management of business enterprises, including sustainable management of the NRM resource. In WA programs have been developed in conjunction with the Indigenous Land Corporation, to ensure that these opportunities are relevant and meaningful to indigenous land managers as well.

In our view, one of the fundamental issues in the development of 'capacity' is ways of assisting people to progress from a predominantly private property mindset, assuming owners have absolute rights, to incorporate aspects of a 'common property' way of thinking, recognising that individual properties are part of a landscape which is ecologically and socially connected, and for which they need to assume mutual responsibility. ICM is promoting this type of thinking strongly by encouraging its participants to recognise, and take responsibility for, the downstream effects of upstream land use practices.

3.4.5 Participation and Partnerships in Practice

In considering the participatory aspect of ICM, we need to remember that the experience of working in partnerships in NRM (other than Indigenous joint management of national parks) is little more than a decade old, although there are issues-based antecedents in soil conservation and river improvement. In that time we have seen growing commitment to the idea of partnership-based institutional arrangements, and experience in making them work. Both agencies and non-government organisations have become used to the blurring of roles required in working collaboratively with their partners on these bodies. Of course the experience has been uneven, with older bodies by and large more settled. Like any group process, ICM bodies move through stages of 'forming', 'storming', 'norming', and 'performing' (Tuckman 1965) and need to revisit these stages when membership turns over.

Assumptions in a 'representative' structure

Issues with the working of a 'representative' model of committee membership have been described above (see Sections 3.4.2 and 2.2). While this is a logical structure where large geographical scales need to be considered, in practice few of the committee members are able to liaise with constituents in a truly representative way. (They may not be required to, either, under their terms of appointment). The reality is that they bring experience from their stakeholder location in society, contribute from that basis, but many have difficulty for time and logistical reasons in engaging in a continuing two-way communication with constituents.

Again, clarity about what is required could help effectiveness. It may be sufficient to recognise that most states use a hybrid between representative and expert approaches, appreciate the contributions of members familiar with different sectors, and take additional steps to promote widespread ownership of regional bodies' plans. These could include publicity from the whole of a regional body, reaching all constituencies, and additional consultative processes to reach into the community periodically as required. As we stated above, and in section 3.4.6 below, the issue of representativeness is particularly awkward for Indigenous people, whose decision-making and rights to speak for others focuses on areas of traditional country that do not coincide with, and are frequently smaller than, catchment scales.

The apportionment of positions on each regional and state body also sits imperfectly with notions of representation. Memberships are generally set by formula, not adjusted to the actual range of stakeholders in each catchment (including urban people and management authorities, and different proportions of Indigenous people or diversity and strength of conservation interests). Some states have membership dominated by primary production, potentially marginalizing the voice of other stakeholder groups. It is now widely recognised that greater effort is needed to involve Indigenous people. An important strategy is Victoria's project between the VCMC and Indigenous peoples, to develop and promote protocols for inclusion of Indigenous land management in regional approaches to land and water management.

A related issue is a risk of greater distancing of a regional body from its community base with formalisation of catchment management arrangements. A regional body cannot be effective, especially in implementing its plans, without strong engagement with this base. Its plans need to be well informed by community viewpoints, circumstances and capacities, and then to inspire widespread acceptance, willingness to support implementation, and appropriate actions on private property.

We suggest that regional bodies be a focal, but not the sole, way of engaging with stakeholders. We see regional bodies as the fora for deliberations, but these need to have 'nested' arrangements with their catchment constituencies through:

- Communication channels appropriate to each stakeholder group, with financial support where necessary for this communication to be achieved
- Formal linkages to organisations within catchments with interests closely related to catchment management, such as Landcare groups
- Periodic consultations on particular issues, where widespread public understanding and input of public viewpoints is particularly important (such as in the setting of targets).

The Central Highlands Regional Resource Use Planning Project (CHRRUPP, see Box 7) illustrates the challenges involved in representation systems, even when designed well and supported by capacity building. It also demonstrates the use of nested participatory arrangements.

Box 7: Central Highlands Regional Resource Use Planning Project

The Central Highlands Regional Resource Use Planning Project (CHRRUPP) was a three year collaborative research and development project which aimed to improve the system of planning for sustainability of resource use and management in the Central Highlands region of Queensland (see http://chrrupp.tag.csiro.au). It stemmed from recognition by key regional interests of the increasing pressures facing the region including market, social, competing resource use, environmental and geographical pressures.

In investigating regional planning across Australia three cornerstones required for healthy regional planning system (Dale and Bellamy 1998; Bellamy and Dale. 2000) are:

- Support for individuals and sectors to develop their own planning and management capacity;
- Facilitating better understanding of the social, economic and biophysical processes within a regions;
- Stronger institutional arrangements that facilitate negotiation between these interests.

CHRRUPP involved community and cultural groups, industries and government agencies from across the region which we called sectors (Bellamy and Dale. 2000). The participatory process of sectors in CHRRUPP was based on two fundamental principles:

- building capacity within existing Central Highlands sectoral groups to undertake their own regional planning and influence policy processes, and
- facilitating forums and processes involving key regional sectors to allow consultation and negotiation of regional solutions to resource use pressures.

In CHRRUPP, community participation is based on representation of regional interests (including several primary industries in agriculture, pastoralism and mining, environmental and landcare groups, economic development organizations, area-based associations, local, state and federal government agencies and a University)rather than through direct participation. It is supported through a two-tiered structure (The Regional Coordinating Committee and the Regional Sector Planning Process). ,

The lessons learnt included a number of clear challenges relating to legitimacy, fairness and influence in representational systems, such as:

- exclusive membership versus inclusive representation
- private versus public interests
- outsiders versus 'locals'
- maintaining commitment.

In a broader sense, the key lessons learnt from CHRRUPP are (Bellamy and Dale. 2000):

- Strategic long term investment in all three cornerstones of the planning system is fundamental to achieve structural change in a region. All three cornerstones require constant and equal attention;
- Without a cohesive long term approach for supporting the planning system improvements may still occur but will take much longer, may be cyclical and will not be equitable between sectors; and
- Long term planning approaches are likely to cost less for all levels of government than the current ad hoc and silo-based approach to regional planning.

Overload on participants

A recurrent issue in the reviews, also identified in other literature on public participation in Australian NRM (Bellamy *et al.* 1999c; Curtis 1999) and regional resource use planning (Bellamy and Dale. 2000), is the heavy demand on voluntary, non-government members. Some states do, and others do not, pay direct costs of participation such as sitting fees and travel costs. It is alleged that potential industry participants are deterred from participation by awareness of the income foregone in engaging in demanding participatory processes. It would not be surprising if other potential participants, including those with non-NRM paid employment or domestic duties, are similarly deterred by the time demands and other pressures, leaving a reduced pool willing to take and remain in these positions. Thus a few bear the burden of governance on behalf of all. Remuneration (sitting fees and expenses), and better resourcing to ease the load, are identified as obvious steps.

Power and equity

There appear to be few or no compensatory mechanisms for dealing with differing degrees of power among participants, including confidence, experience, and knowledge – all of which affect individual members' likelihood of joining discussion and having their views taken seriously within ICM processes. In the public participation field, common strategies for addressing power differences are training for participants, management of numbers (for instance inviting groups of Indigenous people rather than individuals), facilitation techniques to ensure no one dominates discussion and conflict is handled well, and adopting different processes for different constituencies (for instance separate consultation with Indigenous people to avoid their being silenced in cross-cultural fora). Differences in access to resources, as basic as transport and communication facilities, are closely related to power factors.

Inclusiveness

There is little information on age, gender and ethnicity distributions among catchment bodies, at least at the level of reading undertaken for this study. It is unlikely that the present composition of catchment bodies could capture the diversity in its constituencies adequately, or ever could.

Forming and maintaining relationships

Building partnerships between governments and communities requires more than rhetoric and goodwill. A fundamental element of effective partnering is the need for ***all*** stakeholders to form, manage and maintain relationships (e.g. Bellamy and Dale. 2000; see Box 7). This skill is often under-valued in ICM. Capacity building is largely perceived in an individual sense, for example, investing in leaders and champions, developing skills, or augmenting an individual's access to the resources they need. However, empowerment needs to emerge from properties of relationships individuals share (Marshall 2001).

The value of forming and maintaining relationships is illustrated in the preparation of the South-East Queensland Regional Forest Agreement (see Box 8). Thanks to the prior existence of relationships between industry and conservation groups, they were able to improve on the progress they had been making through a stakeholder committee by meeting and continuing their planning on their own terms.

While not directly comparable with ICM since it was not a stakeholder collaborative planning project, the development of a *Strategy for Aboriginal Managed Lands in South Australia* illustrates challenges typical of participatory processes involving large numbers of Indigenous people with diverse interests (see Box 9). In this case, building 'ownership' of the process was critical, yet time and resources to do so well, as well as having sufficient information, emerge as significant issues.

Box 8: The South-East Queensland Regional Forest Agreement

Virginia Young, Wilderness Society
Source: Buchy and Ross (2000)

The South-East Queensland Regional Forest Agreement was a unique example of stakeholders, rather than governments, steering the participation process. Towards the end of the assessment period, both conservation and industry stakeholders on the South East Queensland Regional Forest Forum, sought to meet outside of the official process, building on relations made some time prior to the RFA, and negotiated an outcome that was suitable to both groups.

During the process the Queensland government decided to put all of its resources behind facilitating these negotiations, in particular, by allowing open access to information by the two groups. The result was an agreement made primarily between the conservation groups (consisting of the Australian Rainforest Conservation Society, the Queensland Conservation Council and The Wilderness Society), the Queensland Timber Board and the Queensland government to phase out the sourcing of timber from old growth native forests and develop plantation forests to ensure future supplies.

The success of the process was due to:

- critical personalities in the conservation and industry bodies who saw the opportunity to try a win-win approach against powerful forces
- a long history of relationships and trust building between the conservation and industry bodies
- the early recognition of the power forces and of the need to create powerful alliances rather than stay divided
- full access to State government information
- resources within the stakeholder groups to analyse and utilise the information
- State Government institutional and financial support.

Deep feelings of distrust developed during this time against the Commonwealth government, however, because of their lack of endorsement of the negotiation process.

Since the efforts of voluntary local groups such as Landcare groups are in future likely to be tied more closely to the implementation of catchment plans, the case study on the Bookmark Biosphere Reserve (see Box 10). illustrates the challenges of coordinating voluntary projects towards a common purpose. It shows how a maximum flexibility in the design and the functioning allows for a number of projects to be initiated by various groups as needs arise, and how community learning can occur.

Box 9 : Development of a Strategy for Aboriginal Managed Lands in South Australia

Jocelyn Davies, University of Adelaide
Source: Buchy and Ross (2000)

During 1999, a strategy for sustainable resource management on the Aboriginal managed lands in South Australia was developed to meet the perceived need for a documented strategy to guide decisions on the allocation of National Heritage Trust funding to Aboriginal managed lands in South Australia. The Strategy for Aboriginal Managed Lands in South Australia (SAMLISA) project was initiated by the Aboriginal Lands Trust (ALT) - one of the statutory Aboriginal landowning corporations in South Australia.

Challenges involved in developing the project included the need to build 'ownership' of the process from a diverse array of Aboriginal landowning organisations, and conflicting perspectives of a political nature.

The methods chosen to develop the strategy included the establishment of a spatial database to establish the location and tenure of Aboriginal managed lands, conducting a series of workshops with stakeholder representatives plus consultation with Aboriginal landowners, government representatives, community based organisations and statutory boards and committees. The workshops were seen by the project's managers as key parts of the overall process.

The many lessons learnt from the project included issues such as:

- recognising the scope of the task - it was difficult to establish the scope of the task at the outset, as prior to this project there was no definitive list of how many Aboriginal properties were involved, where they were and who owned them.
- allowing for capacity building - for example, the process was ambitious and, relative to its goals and its achievements, it was under-resourced in time and money.
- encouraging technical interfaces with government - for example, protocols for interface with government in data management and transfer could have been much better planned and managed.
- addressing the scale of decision making - for example, regional scales of decision making and development of strategic directions were not addressed, and, in the report, networking, planning and coordination at regional scales is identified as a key direction for future action.
- defining the extent of participation - for example, an extremely short time frame for comment on the draft report contributed to sub-optimal participation.
- overcoming gender imbalances - for example, Aboriginal landholder participants in the process were overwhelmingly male and in future, such processes should include targeted women's components - specific workshops and consultations and the engagement of female project officers to facilitate them.

3.4.6 Mechanisms for Integration of Knowledge

The state synthesis has emphasised the need for a stronger knowledge basis for catchment management, as an input to planning by catchment bodies. As far as possible, the information needs to be integrated. Large quantities of fragmented information are difficult for anyone to handle, let alone use to identify priorities for action.

We see integration of knowledge as requiring the following:

- Acquisition of information, for instance the background provided in the national salinity strategy, the work of the National Land and Water Resources Audit, State of the Environment Reporting. To be cost effective, large information-gathering activities should be designed to serve a variety of policy and planning purposes, not excessively tailored to a single purpose to the exclusion of others. It should also be provided in accessible forms, so that users can locate it easily.

Box 10: Bookmark Biosphere Reserve

Pam Barker, Bookmark Biosphere Reserve
Source: Buchy and Ross (2000)

Bookmark Biosphere Reserve encompasses nearly one million hectares of land in the South Australian Riverland area and includes Murray River floodplain and the largest, intact stand of mallee remaining in South Australia. The New South Wales and South Australian border forms the eastern boundary. The Murray River defines much of the southern boundary. Bookmark's partners (including local, state and Federal government, organisations, industry and private individuals) seek to integrate conservation and sustainable development through resources of voluntarism and a broad based network of partnerships supported by professional staff.

The projects and the priorities within the Bookmark program are identified by the community. Most of the implementation of these projects is carried out by volunteers with the Biosphere Reserve staff acting mainly as support to the community's decision. The Riverland community has donated over 1.5 million volunteer hours since the inception of the program in 1993. Projects can be grouped into the broad categories of education and social sustainability, the pursuit of sustainable use of our land, landscape and species recovery, oral and written history, and other special issues. They include cost-effective management of the conservation estate, monitoring, research, recovery of degraded areas, conservation of biodiversity, education, social justice, employment/training and pursuit of ecologically sustainable development (based on defined goals and monitored results) form the core investments and activities of the program.

Lessons learned include:
- the importance of leadership and commitment,
- having a clearly articulated set of values for the program, and
- reinforcing the importance for staff to recognise a socially challenging program when it arises and to take steps to protect the program, and those in the community who are backing it, from a tendency in rural communities to personalise intellectual issues.

- The ability to combine
  - Different forms of knowledge, local and experiential with traditional ecological knowledge and scientific knowledge.
  - Different disciplines and fields, such as hydrology, vegetation management and land use
  - Information provided at different scales, for instance plot, to property, to landscape scales.
- Ways of managing the information, including integrating databases such as Geographic Information Systems, meta-databases (databases which show where the information can be found), and new-generation Decision Support Systems for instance modelling the linkages between land cover, hydrology, water consumption in agriculture, farm production, and socio-economic effects (e.g. Scoccimarro *et al.* 1999).
- Developing understanding, ownership and trust of the information, across stakeholder groupings. This involves processes of engagement with the information, and perhaps the idea of participatory knowledge-building among groups of stakeholders (Bosch *et al.* 2001). It equally involves cross-cultural respect for different forms of knowledge, for instance Indigenous, observational and experiential, and scientific.
- Linkage to monitoring of environmental quality and ICM outcomes, so that information collected through monitoring adds to the existing body of knowledge, and enables identification of trends.
- Use of the knowledge as a basis for adaptive management. Adaptive management has been described by Walters and Holling (1990), as treating management strategies and policies as experiments that are conducted to learn more about an ecosystem's processes and structures. The results are then used to refine the strategies and policies for the future.

Integration of information, and combining it as useful knowledge, is a challenging frontier for the practice of science. The need is not for vast amounts of new information, but for its collection and integration towards purposes such as planning and catchment management. The focus should be on what users of information need to know, in order to do their work effectively.

3.4.7 Ability to Confront Hard Issues

An important issue for the ICM structures and processes is their ability to confront, and negotiate ecologically and politically sustainable outcomes to, difficult issues. ICM is basically a collaborative planning approach, for the most part relying on consensual discussion. Though collaborative stakeholder processes have much in common with environmental negotiations (such as looking for 'win-win' solutions), they generally carry less sense of 'imperative' to find binding solutions than an explicit negotiation. The strength of collaborative processes is that the communication can be easier, and less threatening, than in overt negotiations in which parties must settle a defined, usually 'hot', issue. The downside is that the parties may keep to a 'lowest common denominator' of agreement, unable to move on to more difficult issues unless there is a sense of imperative to solve these.

A sense of imperative can be inspired by, for example:

- A formal requirement to meet targets, such as water targets under the Council of Australian Government water reforms, and potentially salinity targets
- Members' acceptance of compelling information, such as the extent of salinity damage and projections of its increase.

We suggest that ability to confront hard issues needs to be considered by the MDBC and the States, and that it could be enhanced by addition of a sense of imperative – where an issue so deserves - to the collaborative structure and processes of ICM.

3.5 OUTCOMES

The process aspects of ICM are reasonably well established, however, at the expense of a sufficient focus on outcomes. The state reviews revealed a general lack of monitoring and review information to identify whether outcomes are being achieved. We consider two issues fundamental to the achievement of NRM outcomes below.

3.5.1 Adaptive Capacity

Adaptive management principles promote the idea of experimentation by organisations with the integration of ecological, political, scientific, social, economic and community information (Gunderson *et al.* 1995; Lee 1993). Critical to the notion of adaptive management is recognition that strategies, programs and plans for catchment management must be flexible, adaptive and responsive to learning from experience (Dore and Woodhill 1999).

Outcomes of ICM initiatives are the result of the interplay of a multitude of factors, only some of which are within the initiatives' control. Often there is a difficulty in confidently attributing a causal connection between catchment management and its on-ground outcomes. There has been a clear lack of monitoring and evaluation of ICM outcomes to-date. Monitoring and review processes have focussed on demonstrating success in implementing the policy (eg. number of catchment groups established and strategies developed) rather than assessing impact in terms of NRM outcomes. Measuring progress and impact is a deceptively difficult challenge for a whole range of reasons (Bellamy *et al.* 1999a; 2001). One key factor is that ICM initiatives in Australia are relatively youthful while many catchment management problems are the result of decades of abuse or ignorance. Tangible measurable progress in NRM cannot realistically be expected in

many cases for decades. In addition, as noted above in Section 3.2.1, ICM initiatives operate in a complex social and institutional environment. Success therefore in terms of specific on-the-ground natural resource goals/outcomes (eg. improved environmental health) is difficult to demonstrate or even measure in the short term.

One approach is to focus on how the "social/institutional environment" characteristics of the ICM model of interaction can be expected to result in on-ground benefits. If we accept the assumption that organisational achievements are a pre-requisite to achieving more fundamental on-the-ground forms of success then some early measures of success could include:

- Improved relationships and trust among stakeholders and resource managers;
- The degree to which management efforts better recognise systemic and trans-boundary qualities of natural resources;
- Enhanced involvement of local actors in new processes of planning, management and decision-making;
- Development of processes that emphasise action over debate and study and move beyond plan development to implementation; and
- Fostering communication among interests and disciplines/perspectives that leads to both improvements in the information flow and improvements in the quality of discussion by framing issues in a broad and integrated manner.

The ultimate success criterion for ICM however is whether the catchment management process leads to on-ground problem solving that increases the ability of society to achieve social, economic and environmental goals. ICM processes for management have an orientation to fostering cooperation and coordination among numerous interested and responsible parties and therefore must be able to reflect many different perspectives. ICM processes need to be modified in the light of monitored performance, which requires the development of agreed performance indicators for the activities. These will require 'enabling' indicators (e.g. legislative and departmental responsibility or other governance system indicators; investment strategies), process indicators (e.g. communicative planning; level of genuine and authentic inclusiveness) and biophysical outcome indicators (e.g. turbidity, flows, salinity, bank erosion, species diversity).

Importantly, there is a need for the development of catchment plans that set clear outcomes and targets as a basis for monitoring, evaluating and refining strategies and reporting to stakeholders and investors.

3.5.2 Role of Targets

The MDBC's ICM strategy outlines an approach to ICM that is based in part on *targets* for catchment health. Targets are already in place for diversions of the Basin's water and for River Murray salinity; targets are being developed for the reduction of salinity in all major tributaries of the Murray-Darling system. However, the strategy emphasises a need to now set targets for other aspects of catchment health, such as nutrients in rivers, ecosystem health and terrestrial biodiversity (Murray-Darling Basin Ministerial Council 2001).

The lack of definable targets for catchment management is pervasive. Despite an abundance of catchment plans and strategies, there is currently a dearth of reliable baseline data, and very few measurable targets at the local catchment.

During the course of this study, it became clear that there was considerable difference of opinion as to what constitute *target*s as opposed to *objectives*, *goals*, *outcomes* or *outputs* or other similar terms. One Queensland respondent indicated, for example, that to his knowledge there are no current Queensland NRM plans that yet have targets included; another directed us, with confidence, to flow targets which have been proposed or adopted into statutory Water Resource Plans (WAMPs). The MDBC makes a distinction between *targets* and *outcomes*. This uses the

idea of a target as an intermediate goal, a way to measure progress towards achieving a given outcome. Others do not make this distinction, or if they do, they use different terminology. As well as this confusion in terminology, targets are sometimes poorly expressed and ambiguous and it is unclear whether any strategy is in place to collect the data required to inform on performance against a given target.

Other natural resource managers have experienced similar problems and have tried to develop clear terminology about targets and strategic planning processes (e.g. Pitts 1993). Table 3.1 gives some examples of the range and characteristics of indicators and targets, which may be useful in an ICM/NRM setting.

Table 3.1 Indicator types and targets

(Adapted from Ian Drummond and Associates, 1995)

Indicator type	Comment	Example indicator	Example target
Output	Quantity of product or service (within a time period)	Number of km of fencing in this years works program	10 km by 2003
Responsiveness	Elapsed time to execute tasks	Amount of time required to respond to a report of a fish kill	1 day
Productivity	Work per unit staff	Number of trees planted per day	300 trees per day
Efficiency	Cost per unit of output	Cost per tree produced from a nursery	$1.50 per tree
Benchmark	Comparison with an external standard	Trees will be produced for the same cost as a commercial nursery could produce them.	$1.30 per tree
Survival	Are the works still there?	Percentage of planted trees surviving after 2 summers	80%
Qualitative	External opinion about performance (within a time period)	Approval rating in an opinion poll	By 2000 51% of irrigators will approve of the work of the management authority
Awareness	Knowledge that others have about particular goals (within a time period)	Number of irrigators that know about incentives for reuse schemes	By 2001, 80% of irrigators will know that incentives are available.
Adoption	Actions undertaken by others (within a time period)	Number of irrigators with reuse dams	65% of irrigators will be reusing their irrigation drainage by 2003
Effectiveness	The extent to which a program changes physical conditions in the real world	Decrease in salt loads to the Murray River	Salt loads will decrease by 100 tonnes by 2005

Around Australia, targets (of one form or another) have been used, increasingly, in ICM/NRM planning. Targets are being developed for a range of catchment issues, particularly water quality and biodiversity. However, it is difficult to yet find examples where targets have been in place long enough to allow judgment of the extent to which these targets have been helpful in measuring progress and guiding future action.

Two examples follow in Boxes 11 and 12, which serve to illustrate the way in which targets have, typically, been used in various ICM/NRM settings around Australia at a 'small' catchment level. The MDB Salinity & Drainage strategy is a good example at a larger scale.

Box 11: Blackwood Basin Group (WA): basin and 'zone' targets

The Blackwood River is the largest river in the South West of Western Australia and has a catchment of 22,000 square kilometres and a population of 35,000 people. The Blackwood is facing major environmental, social and economic problems due to increasing salinity and land degradation.

The Blackwood Basin Group (Inc.) is a community-based catchment management group established in 1992. It is community managed and owned, with members being elected from Shires, Land Conservation District Committees, farmer organisations, industry and the community. Government agencies also have representatives on the Group and provide technical input and assistance.

The BBG developed preliminary basin-wide targets in 1998. Targets were set for key biophysical, social and economic parameters, building on priorities identified in discussions and reviews, and information from research projects. The targets are packaged into short term (5 year), medium term (10 year) and long term (30 year) targets. These basin-wide targets were intended as an indication of strategic thinking rather than to serve as a focus for an action plan. They have, nevertheless, proved very helpful in motivating the local community and showing a clear rather than random 'path' to a preferred future (Saan Ecker, pers. comm.).

The BBG is now developing targets for inclusion in each of 9 'Zone Action Plans' (ZAPs) that are being developed locally across the catchment. Unlike the basin-wide targets, the zone targets *are* intended as 'action' targets. They are being developed at the local scale and will be tempered by local experience; they will have been judged realistic by the local community. The Dumbleyung Zone Action Plan is the first to be completed and the targets developed try to deal with a range of issues expressed at 5 community workshops. It is intended that the targets set are achievable, over a 20 year period, on 75% of farmland (240 000ha) in the Zone. Two key targets are:

- On 75% of farms, three quarters of the current saltland will be back in production by 2021
- On 75% of farms, there will be a 25% improvement in overall farm productivity by 2021.

To achieve these, a series of sub-targets have been set at sub-catchment (community group) level (Dumbleyung Landcare Zone Committee 2000). It is anticipated that two more ZAPS will be completed in the Blackwood catchment by the end of 2001.

Box 12: Coorong District Local Action Plan and the Use of Targets

Within the South Australian portion of the Murray-Darling Basin, 11 Local Action Planning Groups (LAPGs) have been established as a part of the Murray Darling Basin Initiative (See Box 3). Local Action Plans (LAPs) are the key delivery mechanisms for implementing NRM programs in a region. Each LAP is unique in terms of the NRM issues addressed, how the LAP has been developed, and the information presented. According to a recent review, the common feature of all the LAPs is the process of local action planning and the requirements of a ' good' Local Action Plan (EFECT Pty. Ltd. 2000). In 1998, the SA CARE Committee and the River Murray Catchment Water Management Board published a guide on *How to write an effective Local Action Plan* (Pacific Project Management 1998). The guide suggests that for each objective there should be a set of *performance indicators* that will be reported against to show how much progress is being made towards achieving the objective. Furthermore, 'Performance indicators … should be expressed in terms of *outcomes*, ie. *tangible results* achieved in pursuit of objectives' (Pacific Project Management 1998:13).

The Draft Coorong District LAP was released in 1997 and has been recently updated, reflecting three years of on-ground works and incorporating further studies and investigations (Coorong District Local Action Plan Committee 2000). The Plan sets out a number of options for achieving the LAP's objectives. These options relate to groundwater recharge control, sustainable agriculture, nature conservation and water quality. Targets have been set for these options, based on the actual on-ground works implemented to date. These are established for the first seven years of the LAP (2001-2003). Targets in the Coorong LAP are used to measure progress in *on-ground activity* (such as number of bores capped, area planted to lucerne for groundwater control, area of saline land reclamation) rather than progress towards a particular natural resource management outcome. The LAP also sets in place a process for monitoring the implementation of the plan in terms of:

1. the level of action achieved in relation to the set targets, i.e. implementation.
2. The effectiveness of these works in meeting the overall aim of the Plan, i.e. condition of the natural resources.

A monitoring framework has been developed that identifies objectives and indicators for monitoring the plan. For example:

Objective: To establish woody perennials to reduce recharge rate by 11% by 2001 and 20% by 2002

Indicators:

Implementation:	*Resource condition*
Area and location of new perennial vegetation	Area of land salinised
% adoption of recommended options	Area with water table <2m from surface
	Slowing of rate of rise of water table.

For each indicator the monitoring framework also identifies how it is to be monitored and who is responsible.

In the recent review, the Coorong and Districts LAP was found notable for its success in moving from planning to on-ground works and further still, into large works programs. In addition, a key strength is its close linking of issue/cause/severity/impact/solution/justification/works program. However, the review also identified that a weakness in the Plan was its failure to report effectively on progress made towards targets:

> Given that substantial progress has been made in implementing the LAP, and many onground works undertaken, it perhaps would be appropriate to include a preliminary evaluation of the progress in the revised version of the LAP. As it stands, only reporting information is presented, though it is noted that targets will be exceeded (EFECT Pty. Ltd. 2000: vii)

4. WAYS FORWARD

4.1 INTRODUCTION

In suggesting ways forward both for the network of State ICM approaches (and their regional and local expressions) which the MDBC encompasses, and for the MDBC in providing a cooperative forum and leadership for it, it is vital to remember that ICM is an evolving system. Each State and Territory system has evolved in different ways, for different reasons, in different contexts. There can be no preferred structure, and it is hard to point to 'best practice' since practices need to suit the systems they sit in. The diversity of approaches currently practiced, combined with the collaborative opportunity presented by membership of the MDBC, allows participants to learn from one another in shaping the continuing evolution of their ICM systems, and continuing to improve their integration with other governance activities in and between the states. This section is designed to highlight some of these learnings which are derived from our synthesis of previous reviews and observations about emerging trends and issues for ICM, as well as informed by our broad research experience (eg. Bellamy *et al.* 1999a, 1999b, 2001; Bellamy and Dale 2000; Buchy and Ross 1999; Ross 1999).

In section 2.2 we presented the Commission of the European Communities' definition of governance, as referring to the 'rules, processes and behaviour that affect the way in which powers are exercised, particularly as regards openness, participation, accountability, effectiveness and coherence' (CEC 2001). It is helpful to think in these terms in seeking ways forward for Australian ICM, and for the Murray-Darling Basin Commission in supporting this evolution on the part of its members. The ways: openness, participation, accountability, effectiveness and coherence can be viewed as 'principles' which we develop (in somewhat different terminology) below. *Rules* remind us of the 'framing' provided by legislation, regulations, policies, administrative arrangements, and program guidelines. As we expand below, the legislation and other forms of rules guiding ICM and the social and biophysical components of catchments need to combine in a way which enables effective and adaptive ICM. We would have to consider the *processes* in this definition as including the structures (organisations, committees, and linkages between them) and their processes of planning and decision-making. The latter overlap with their *behaviours*, their activities in conducting their roles. To us, an important aspect of ICM processes and behaviour is how relationships are formed and sustained – an ethos of inclusion, cooperation, communication, and trust.

A related way of looking at ICM, as a system of governance with a particular purpose, comes from the Syme *et al.* (1994) description of ICM as involving philosophy, process and product. ICM's philosophy is an ethos of cooperation and collective responsibility, expressed in the ICM policy as a set of values. These are fundamental to ICM, and cannot be created by legislation or structures. They can, however, be promoted through communication and ensuring that the ICM processes are consistent with the values. They will hopefully become 'owned' by all ICM participants through positive reinforcement arising from practice of the relationships brought about by the ICM processes. Promotion of a common *philosophy* is an important underpinning to an effective network of cooperating ICM actors and systems, and represents an important function and opportunity for the MDBC. Processes such as partnerships, relationships, positive incentives, and use of scientific knowledge are about how the cooperation and collective responsibility for ICM are achieved. The products aimed for are better governance of catchment systems, and on-ground change, through agreed plans and their implementation.

In the sections below we set out principles for moving forward with ICM, followed by a description of the characteristics of a hypothetical ICM system that would derive from the principles, and give expression to the philosophical values of ICM (Murray-Darling Basin Ministerial Council 2001). At times these principles refer consciously to 'actors', where actions are taken by specific

organisations and individuals. Elsewhere in this report we have used the term 'stakeholders' which refers to broad categories of interests. For example, 'landholders' is a stakeholder category, but a specific organisation of farmers acting in a way which may differ from other farmers is referred to here as an 'actor'.

4.2 PRINCIPLES FOR MOVING FORWARD WITH ICM

This study does not seek to provide a definitive assessment of the merits of the different experiences with ICM in Australia as it is based solely on a desktop review of the existing predominantly 'grey' literature – some of which is now dated due to rapid evolution in this field. However, it does provide the basis for drawing together some of the key lessons learnt from the different state experiments to guide future evolution of ICM and for MDBC in facilitating this evolution.

The varied contexts for ICM documented for each of the States relate to a complex and pluralistic social and institutional environment. The diversity of ICM policy 'models' reflects the heterogeneity of legislation, bureaucratic organisation and levels of stakeholder engagement, commitment and process techniques. This is a strength and not a weakness of ICM in Australia given that the characteristics have emerged in States with varied historical backgrounds and influences. Attempts to constrain the adaptive approaches used in each State by pressure to conform to an abstract 'best practice' would require ignoring this diversity to the detriment of ICM. In this section, therefore, we bring our *context–structure–process–outcomes* framework together to present the lessons learnt as a basic set of principles for ensuring ICM initiatives evolve towards the achievement of sustainable resource use at the catchment level. The principles developed are:

1. Fostering institutional arrangements that are enabling
2. Ensuring the integrity of participation
3. Building individual, community and agency capacities
4. Moving beyond planning to implementation
5. Turning towards adaptive management
6. Focusing on achieving outcomes
7. Developing socially-robust knowledge.

These principles are aligned with the principles for guiding action identified in MDBC's ICM policy statement (Murray-Darling Basin Ministerial Council 2001) - integration, accountability, transparency, effectiveness, efficiency, full accounting, informed decision making and a learning approach.

4.2.1 Fostering Institutional Arrangements that are Enabling

Institutional arrangements that suit, and evolve with, their contexts

The implementation of an ICM initiative is inherently context sensitive and a wide range of environmental, economic, social, policy/institutional and technological factors will influence its implementation and impact. In any particular instance, the human association with the natural resource environment in a catchment is embedded in established social networks and interactions, fundamental social values, institutional frameworks, historical problems, past experiences and established ways of doing things and it will continue to be shaped by them in the future. ICM arrangements therefore need to adapt and to suit local contexts. Variations in institutional arrangements however are vital to on-going improvement and to ensuring institutions can adapt to local requirements and pressures.

Institutional arrangements that empower collaborative governance

Catchment management depends on a complex set of nested relationships, both 'horizontal' and 'vertical', between different actors (including business or industry groups, community

organisations, government agencies and politicians) and between different spheres of government (local, state and federal). Its effectiveness hinges on the quality of these relationships and the extent to which different actors are able to understand the perspectives of others, have the capacity to negotiate and to undertake collective action. This requires, for example:

- clear agreement on the roles and responsibilities of all actors involved;
- clarification of powers, functions and linkages required to ensure that the cross-jurisdictional governance system is compatible with community aspirations;
- support of an inclusive, open and collaborative forum that facilitates a process of deliberation in which networking, exchange of information, social learning and negotiation can take place;
- fostering of organisational/agency cultures that support community participation and are attentive to the need for change management; and
- attention to both individual and collective/community capacity-building for all actors to be able to effectively collaborate.

Institutional arrangements that empower integration with other governance systems

For ICM to be successful, joint action is required from all spheres of government (local, state and federal), together with stakeholder groups and the broader community. How ICM fits into its operating environment (social and institutional) is fundamental to its effectiveness. Community-based catchment management initiatives should be viewed as "*complements*" rather than "*replacements*" for traditional approaches to policy design and implementation such as regulation and litigation-based approaches. Hierarchical organisation of governance should be allowed to emerge such that governance activities at higher levels complement or 'nest' those at lower levels rather than supplant them. A clear clarification of roles and responsibilities of the different ICM stakeholders and of the functions of horizontal and vertical linkages is fundamental to ensuring that the governance system operates in an integrated and coordinated way. This is most effectively achieved by fostering communicative relations among stakeholders which promote learning.

Institutional arrangements that enable achievement of outcomes

There is a need to produce tangible outcomes other than satisfying the legislative and political requirements of an ICM initiative. The success of ICM in achieving outcomes will in part be dependent on government agencies resolving bureaucratic gridlock among the array of fragmented but inter-dependent agency-based policies, plans and programs and, in particular, ensuring long term agency commitment to the ICM process (i.e. clear upper management commitment within government agencies, political support, financial and administrative resources, commitment to knowledge sharing, incentives that reward 'enabling' activity and the establishment of enabling institutional arrangements). This requires strong civil and governmental leadership that is committed to collaboration. The achievement of outcomes will also be dependent on the development of relationships that enable engagement in the ICM process of local government and other bodies and community groups to implement catchment plans in a strategic way.

4.2.2 Ensuring the Integrity of Participation

Aim for inclusiveness

Given the large and pluralistic population within a catchment, identifying the breadth of actors and their constituencies and ensuring they have an equal and inclusive voice in catchment planning processes is challenging. For the partnership to work and gain credibility within the catchment community, membership or representation in the ICM process must be legitimate, inclusive, fair and accountable. Representatives must keep their constituents informed of the ICM process, interact actively with their constituents to understand their perspectives, and adequately represent their constituency's interests to the partnership. The capacity of ICM structures to inform constituents and support the integrity of representation requires clear rules of operation and

decision-making for representatives and mechanisms for ensuring communication with constituents beyond those actively involved in the ICM process.

Recognise and adapt to differences in stakeholder cultures

Stakeholder groups invariably have very different organisational/social cultures, with different levels of comfort in dealing with representative governance, different communication systems between representatives and constituents, differences in conceptualisations of the objectives of ICM and related issues, and so on. An ICM process needs to be able to recognise and adapt to these cultural differences. These will not necessarily be laid out in advance but will involve learning through adaptive management.

Focus on empowerment, but beware of participation fatigue

ICM needs to provide mechanisms to empower stakeholder participation in catchment management and planning (e.g. provision of know-how and funds, development of sectoral interaction skills, support for communication). Although continuity and breadth of involvement is desirable for effective participatory governance, it is also extremely demanding and can engender participant burnout. This is particularly an issue for many of the voluntary industry and community participants. An ICM process should consider the incentives to participate. Some financial recompense for individual members' loss of earning days may be important, but there are many other considerations including the ability to achieve outcomes that are important to stakeholders. People also want to see results for their efforts, i.e. good plans and implementation.

Use mixed modes of participation

ICM should not rely on regional/catchment bodies as the sole avenue of participation but rather support the on-going and flexible use of mixed modes of participation that supplement the efforts of the catchment body. It is unwise to assume catchment bodies can thoroughly represent, and manage two-way communications for, a large catchment area. Their efforts can be supplemented through nested additional arrangements, such as explicit linkage with Landcare groups, periodic special consultations on particular purposes, and other options such as occasional reports to the public, public events, and so on.

Look to build ownership, commitment, and enthusiasm

The success of ICM in precipitating action on catchment issues depends on the willingness of the participating individuals to build trust and ownership, deal sensitively with conflicts in the catchment community and work on maintaining productive interactions within the context of enabling institutional arrangements. In this, local leaders and emerging champions play a substantial role. Engaging influential people, including community leaders from local industry and other sectoral groups, local government, and locally-based state government agencies, is essential for establishing credibility for the process, providing access to important networks, and for influencing policy development and planning processes across all spheres of government.

Reaching agreement

ICM relies on building common purpose, agreed plans and commitment to their implementation, among diverse sets of stakeholders with very different needs and interests. It needs to confront hard issues, so cannot rest with a 'lowest common denominator' level of agreement. The method of 'principled negotiation' (Fisher and Ury 1981) provides excellent guidance:

- separate the people from the problem (put aside personal frictions, work as collaborators in solving the problems);
- focus on interests, not positions (look behind stated bargaining positions, to identify the underlying needs to be satisfied – this enables a broader view of possibilities);
- invent options for mutual gain (the 'win-win' approach, though in ICM positive outcomes may not be possible for all); and
- insist on objective criteria (if unable to reach agreement so far, agree to abide by the advice or information from an independent source, e.g. expert advice or a study).

An approach based on these principles would recognize the diversity of interests, build on shared or compatible sets of interests, develop higher-order goals that *combine* rather than trade-off the stakeholders' needs (e.g. sustainable production rather than conservation versus production), and identify innovative new strategies that meet these.

Fostering fairness

A key determinant of broader community acceptance of ICM is the perceived fairness of its process and procedures and, relatedly, the fairness of outcomes that people receive. An ICM process can foster fairness through:

- establishing a legitimate system of representation for the ICM initiative (eg. ensuring inclusiveness of membership and supporting the representatives to adequately represent their group's interests in the ICM process);
- sharing the pain and the gains equitably where hard decisions have to be made in catchment planning;
- working towards the development of acceptable cost-sharing arrangements for ICM infrastructure and on-ground works; and
- establishing a decision-making approach for ICM that is based on a process that seeks consensus amongst stakeholders on the way forward, while respecting and accommodating on-going differences.

4.2.3 Building Individual, Community and Agency Capacities

Building capacities of all stakeholders – not just community – to participate

The people upon whom change depends are spread across different levels of government, different government agencies and different sections of communities. Developing greater understanding should not be limited to community alone. There is a need for skills training and capacity building for all. The different actors in ICM have (a) different levels of awareness, depth of understanding, and recognition of relevance of catchment or regional issues, (b) resourcing (i.e. time, skills, finances), and (c) degree of internal coherence (i.e. prior sectoral structures and communication mechanisms/networks) to be engaged in catchment management processes.

The pursuit of collaborative governance through ICM requires some systemic cultural shifts within governments as well as communities. Changing government agency cultures to accept the sharing of decision-making with other stakeholders, and to ensure a whole of government approach, requires all agencies to have involvement and commitment in a partnership approach. This commitment needs to be seen as core business for government through leadership that supports the ongoing identification of organisational barriers to collaborative governance.

Build collective capacities as well as individual capacities

Traditionally capacity building relates to knowledge, skills and resources and it is perceived in an individualistic sense, for example, investing in leaders and champions, developing skills or facilitating and improving an individual's access to the resources they need. There is a risk of governments hastily devolving governance functions to communities that are not yet equipped adequately – in terms of physical, financial, human or social capital – to perform them. 'Collective' or group capacities to collaborate need also to be developed. Collective capacities emerge through properties of relationships that individuals share (Marshall 2001).

An interactive and communicative system is an essential pre-requisite to building community and collective capacities to participate in ICM. In particular, it is critical for creating and strengthening networks and social ties within the catchment community, building relationships between sectors, for supporting the integrity of stakeholder representation and engaging a broader base of non-aligned people in the process.

Build sectoral capacities to participate

The ability for members to represent, or work with, constituents cannot be left to chance for all stakeholder groups. Building community capacity to participate may need considerable investment in an underpinning process in developing sectors as effective catchment/stakeholder groups.

Broadening the experience base beyond current members

It is important to have wide understanding and capacity to participate through each stakeholder body or sector group so that there is a depth within each group of others familiar and able to join and participate in the process.

4.2.4 Moving Beyond Planning to Implementation

A cyclical strategic process

ICM approaches need to be evolutionary. What this means in practice is that strategy cannot be fully worked out in advance. ICM needs to be a cyclic process of planning, implementation, reviewing and revising strategies that involve systemic learning through adaptive management approach (see below).

Enabling implementation

Implementation of catchment management plans and strategies needs to occur through a wide range of mechanisms including local government, Landcare groups and other sub-catchment groups planning and implementing on-ground activities. This requires:

- Capacities (i.e. arrangements, powers, and resources);
- Strategically resourcing ICM initiatives towards achieving outcomes (eg. funding a strategy in its entirety rather than *ad hoc* activities);
- Bringing in a broad knowledge base to the process;
- Gaining commitment of all stakeholders, which is related to good process;
- Forming and maintaining horizontal and vertical linkages within the overall environmental governance system; and
- Creating imperatives (including the ability to confront hard issues; using incentive structures).

Celebrating achievements

It is important to reinforce participants' sense of progress, through noting and celebrating incremental achievements as they are made, not only at the completion of a plan.

4.2.5 Turning Towards Adaptive Management

Viewing systems beyond their parts.

Adaptive management involving sound knowledge and sound governance, in a learning process, suits ICM. ICM involves connected ecological, social and economic relationships, in complex contexts, managed collaboratively. In this context, the parts of a catchment system may be rational but the whole is not. This requires a shift in focus in ICM initiatives from managing the parts to a focus on the functioning and coherence of the whole system through an adaptive approach. This implies a focus on the relationships among the parts rather than a focus on discrete parts together.

Fostering systemic learning

Shifting from traditional compartmentalised paternalistic management to collaborative governance requires learning though adaptive management. Rather than a process of randomly trying one policy option after another, in an adaptive management framework, ICM policy development needs to be an emergent process, wherein interventions are regarded as tentative policy experiments to be tested and learned from in designing subsequent efforts. Critical to the notion of adaptive management is recognition that strategies, programs and plans for catchment management must be

flexible, adaptive and responsive to learning from experience. Adaptive management involves informed incrementalism, not an end-point focus that assumes a 'right' answer can be found and kept to. ICM needs to be recognised as a program of community learning that requires a significant period of time before substantial on-ground results can be expected. Critical to the success of this approach is how we organise ourselves to learn from complexity as it unfolds around us.

4.2.6 Focussing on Achieving Outcomes

Once the parties have reached agreement on outcomes (see above in Section 4.2.2), mechanisms are needed to support the achievement of those outcomes.

On-going monitoring and review of progress

The challenge to create policy processes, institutional arrangements and NRM practices that can contribute towards achieving sustainable and equitable resource use outcomes requires support from monitoring and evaluation of the progress and impact of the ICM policy initiative as part of the change process. Monitoring and evaluation of the progress and impact of an ICM policy initiative is fundamental to identifying change, supporting an adaptive approach that is flexible enough to meet the challenge of this change, and enabling learning at individual, community, institutional and policy levels. In particular, ICM initiatives need to be evaluated as a system that links the initiative's objectives and rationale to performance 'on the ground'. This requires the use of performance–based targets (versus activity-focused targets) as incremental stages to reach desired outcomes, and help maintain commitment and enthusiasm.

Clarify accountabilities

Clear accountability relationships perform an important role in management, by ensuring that all organisations (such as catchment bodies) have clear responsibilities, and their periodic reporting on their performance provides feedback to an overseeing body to adapt strategies and modify resourcing as necessary. Accountability thus contributes to adaptive management. Individuals similarly need to have clear roles within their organizations, and accountability for carrying them out. ICM involves a web of accountability relationships, including 'duty of care' responsibilities expressed under legislation or implicit in the 'precautionary principle', and many instances where parallel processes in effect share responsibilities for a joint outcome such as sustainable NRM.

4.2.7 Developing 'Socially-robust' Knowledge

Understanding is evolving

Natural systems are so complex and dynamic that explanatory powers quickly diminish with increasing size or expanded timeframes. Scientific and technical information and local knowledge systems for complex decision-making contexts such as catchment management are accompanied by continual interpretation. Understanding needs to be seen as evolving and emergent through the ICM process.

Coming to collective interpretations

Decisions need to be made at multiple steps along the way: on relevant facts; on the boundaries between what those involved in ICM know and don't know; and on what the parties care about. As long as the interpretative side of science and the inherent uncertainty surrounding its findings at broader scales are recognised, decisions can be made and catchment problems addressed building on collective understanding and talents.

A broad focus on knowledge

A broad focus on knowledge recognises the diverse information needs of an ICM process and the need for interpreting that information to guide strategy development and implementation. The two traditional sources of information for ICM are local knowledge and expertise and existing technical information held by state and other relevant bodies. ICM interactions (e.g. meetings) provide a

central pooling of local knowledge through the wide diversity of stakeholder representatives involved in the ICM decision-making processes and related activities. These interactions represent the emergence of new knowledge. Agencies are also repositories of technical information on the catchment but this information is fragmented and needs to be "shared" with other agencies and local interest groups. A key role of ICM is to foster the capture of relevant data on NRM issues and the development of locally accessible mechanisms for integrating data and delivering information.

Knowledge sharing

In ICM, where value plurality is irreducible, high quality consultation and negotiation processes, based on knowledge sharing, provide the best assurance of satisfactory outcomes for society at the catchment and regional levels. This approach is characterised by a change of emphasis from quality of inputs (e.g. technocracy) for a decision problem, to the quality of the process itself (e.g. knowledge integration). Knowledge sharing differs from information sharing in that its about different stakeholders engaging in dialogue that recognises one another's different 'ways of knowing' or paradigms for interpreting information that is integral to the development of collective understanding. Knowledge sharing is dependent on:

- Building stakeholder trust in the information used;
- Ensuring trust in the process of deliberation to arrive at a collectively-determined strategy; and
- Ensuring respect for one another's forms of knowledge (e.g. scientific/technical, local experience, Indigenous, and so on).

4.3 CHARACTERISTICS OF AN ICM FRAMEWORK TO REALISE THE WAY FORWARD

Rather than offer a set of recommendations or suggestions that invite selective adoption and can easily prove inconsistent with the ICM systems they are intended to enhance, we have opted to describe the characteristics of a hypothetical, idealised ICM system that gives expression to the learnings recorded in the material we have received for this project, the principles in section 4.2, and the ICM values (Murray-Darling Basin Ministerial Council 2001). This is not intended as a prescriptive exercise. As we have emphasised earlier, there is no single recipe for success: the need is for each State and the MDBC to guide the continuing evolution of ICM in ways that suit their contexts, and in accordance with the ethos expressed in the values, and the learnings from experience so far.

The approach taken for this review has offered a unique opportunity to explore the functions and operations of a highly complex and diverse set of management systems for ICM. What emerges are nested frameworks of relationships of legislation, policy and stakeholder engagement that in varied ways support and enable the collaborative decision-making processes of ICM. The focal point for this decision-making varies depending on scale: catchment, state level, and also multi-state and multi-regional scales involving significant cross-jurisdictional challenges.

Given the current and potential complexity and diversity of ICM contexts, structures, processes and outcomes, what are the essential characteristics of an effective ICM decision-making framework for the future? We draw on our *context-structure-process-outcomes* framework to present our summation of these characteristics as a model for the MDBC and its members to consider in guiding the evolution of ICM within the Basin.

4.3.1 Contextual Characteristics

ICM initiatives are flexible and adapted to the variability in resource use context in the Murray Darling Basin and in each State. They drive the community responses to catchment management.

This, in turn, determines how natural resource problems are framed and ultimately the focus of on-ground collaborative activity. Key contextual characteristics of the ICM framework necessary to realise the way forward therefore are:

- Broad problem framing by the stakeholders engaging in ICM which recognises the multiple and diverse functions of, and values placed on, catchments.
- The ICM system is adapted to the diversity in geographical, historical, social, political and land use contexts across the Murray Darling Basin.
- Catchment communities and governments at all levels have clear identification with the Murray-Darling Basin and actively manage related cross-jurisdictional issues.
- Government culture supports its role of 'enabler' of community participation and collaborative governance.

4.3.2 Structural Characteristics

ICM provides the vehicle for delivering inclusive, equitable and empowered community-government partnerships as a critical component of the broader governance arrangements for NRM at the catchment and regional levels. Key structural characteristics of the ICM framework to realise the way forward therefore are:

- An enabling legislative and policy environment that gives the imprimatur for diverse groups to come together to consider complex ICM contexts and empower the collective decision making efforts of ICM bodies.
- An hierarchical organisation of governance in which governance activities at higher levels 'nest' and complement those at lower levels through an emergent 'bottom-up' process.
- ICM bodies are the focal point of adaptive planning and management concerning catchments.
- The make-up of the ICM body reflects stakeholder diversity fairly.
- Government is coordinated in its actions and responses on catchment management and not overly bureaucratic in its engagement with other sectors.
- Clear agreement exists amongst all stakeholders on the roles and responsibilities of the different stakeholders in ICM and the functions of horizontal and vertical linkages with other elements of the governance system for NRM.
- Agencies and their staff are committed to developing genuine partnerships with stakeholders.
- Devolution of powers for catchment management from government to the local level occurs in a form, and at a pace and intensity, that is commensurate with community capacity to accept it.
- The catchment bodies have communicative and functional relationships characterised by strength, vitality and integrity with the legislative/policy milieu and catchment constituents.
- ICM is sufficiently resourced in the long term to empower collaborative and adaptive governance.
- Local government is empowered (e.g. skills, powers and resources) as a major player in implementing catchment plans in a strategic way that impacts on the quality and integrity of the catchment environment.

4.3.3 Process Characteristics

ICM relies on widespread recognition that land use actions will have implications across a catchment, and a social climate that values the catchment as a 'common property' for which all stakeholders are mutually responsible. Key process characteristics of the ICM framework necessary to realise the way forward therefore are:

- Recognition of stakeholder collaboration in ICM as the heart of policy formulation for each catchment.
- An approach that respects and encompasses varying knowledge or 'ways of thinking' regarding catchments.
- Emphasis on relationship building among stakeholders as a fundamental pre-requisite to successful collaboration.
- Authentic and effective indigenous involvement in ICM resulting from enhanced skills and capacities to participate in negotiation.
- Leadership that focuses continually on strategies for empowerment of all stakeholders to enhance the effectiveness of engagement in ICM.
- Agency activities that are flexible, to facilitate the effective engagement of the different needs and operational styles of various stakeholder groups.
- A creative strategy exists for building capacity of catchment groups to engage and be able to accommodate increasing responsibility.
- Achievements are recognised by both the catchment community and government, and are celebrated.
- Catchment planning and management is informed through 'socially robust knowledge', developed through the integration of scientific and other technical expertise, local knowledge and the broader community perspective.
- Targets are widely used to establish measurable achievement levels, gauge incremental improvements in catchment resource quality and to maintain stakeholder commitment.

4.3.4 Outcomes Characteristics

ICM policy arrangements, processes and practices contribute substantially towards achieving sustainable and equitable resource use and management outcomes at the catchment level. Key outcomes characteristics of the ICM framework needed to realise the way forward and achieve these outcomes are:

- Monitoring and review of ICM process and products as an integral aspect of the adaptive management approach of ICM.
- Catchment communities that are aware of and responsive to 'duty of care' responsibilities to the environment and other stakeholders.
- Communities and agencies with capacities to negotiate a common interpretation of catchment problems collaborate effectively and focus collective action.
- A high level of integration between ICM systems and other NRM systems.
- Agreed catchment plans that are implemented flexibly and adaptively with measurable on-ground impacts relating to the economic, social and environmental attributes of catchments.

These characteristics define a vision for the evolution of ICM, as a governance system that enables progress towards socially desirable, economically viable and environmentally robust catchments. It is described in a generic way, to apply to any Australian jurisdiction. It combines the current characteristics of ICM and directions for further evolution identified in this report.

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- Project Reference Group (see Appendix 1C)
- MDBC State Contacts
- Project Steering Committee (see Section 1.1.3)
- MDBC's Issues Working Group
- Mary Maher, Mary Maher and Associates.
- Warwick McDonald, Technical Director, National Land and Water Resources Audit.

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Queensland:
Diana Wood, Principal Project Officer (Water Allocation Planning), Department of Natural Resource and Mines (DNR&M)
Michael Bradby, Catchment and Regional Planning, DNR&M
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Jenny Awbery, Senior Project Officer, Strategic Directions, DNR&M
Mary-Jane Weld, Senior Policy Officer, Vegetation Management, DNR&M
Michelle Hill - Policy Officer, Community Engagement, DNR&M
Claudia Baldwin, Senior Policy Officer Catchment and Regional Planning
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Sasha Taylor, Executive Officer, South West Catchments Council
Saan Ecker, Executive Officer, Blackwood Basin Group
Robyn O'Grady, Executive Officer, Swan Catchment Council
Rex Edmondson, Chair, Soil and Land Conservation Council
Michael Rowe, Executive Officer, Salinity Taskforce
Peter Curry, Department of Environmental Protection
Tim Sparks, Water and Rivers Commission
Nicole Hodgson, WA Municipal Association
Bruce Thorpe, Department of Agriculture
Ross George, Department of Agriculture
Bob Nulsen, Department of Agriculture.

Australian Capital Territory:
Jinnie Lovett, Environment ACT.

APPENDICES

APPENDIX 1 PROJECT BACKGROUND DOCUMENTS

TABLE OF CONTENTS

APPENDIX 1A - PROJECT BRIEF

MURRAY-DARLING BASIN COMMISSION
Natural Resources Management Strategy
STRATEGIC INVESTIGATIONS AND EDUCATION (SI&E) PROGRAM

This project brief is to be completed by the Sub-program Working Group responsible for the management of the project. Project proponents will be required to complete a full application for funding, based on this project brief.

1. Priority Area addressed by project:
6a: ICM Planning and Delivery Frameworks

The Human Dimension Strategy addressed:
Objective 1, Strategy 5: *ICM - structures and processes*

Project Description

2. Project Title:(maximum 20 words)
Integrated Catchment Management: Learning from the Australian experience for the Murray-Darling Basin.
(MP 2005)

3. Explain how proposal addresses an issue or priority area outlined in the Three Year Rolling Plan for SI&E

A Community Advisory Committee-Commissioners' Workshop in September 1998 identified the need for a review of Integrated Catchment Management (ICM) as a priority. The Commission's 1999 Human Dimension Strategy also emphasised the need for a more comprehensive understanding of social and institutional aspects of natural resources management in the Basin. In 2000 the Commission developed an enhanced ICM approach to meet the needs of the next decade of natural resource management in the Murray-Darling Basin. This culminated in the release, on 5 September, of the draft Integrated Catchment Management Policy Statement (Community Summary available).

The approved SI&E Three Year Rolling Plan for 2000-01 to 2002-03 includes, as a high priority, the need to test the underlying assumptions of ICM, to understand ICM's strengths and weaknesses, and to generate knowledge of regional mechanisms for natural resource management. State reviews of ICM/TCM have occurred across Australia in recent years. These reviews contain a wealth of information on the structures, processes, functioning and effectiveness of current ICM models used in Australia. This 'desk top' project is intended to build on these reviews and further a discussion paper "Integrated Catchment Management – Draft Report of ICM Baseline Study" (June 1999), prepared for the Commission by John Dore, which provides a summary of the ICM models for each jurisdiction.

The project will provide an integrated overview/consolidation of State reviews of ICM from across Australia and an analysis of potential learning for the implementation of ICM in the Murray-Darling Basin. As such it will address the Human Dimension Strategy Implementation Plan requirement for on-going research and activity to support ICM. It will also contribute to the

implementation of the Commission's new ICM Policy Statement.

4. Project objectives:

Using the available literature, including recent reviews of ICM completed in each state of Australia:

(a) to identify key characteristics of ICM in each State and their effectiveness;
(b) to identify social or institutional arrangements, trends or issues relevant to the further development of ICM in the Murray-Darling Basin
(c) to identify the core characteristics of 'best practice' ICM for the Murray-Darling Basin
(d) to identify the implications and potential opportunities for ICM implementation in the Basin to
    (i) improve participation of Local Government*;
    (ii) provide better integration across jurisdictional boundaries;
    (iii) increase the participation of Basin people in ICM processes.

* The project should take account of a concurrent SI&E project 'Scoping Study to investigate Local Government role in Integrated Catchment Management'.

5. Anticipated Products of the Project:

1. An overview report of ICM in Australia (which must be accessible to a non-technical audience) including:
(a) a summary of the key features of existing ICM models in each State, based on comparative, integrated data sets for each State in the Basin; and
(b) a summary of key emerging trends and issues relevant to the evolution of ICM in the Basin.

2. A list of key characteristics of current best-practice ICM in Australia, and the principles underlying these practices.

3. Recommendations on activities or approaches to better support the involvement of stakeholders in ICM in the Basin, including across jurisdictional boundaries.

4. A workshop presentation of the final report to the IWG and invited guests.

6. Anticipated Outcomes of the Project:

An increased capacity of the Human Dimension Group, the Communication and Human Dimension Issues Working Group and the Community Advisory Committee to advise the Commission, based on:
(a) an improved understanding of current "best practice" ICM elements in Australia;
(b) an improved understanding of emerging ICM trends and issues relevant to ICM in the Murray-Darling Basin;
(c) new models or frameworks to support the implementation of the ICM Policy Statement, for possible trial in the Basin.

7. Why should the Commission, rather than another initiative, fund this work?

The Murray-Darling Basin Ministerial Council's 1990 Natural Resource Management Strategy includes ICM as a core element. The Commission has recently recommitted the *Initiative* to ICM in an expanded form - the ICM Policy Statement 2001-2010. This project targets directly the work of the Commission in developing and utilising an expanded ICM framework in the Murray-Darling Basin, to support natural resource management over the next decade.

8. What involvement will other interested organisations have in this project?

As the primary focus will be the role of ICM in the *Initiative,* most organisations involved will be *Initiative* partners. Representatives of state government partners and the Community Advisory Committee will be involved in the Steering Committee for the project, the IWG overseeing the project, and be able to participate in the workshop presentation of the final report. Other interested organisations (see Q9) will be invited to attend the workshop.

9. What links will be established with other related initiatives such as the National Land and Water Audit?

During the project links will be established with Australian organisations that have a demonstrated interested in researching or developing ICM, in order to determine the types and scope of their endeavours, and to avoid duplication. These organisations will include (but are not limited to) the National Land and Water Resources Audit, LWRRDC, the Bureau of Rural Sciences, relevant universities and research centres, and the CSIRO.

10. How will end-users of the products and outcomes of this project be involved in and structured into the project?

Primary end users of both products and outcomes will be Human Dimension Group, Communication & Human Dimension Issues Working Group and the Community Advisory Committee. These organisations will be involved through representation on the Steering Committee for the project, opportunities to provide comment on the overview and recommendations through the membership of the IWG, and the participation of representatives in the workshop. Secondary end users of the products will be other organisations involved in or with an interest in an ICM approach to natural resource management (see Q9). Their participation will be through contact via the consultants undertaking the project, and participation in the workshop.

11. How will the products and outcomes of the project be transferred to end-users, and how will adoption of the outcomes be promoted?

It is proposed that the project report will be made publicly available in hardcopy and electronic formats. On receipt of the final report, the IWG will advise the Human Dimension Group on an action plan for adoption of the project's outcomes as appropriate. The Human Dimension Group will facilitate links back into partner governments.

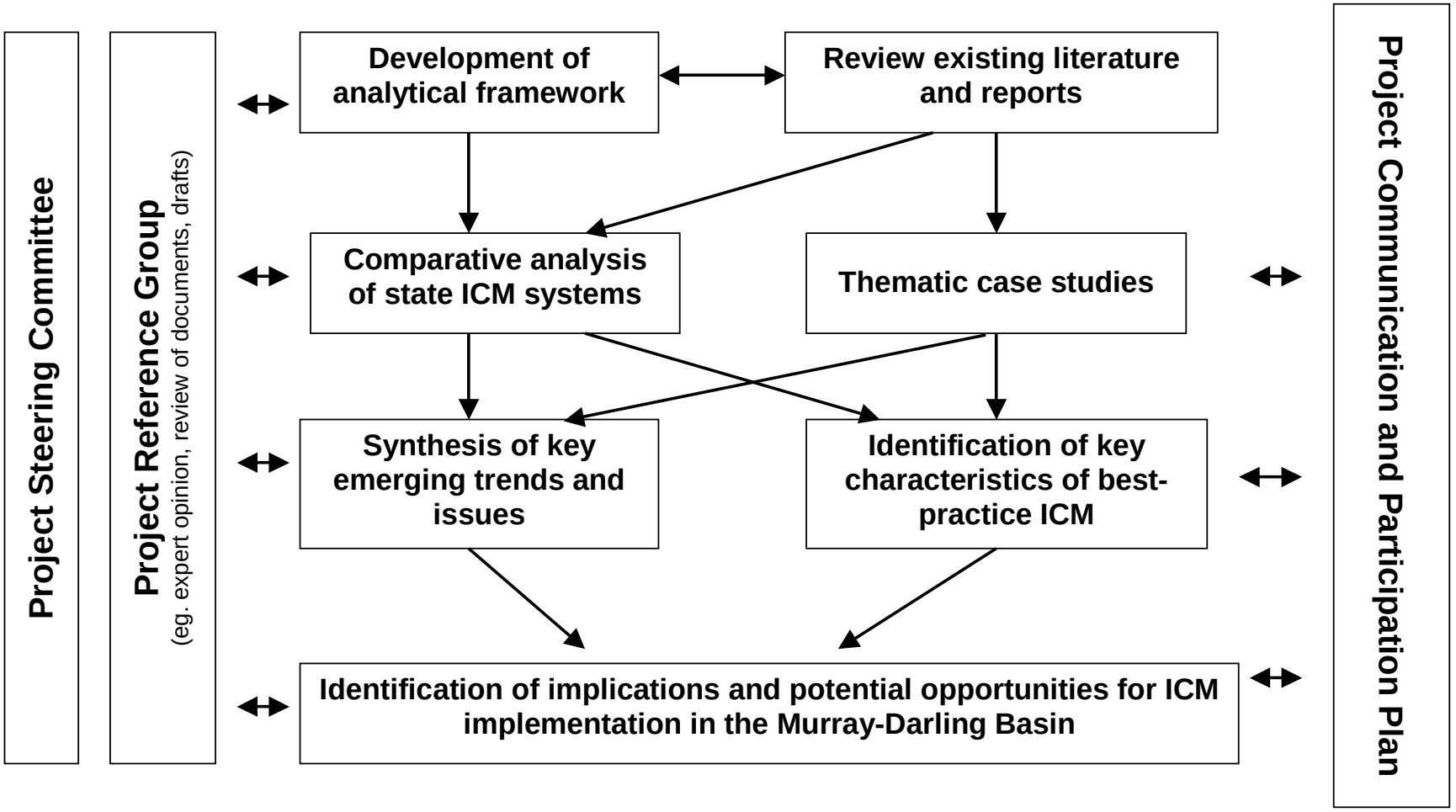
12. How will the project be established (eg. commissioning, select tender, public tender)? If commissioned, who will be approached?

Public Tender.

Anticipated project duration

Commencement date: early January 2001 Completion date: 30 June 2001

APPENDIX 1B. METHODOLOGICAL APPROACH TO THE REVIEW



APPENDIX 1C – REFERENCE GROUP

State Assessments:

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APPENDIX 2 - STATE REVIEW - QUEENSLAND

TABLE OF CONTENTS

2.1 Resource use context

2.1.1 Nature and tractability of resource use issues and tensions at the catchment level

Although Queensland does not face the extent of problems or compelling nature of the natural resource management issues present in southern states (such as salinity in Victoria), it is facing downward trends in the conditions of its land, water, vegetation and biodiversity resources (State of the Environment Queensland 1999). Some of the most urgent natural resource problems are increasing dryland salinity risks, declining water quality, insufficient or unreliable water quantity, loss of vegetation and biodiversity, increasing pest problems and declining soil fertility and structure (Department of Natural Resources and Mines 2001a: 3).

Queensland is fortunate that salinity problems are not as well advanced as in other States. However, recent studies have revealed some disturbing emerging issues (Queensland Government 2001a):

- Approximately 400,000 ha in the Queensland Murray Darling Basin alone is at risk from shallow watertables at some time in the future. Shallow and rising watertables are a precursor to the development of dryland salinity.
- Although salinity outbreaks are generally localised and relatively minor in Queensland, the recent NLWRA *Australian Dryland Salinity Assessment 2000* (National Land and Water Resources Audit. 2001: 30) identified a significant long term risk associated with dryland salinity with at least 1,000,000 ha in Queensland facing a serious dryland salinity risk and up to a further 2,000,000 ha likely to experience some form of degradation.
- Surface water quality is another emerging issue with a recent review showing that a combination of geology, the quality of groundwater and dryland salinity outbreaks and land uses mean that surface water in many areas is no longer suitable for certain end uses.
- There are also significant groundwater issues emerging including irrigation salinity, saltwater intrusion and over extraction of groundwater resources in many areas including the Great Artesian Basin. For example, modelling suggests that the sustainable yield of the Great Artesian Basin is currently estimated to be 450 000 megalitres a year, some 120 000 megalitres less than the amount that is currently being discharged from artesian bores.
- Tree clearing in Queensland is associated with the decline of land productivity and the degradation of native vegetation. Of Queensland's total area of 170 million ha, approximately 72 million ha are forests or woodlands. The average annual clearing rate measured between 1997 and 1999 has increased 47% over the rate measured between 1991 and 1995. The most recent data shows that 57% of clearing occurred on freehold land, with most of the remainder occurring on leasehold land. Most change in woody vegetation (86%) was due to clearing for pasture development. Moreover tree clearing is generally occurring in areas that have already been subject to development levels sufficient to place a large proportion of their regional ecosystems in the 'endangered' or 'of concern' categories.
- Weeds and other pest species are also significant natural resource issues in Queensland, impacting on agricultural production and environmental quality.

Many improvements have been made, however current arrangements for managing natural resources have not altered the decline or degradation. Queensland's primary industries and other industries such as tourism and mining are all based on natural resources, and a major contribution to Queensland's economy. Government sees achieving sustainable production whilst enhancing the viability of regional communities as a major challenge for natural resource managers (DNR&M 2001a: 3).

Although Queensland has not yet developed its natural resources to the extent of the southern States, there are strong economic pressures to do so. It is important to avoid the mistakes of the southern States, which are turning out to be costly to remedy.

2.1.2 Previous history of resource use issues and environmental management

Queensland has a history of local, voluntary involvement in the management of its natural resources. Land degradation did not become a popular concern in Queensland until the early 1940s (Reeve 1988). The Government made its first legislative response in 1941, in the enactment of the Burdekin River Trust Bill, which was designed to reduce river erosion with river improvement works. Since then, groups have formed and adapted to address specific natural resource management concerns. For example, Queensland's River Improvement Trusts, established in the 1940s, are one of the earliest examples of community and local government –based arrangements for service delivery (Queensland Government 1999: 2). Along with Drainage Boards, they are statutory bodies that can raise funds to carry out their work.

During the 1970s, community-based District Advisory Committees were formed in declared areas of Soil Erosion Hazard to advise the government on matters of planning and implementation and to provide local leadership in coordination of activities. However with much of their energy expended on unsuccessful policy recommendations, the Committees gradually lost impetus and were disbanded in 1986 (Keith and Roberts 1992).

The Landcare program commenced officially in Queensland in 1989, coinciding with the Commonwealth's *Decade of Landcare* and focussed on landholder participation in land rehabilitation and awareness-raising projects. Queensland's Integrated Catchment Management (ICM) approach, introduced in 1991, saw the development of integrated natural resource strategies by community groups at catchment and regional scales.

2.1.3 Existence and attitude to cross-border or cross-jurisdictional issues

There are important surface water and ground water resources for New South Wales and South Australia that originate in Queensland. As such there are a number of cross border issues that are now being addressed through mechanisms such as the Murray Darling Basin Commission, the Border Rivers Commission, the Lake Eyre Basin Agreement and the Great Artesian Basin Consultative Council.

There are inconsistencies in the approach to cross-border issues relating to catchment management in Queensland. For example, Pigram (2001) notes the inconsistency in the situation along the Queensland border with NSW. Firstly, in the case of the Condamine-Balonne drainage area water planning and management have proceeded in either side of the border largely independently of each other. The Queensland plan does not take appropriate account of flows to the internationally important Narran Lakes wetland over the border in NSW. In contrast, however, the Border Rivers Flow Management Planning process demonstrates sound elements of interstate cooperation with an Intergovernmental MOU signed between the two governments for joint flow management planning that takes account of the water resource, environmental and streamflow characteristics of the catchment (Department of Natural Resources Queensland and the Department of Land and Water Conservation NSW 2000).

One clear success is the Lake Eyre Basin Coordinating Group which is a community-driven initiative working in partnership with governments for integrated natural resource management across the Basin (LEBCG 1999). "It is a groundbreaking process initiated and designed by communities and stakeholders of the Lake Eyre Basin, working across State borders and pulling together stakeholders and governments in partnership across a huge portion of Australia". The Lake Eyre Basin Agreement signed in Birdsville on 21 October 2000 by the South Australian Minister for Water Resources and the Queensland Minister for Environment and Heritage and subsequently by the Commonwealth Government established for the first time a cooperative framework for the Queensland, South Australian and Commonwealth Governments to jointly address cross-border issues associated with the management of water and the related natural resources of the Cooper Creek and the Georgina / Diamantina River systems. The Agreement includes a set of guiding principles that acknowledge the ecological importance of the Basin as well as its social and economic values. The Agreement provides for:

- periodic state of the rivers reporting;
- preparation of policies and strategies;
- community and scientific advice; and
- involvement by the broader community in biennial conferences.

The inaugural Lake Eyre Basin Ministerial Forum in May 2001 appointed the LEBCG as its Community Advisory Committee.

Queensland was the last State to agree to join the Murray Darling Basin Agreement in 1992 after lengthy negotiations. There were some conditions attached to Queensland's involvement including limited involvement in pooling arrangements for infrastructure maintenance and exclusion of some decisions of the Ministerial Council prior to joining (Rowland and Begbie 1997: 2).

In December 1996, the Governments of the Commonwealth, New South Wales, South Australia, Queensland and the Northern Territory together with other stakeholders established the Great Artesian Basin Consultative Council, a non-ministerial body, to coordinate the effective management of the Great Artesian Basin across State jurisdictions. The council's primary role has been to advise the participating Governments on the management of the Basin from a whole-of-basin perspective. It released a strategic management plan for the entire basin in 2000 (www.gab.org.au).

2.1.4 Identification with the Murray-Darling Basin

Although almost 25% of the Murray Darling Basin lies in Queensland covering approximately 15% of the total area of the State, Queensland has not always clearly identified with the Murray Darling Basin. In fact, it was the last State to formally participate in the Murray Darling Basin Agreement. However, using an extensive process of community consultation, a preferred structure for the Murray Darling Basin Queensland was determined when Queensland agreed to join the Murray Darling Basin Agreement in 1992. This involved the formation of four Catchment Coordinating Committees (CCCs) now called Catchment Management Associations (CMAs) and a regional committee based around the four major catchments in the Basin. The Queensland Murray-Darling Basin Catchment Committee coordinates the activities of the four catchment boards (ie. the border rivers, Condamine-Balonne, Warrego and Paroo Rivers), Landcare groups, regional assessment panel, Darling Downs Local Government Association, relevant State government departments and Indigenous groups within the Murray Darling Basin area of Queensland (Hatton McDonald and Young 2001: 65). Particular emphasis has also been placed on planning at both the catchment and regional levels including the development of the Queensland Murray Darling

Natural Resources Management Strategy (Queensland Murray-Darling Basin Coordinating Committee 1998).

2.2 Governance arrangements

2.2.1 Policy frameworks and other institutional arrangements for ICM

2.2.1.1 History and political drivers

Over the years, a mixture of government agencies, community groups, individuals, policy, planning and allocation systems, laws and regulations has managed Queensland's natural resources. In addition, there has been a series of different Commonwealth and State funding programs that have influenced their management. This framework has evolved over time in a rather *ad hoc* fashion (DNR&M 2001a: 2).

The introduction of Landcare across Australia in the 1980's focussed on landholder participation in land rehabilitation and awareness raising projects. Building on the foundation created by the National Landcare Program, Queensland's ICM approach was introduced in 1991 and saw the development of integrated natural resource strategies by community groups at catchment and regional scales. ICM was seen as classic river basin management without regulatory processes. While Landcare was seen as the process whereby ICM actions are put in place. Most interest in catchment management was initially focussed on the coast with the groups in the wet tropics and south east coast areas where rapid development was increasing concerns about the condition of the catchments and adjacent coastal areas (Rowland and Begbie 1997: 2).

The philosophy underpinning the ICM approach in Queensland is briefly outlined below as well as the subsequent development of NRM initiatives and their related political drivers.

ICM Policy Initiative in Queensland

In response to community interest in dealing with and managing issues such as water quality, land degradation and river and stream management using a catchment-wide approach, the Queensland Government launched an ICM Program in 1990 as part of the Natural Resources Management Program. In 1991, a State Steering Committee (comprising representatives of rural industry organisations, community and conservation groups, Landcare groups, River Improvement Trusts, universities, local authorities and government agencies) was formed to develop a Program and Strategy for ICM, which were released in October 1991 (Rowland and Begbie 1997). This Strategy is a landmark in NRM policy development in Queensland. In fact, it can be argued that there has not been any substantive development of NRM policy since then, beyond more reactive responses to major federal funding schemes (eg. National Heritage Trust or NHT). However, there is evidence of a new development emerging in NRM policy in Queensland with the State Government response to National Action Plan for Salinity and Water Quality (NAPSWQ) with a new focus on negotiatory processes and community capacity building (e.g. DNR&M 2001a; Queensland Government 2001b; DNR&M 2001b).

Queensland's ICM strategy (Queensland Government 1991) was developed to provide for the better management of land and water resources in Queensland. ICM is defined as (Queensland Government 1993):

> Integrating the management of land, water, vegetation and other biological resources on a catchment basis in order to achieve the sustainable and balanced use of these resources

In developing the Queensland Strategy for ICM, models of similar programs or initiatives already operational in other states were reviewed, and aspects considered appropriate for Queensland, were incorporated. The resultant strategy was a mix of the approach being taken in Western Australia (strongly based on the Mitchell and Hollick proposals) and NSW as interpreted by John Burton (Rowland and Begbie 1997). The original principles on which the strategy is based are:

- Land and water resources are basic interactive parts of natural ecosystems and their management should be based on river catchments as geographic units which account for the interactions between these resources.
- River catchments are continuously changing in response to natural processes and human activity, and their management must take account of these changes.
- The management of land and water resources must be coordinated, with decisions based on the best available information.
- Sound land and water management is best achieved through the informed action of individual users and managers of these resources.
- A balance between economic development and the conservation of land and water resources must be maintained.

The significant elements of the approach promoted in Queensland are (Rowland and Begbie 1997):

- *Voluntary program*. Participation in ICM was to be voluntary for both community and government.
- *Community based*, meaning that all structures were to have a majority of community members. Formation of catchment coordinating committees (CCCs) was dependent on interest from the community and other sectors.
- *Partnership* between the levels of government, industry and the community. All sectors and key stakeholders are to be involved. As the CCCs do not have statutory "teeth", implementation of strategies relies on negotiated and voluntary action by responsible agencies and individuals.
- Processes used by the committees in coordinating and integrating management of the catchment are to be *participative* and *consultative*.
- ICM is about taking a *strategic* and *planned* approach to tackling important issues. This should be a feature of the actions of all catchment management groups.

The Program is founded on notions of common understanding of issues between stakeholders (from individual landholders to government), individual responsibility, voluntary changes in the use of natural resources and the provision of opportunities for individuals to contribute through participation in representative community groups (Queensland Government 1991). Goals also include community cooperation and coordination (on a local level, regional level and with government) and economic sustainability.

The ICM initiative is also built on the Landcare Program and incorporates the network of Landcare groups established throughout the State. Landcare and ICM groups work together to develop strategies and management practices for effective land management. There are more than 187 Landcare groups across the state. While Landcare is concerned about local action, integrated catchment management draws together, on a catchment basis, those involved in primary production, environmental conservation, land-use planning, river engineering and other aspects of natural resource management. There are currently over 30 catchment management groups operating in Queensland. In addition to these, there are 13 Regional Strategy groups that develop regional natural resource management strategies.

While the majority of catchment groups are formally recognised under the State Government's ICM initiative, there are a number of other groups practicising ICM that do not formally come under this umbrella. These include the Brisbane River Management Group (an

initiative (coordinated by Environment Protection Agency) (Llyod *et al.* 2000) and the Lake Eyre Basin Coordinating Group (see Section 1.3 of this report).

The adoption of a strategic ICM approach was encouraged by strong incentives – no strategy, no funding. Generally there are now three categories of strategies:

- Catchment management strategies;
- River Improvement Trust strategies
- Regional Natural Resource Management Strategies.

As a policy initiative since 1991, the ICM program in Queensland has been experimental, evolutionary and incremental. Importantly, it has been surprisingly robust – with its philosophy and implementation remaining relatively constant. ICM has mobilised Queensland communities and laid the foundation for improved community participation in NRM. In the early 1990s, the move to catchment management was driven by water quality issues, particularly the concern for downstream effects of land management practices in tropical catchments that impact on the Great Barrier Reef (Hunter *et al.* 1996). Many changes have occurred in the broader NRM policy and institutional context since then, however, as new political drivers have emerged.

In 1994, a proposal was developed by the then Department of Primary Industries for an 'NRM Bill' to bring together planning and regulation of water, vegetation, forest resources and catchment management under one statute (DPIQ 1994). With a change of government, this did not proceed, but nevertheless there has been considerable development of the statutory base for NRM since then. Current legislation covers soils, water, pests, vegetation management, biodiversity, river improvement works and environmental protection, as well as the integration of land use planning.

More recently, federal funding initiatives such as the National Heritage Trust (NHT) and the National Action Plan for Salinity and Water Quality (NAPSWQ) have driven the move to a more regional focus on community-based approaches to natural resource management in Queensland (DPIQ 1994: 2). While community-based approaches to NRM were becoming stronger, mechanisms for natural resource planning in Queensland have also evolved along the lines originally envisaged in the 1994 proposal, although in an *ad hoc* way. These approaches include:

- Regional planning frameworks for growth management established in many areas under the *Integrated Planning Act 1999* (IPA), including NRM themes;
- Regional, catchment and property-scale planning, including strategic plans developed by regional NRM Strategy Groups and ICM groups;
- Statutory planning under the *Water Act 2000, Vegetation Management Act 1999* and the *Forestry Act 1959 and Forestry Regulation 1998*; and
- Projects to integrate NRM outcomes into Local Government planning (Lusis *et al.* 2001; Queensland Government 2001b).

National Action Plan for Salinity and Water Quality

In November 2000, the Council of Australian Governments (COAG) endorsed the commonwealth's proposal for a National Action Plan for Salinity and Water Quality or NAPSWQ (COAG 2000). The plan provides a series of steps to prevent and repair the degradation of land and water caused by seepage of natural in-ground salts, erosion, sediment and nutrient movement. The NAPSWQ proposal formed the basis for an Intergovernmental Agreement (IGA) involving Queensland, the Commonwealth and other States and Territories. The IGA stipulates that funding will be shared among community-based regional groups in 20 key regions and catchments across Australia.

The IGA is now being developed through the creation of a Bilateral Agreement between the Queensland and Commonwealth Governments which specifies 4 priority areas for Queensland (Burdekin-Fitzroy, Burnett-Mary-Lockyer, Border Rivers and Condamine-Balonne-Maranoa catchments). The Department of Natural Resources and Mines (NRM) is the lead State Government agency for NAPSWQ and is working with a number of other State Government agencies (Primary Industries, EPA, Local Government and Planning, State Development, the Premier and Cabinet and Treasury) to provide a whole-of-government approach. The main focus is on the strengthening and/or establishment of *regional-scale NRM* arrangements including *regional NRM bodies* (which may be based on existing bodies including catchment management groups). The IGA states that catchment/regional bodies should have (DNR&M 2001e):

- A suitable level of authority to develop and implement catchment/regional plans;
- Transparency and equity in decision-making and effective mechanisms for participation by all relevant stakeholder groups;
- Technical ability and capacity for the development and implementation of accredited catchment/regional plans or the ability to co-opt this ability and capacity;
- The ability to work effectively in the delivery of cross-border plans;
- Adequate arrangements for administration, financial management and accountability for implementing the catchment/regional plan and delivering agreed outcomes; and
- Arrangements to work with local government and other agencies to ensure the integrity of the catchment/regional plans and government investments.

In particular, the Regional Natural Resource Management plan must include information on (DNR&M 2001e):

- Consultation processes and stakeholder support provided;
- The information base used to develop the plan;
- Consistency with other planning processes
- Justification for strategies adopted;
- The outcomes, targets and standards to be achieved;
- Implementation arrangements; and
- Arrangements for periodic review, performance monitoring and reporting.

When regional NRM plans have been accredited, the regional bodies will be able to receive *devolved block funding* to implement priority actions under the regional investment plan. To strengthen and support the various elements of this new system, *capacity building activities* and *science* will help build a sound knowledge and information base. NRM policy reforms, such as market incentives or industry codes of practice, will be developed to provide tools for more effective NRM.

2.2.1.2 Legislative basis

Queensland has an ICM framework established by substantive policy but with no direct legislative base. The state government is investigating the possibility of statutory support for catchment management. The Queensland ICM model is based on cooperation between statutory agencies together with a substantial dependence on local initiative, ownership and drive.

The ICM committees as well as the Regional Strategy Groups have no statutory basis and depend on voluntary implementation of their policy and plans through existing legislation. NRM stakeholders in Queensland have often raised this issue as a problem. The ICM organisation does not have the authority to legislate or pass laws to regulate resource use. The organisation is only able to influence resource use through another organisation, such as local government, which does have this authority. Because there is no statutory basis for ICM and

as ICM cuts across established and traditional agency mandates, administrative commitment and bipartisan political support are regarded as having critical importance.

In a recent 'dialogue process' with community groups, individuals and government agencies involved in NRM (DNR&M 2001e), many participants argued that legislation would provide stronger recognition and status for community groups and help give effect to their plans and strategies. Similarly, a five year study of ICM in practice in Queensland found that although the development and implementation of catchment management strategies should be encouraged through a voluntary partnership between the community and government, their on-ground implementation requires the balanced support of both incentive systems and legislative backing (Bellamy *et al.* 1999a).

At the catchment level land use and resource management is influenced, managed and controlled by a complex domain of government and industry-based natural resource management programs. Of these, the most important are related to state and federal government land administration, river management, nature conservation (including World Heritage Areas and National Parks), and local government infrastructure and town planning and industry arrangements. The ICM policy initiative is only one of a number of processes and policy initiatives all designed to influence the way natural resources are used and managed.

There are changing conditions affecting the arrangements for catchment management. Queensland is implementing water reforms and changes to improve regional vegetation management. These reforms and changes are occurring completely independently of the ICM initiative, although relevant catchment bodies are usually invited to participate by nominating a representative for the relevant water planning and vegetation management groups.

Water Management

To fulfil Queensland's responsibilities under the Council of Australian Government' (COAG) 1994 Water Resources Policy and under National Competition Policy guidelines and National Principles on the Provision on Water for Ecosystems, the Queensland Government has legislated, through the *Water Act 2000*, for the important goal of "sustainable management and efficient use of water and other resources by establishing a system for planning, allocation and use of water" (Coffey 2001). The planning process is designed to meet Queensland's future water requirements, including the protection of natural ecosystems and security of supply for water users. Outcomes of the planning process are Water Resource Plans (WRPs) or Water Allocation Management Plans (WAMPS). These plans may have the following purposes:

- To define the availability of water for any purpose;
- To provide a framework for sustainably managing water and the taking of water;
- To identify priorities and mechanisms for dealing with future water requirements;
- To provide a framework for establishing water allocations;
- To provide a framework for reversing, where practicable, degradation that has occurred in natural ecosystems, including, for example, stressed rivers;
- Regulating the taking of overland flow water;
- Regulating the taking of sub-artesian water.

A WAMP is required in a region where the intensity of water resource use is already significant and where there are clear emerging pressures for increased use.

A water resource plan must state 'outcomes', including 'ecological outcomes', "for the sustainable management of the water and strategies proposed to achieve the outcomes to the extent possible from the best scientific information available". If a water resource plan has

the purpose 'to provide a framework for establishing water allocations then the plan must also state the following:

- Environmental flow objectives;
- Water allocation security objectives;
- Performance indicators for environmental flow objectives and water allocation security objectives;
- Priority areas for the conversion to or granting of water allocations.

The legislation makes clear that the role of the water allocation plans is to allocate sustainable volumes of water and not to simply endorse existing allocations. In addition it recognises the need for integrated management of both surface water and groundwater (Nevill *et al*. 2001). When the Minister approves the final draft water resource plan, the plan becomes subordinate legislation. As at June 2001, water resource planning activities are underway in 24 river basins covering about 85% of Queensland and two associated groundwater systems (Dianna Wood, DNR&M, Pers. Comm. July2001). These include 4 basins (Cooper, Fitzroy, Burnett and Boyne) with approved plans covering 25% of the state and a further 6 basins (Murray Darling valleys) with draft plans released for public review covering 17% of the state (Dianna Wood, DNR&M, Pers. Comm. July2001).

In addition, a Land and Water Management Plan (LWMP) is required under the *Water Act 2000* prior to the use of water for irrigation purposes (Queensland Government 2001c). A LWMP is a farm management plan that sets out how land and water is used for irrigation purposes. It includes a property map and a report detailing the practices that will be adopted on the farming enterprise to achieve efficient and productive water use to avoid degradation of natural resources. The purpose of a LWMP is to provide individual landholders with an effective management plan which will demonstrate that water use practices are ecologically sustainable both on and off farm.

Significantly the water planning process is undertaken completely independently of catchment management planning process.

Vegetation Management

Vegetation management has been a highly contentious and political issue in Queensland for a number of years with much of the debate revolving around the question of compensation (Nevill *et al*. 2001).

Regional Vegetation management planning is now a key component of the Queensland Government's framework for managing native vegetation in Queensland. Under the *Vegetation Management Act 1999* the Minister for Natural Resources and Mines must prepare Regional Vegetation Management Plans. These plans state outcomes for management of vegetation in the landscape at a regional scale, and set down voluntary and statutory actions to achieve the outcomes. They include IDAS code for the assessment of clearing of freehold land, and local guidelines for clearing of leasehold and other State land in accordance with the *Land Act 1994*. In preparing a plan, the minister must consult with the ministerial advisory committee, the relevant Regional Vegetation Management Committee (RVMC) and affected local governments. When a draft plan has been prepared, there is a period for submission of public comments prior to the finalisation of the plan. This vegetation management planning process have recently commenced in 24 regions across the State with regional boundaries being based on bioregions (not catchments).

The Regional Vegetation Management Planning process is also undertaken completely independently of catchment management planning and water resource planning. However, there is recognition that there is a need to link vegetation management planning with other regional processes such as Catchment and Regional Strategies and local government planning.

Regional Planning

Regional planning frameworks for growth management have been established under the *Integrated Planning Act 1999* (IPA). The IPA introduced reforms to the way planning and development assessment is approached in Queensland. Importantly, it provides a framework for a coordinated and integrated approach to integrated catchment management in relation to regional planning and planning schemes (Lusis *et al.* 2001).

Some of the important changes introduced through IPA include requirements that:

- Local government planning must seek to achieve ecological sustainability;
- Planning be coordinated and integrated across local, regional and State levels; and
- Local government planning schemes state positively, as desired environmental outcomes, the results sought through the application of the plan. Measures to achieve the outcomes, and performance indicators to monitor their achievement are to be developed also.

Regional planning processes are now well established in Queensland. Under this legislation, a number of activities have also been undertaken which have brought together councils and catchment coordinating committees to amend local government planning schemes to better address catchment management issues.

2.2.1.3 State-wide Structures for ICM/NRM

Many agencies and groups have been part of the framework for addressing natural resource problems in Queensland at the local, catchment, regional and state levels. They include Landcare and catchment groups, River Improvement Trusts, State and Local Governments, landholders, businesses, Regional Strategy Groups and other special interest planning or action groups. There also have been numerous programs and policies related to NRM, including funding programs, education projects, community monitoring, industry codes of practice, information systems and data collection. The key agencies and groups currently involved in NRM in Queensland are identified in Table 1.

The current arrangements for NRM in Queensland include individuals, groups and agencies, planning, funding and implementation systems, and policy tools, laws and economic instruments. These are summarised in Table 2. The *Draft Discussion Paper on Regional NRM Partnership Arrangements* notes that "the *ad hoc* development of this framework of groups, agencies, infrastructure and policies has led to a complex, sometimes confusing systems and some overlapping of responsibilities for planning and action". Notably the Queensland NRM framework has evolved substantially since ICM was first introduced in 1991. ICM *per se* now has a very low political profile and barely rates a mention in the broader scheme of NRM at the State level (see Table 2).

Table 1 NRM groups and agencies with roles in NRM in Queensland (adapted from DNR&M 2001a).

Group/Agency	NRM Roles
State agencies : Dept. Natural Resources & Mines (NR&M) Department of Primary Industries Environment Protection Agency Department of Local Government and Planning (DLGP)	State Government agencies have individual and related responsibilities for catchment management, vegetation, property management, land planning, regional planning, water quality, water allocation, waterways planning and biodiversity conservation.
Local Governments and Regional Organisations of Councils (ROCs)	Conduct initiatives to protect vegetation, water catchments and native animals, control of declared pests and weeds, partners in the development of regional and catchment plans. ROCs provide a coordinated Local Government response to regional and sub-regional planning. Some Local Governments support River Improvement Trusts.
Landcare and Catchment Management Council (LCMC)	Provides strategic advice to the Minister for NR&M on Landcare and catchment management, direction for the administration, management, operation, monitoring and evaluation of the Natural Heritage Trust program.
Catchment Coordinating Committees (CCCs), now Catchment Management Associations (CMAs)	Integrated approach to water, soil and vegetation management through the development and implementation of catchment strategies, supported by NR&M.
River Improvement Trusts (RITs)	Statutory responsibilities for the improvement of streams and rivers and mitigation of flooding in proclaimed areas which are not catchment based. Usually operate in close tandem with Local Governments.
Water Boards and Drainage Boards	Statutory responsibilities for managing distribution networks for water supply and on-farm drainage networks in agricultural areas.
Landcare and other local groups	Undertake on-ground action and resource monitoring in their local areas.
Regional Strategy Groups	Developing regional strategies relating to land, water, vegetation and biodiversity issues.
Regional Planning Advisory Committees	Statutory groups under the Integrated Planning Act, coordinated by DLGP, carrying out regional planning initiatives such as SEQ2001, FNQ2010 and Wide Bay 2020. These integrate growth and economic development objectives with broader social and environmental concerns, and can include natural resource themes.
Community Reference Panels (CRPs) for water resource planning	Have no statutory powers but provide advice and input to the development of water resource plans through WMP/WAMP processes. The CRP membership is intended to be broadly based from the community and to extend beyond the existing ICM network.
Water Advisory Committees	Totally separate to CRPs, there is a pre-existing network of WACs throughout Queensland. They have no statutory basis but provide input into the operation of water allocation systems in any of Queensland's 8 irrigation areas, or in the host of other water pumping projects/schemes along various watercourses or pumping from various aquifers.
Rural Vegetation Management Committees	Drafting Regional Vegetation Management Plans. It is expected that most Committees will take 1-2 years to draft their plans and to undertake public consultation.
Rural Lands Protection framework	Includes the Rural Lands Protection Board supported by the State Government and Local Government delivery arrangements for weed and pest animal control.
Morton Bay Partnership	A special cross-government coordinating body for the management of the catchments of the Brisbane River and Morton Bay
Special interest regional planning groups	Carry out regional and subregional planning or focus on a special issue.

Table 2. Key elements of the current arrangements for NRM in Queensland (Adapted from Department of Natural resources and Mines 2001d).

Scale	Commonwealth	State	Region Large Catchment	Local Government Catchment, Sub-Catchment, Property
Agency or Group	• AFFA • Environment Australia	• Department of Natural Resources and Mines • Department of Primary Industries • Environmental Protection Agency • Department of Local Government and Planning • DPI • EPA • DLGP • LGAQ • LCMC • Industry associations	• Regional planning advisory groups, regional strategy groups, ROCs • Basin-scale or issue-based planning groups, e.g. desert uplands, Cenrtal Highlands, Lake Eyre, Murray-Darling, regional coastal groups	• Local governments • Landcare groups • RITs, catchment and subcatchment groups, other special-interest NRM groups, landholders, resource users, Bushcare
Functions	• Setting national targets and priorities • Devolving funding through the NAPSWQ, NHT and other funding programs	• Collating and disseminating NR condition and trend data • Providing technical and and policy advice, support and resources to community groups, NRM technical and communication • Leveraging funds • Supporting property planning • Participant in regional partnerships Some direct NRM delivery	• Regional planning • Developing investment partnerships • Public reporting • Coordinating local groups • Promoting NRM education and communication • Regional component of resource assessment	• Development of economic social and environmental aspects of local government areas • Subregional and local area planning • Implementation of projects • Monitoring progress • Undertaking awareness raising activities
Policy and Statutory Tools and Mechanisms	• Council of Australian Governments agenda: water reform and NAPSWQ • EPBC Act • International treaties	• Water Act • CBNRM policy framework • Community nature conservation initiatives • Vegetation Management Act and statutory vegetation management plans • Integrated Planning Act	• Regional frameworks for growth management • Regional natural resource-based plans • Issue-specific NRM strategies	• Local government laws and statutes, planning schemes • Property management plans • Statutory environmental management plans • Environmental management systems • Voluntary conservation schemes

2.2.1.4 Functions, roles and responsibilities of catchment bodies

Given the plethora of bodies involved in NRM or ICM outlined above, it is essential that the roles and responsibilities of all stakeholders are well orchestrated and understood in the first instance to avoid further confusion and friction (e.g. Queensland Murray Darling Committee Inc, Submission to the House of Representatives Inquiry into Catchment Management 2000). Importantly, these roles have evolved over time and need constant clarification.

Within Queensland the structure of the Landcare and Catchment Management movement has evolved over time. The current structure is as follows:

- The ***Landcare and Catchment Management Council*** (LCMC) is the peak body advising the government on ICM, Landcare and the direction and operation of the NHT. It involves representatives of peak industry and community bodies and state government departments who are appointed by the Minister. It has a key role in approving strategies prepared by regional strategy groups
- 13 ***Regional Strategy Groups*** (RSGs) throughout the State which have been formed more recently primarily to allow a government/community interface to participate in the development of strategic regional approaches to NRM as per NHT Federal/State partnership agreements (Dore 1999). They are composed of representatives of key stakeholder interests, they are community based and led, and formally endorsed by the Queensland Government on the recommendation of the LCMC. Regional environmental management strategies are being prepared for each of these regions.
- Approximately 32 ***Catchment Coordinating Committees (CCCs)*** (now called ***Catchment Management Associations***). Most use a representative model for membership and this is reflected in the different memberships of these groups across the State. They generally represent industry, Local Government, Landcare groups, community groups, and State agencies; and
- Landcare and interest groups. Small locally initiated groups focussed on on-ground activities.

Central to the implementation of ICM in Queensland is the establishment of Catchment Coordinating Committees (CCC) – now called Catchment Management Associations (CMAs). The Queensland Integrated Catchment management Strategy (QDPI 1991) identifies that:

> Catchment Coordinating Committees are established to address complex catchment management issues that involve many community groups and government agencies. Catchment Coordinating Committees comprise representatives of the major sectors of the community and government that are involved in, or influenced by the management of land and water resources in the catchment. Their major roles are to provide a forum for community input and discussion, to prioritise the issues and to develop and promote the adoption of catchment management strategies.

All catchment groups have a part-time or full-time coordinator/project officer/administrator. Initially, these positions were provided by the state government, but increasingly committees have employed their own staff.

In Queensland there is no legislative base that sets out the roles and responsibilities of CMAs. Consequently CMAs throughout the State have been developing their own structures and linkages to meet their own requirements. CMAs foster the development and voluntary implementation of catchment management strategies through existing government and community organisations. While catchment management strategies are not legally binding, they provide guidelines, and recommended policies and action plans which people who use and manage resources are encouraged to adopt

ICM in Queensland has institutional support from the now Department of Natural Resources and Mines, which is currently reviewing ICM/NRM arrangements. There is a realisation that the voluntary and relatively informal nature of the regional/sub-regional institutions may have to evolve as many groups move from a planning phase to an implementation phase (Dore 1999). The question of statutory support for catchment management is an issue which is being investigated by the State Government in consultation with community groups.

2.2.1.5 Role of and level of involvement of local government

The Queensland approach to ICM does emphasise that involvement of Local Government is integral to the success of ICM. The evolution of ICM in each area is seen to necessitate input

from key players in local authorities who have the capacity to keep priorities and objectives on track. This is viewed as a means of providing a local focus for ICM, heightening local ownership, enabling resources to be accessed more locally and increasing the potential for securing external sources of funding. In addition, catchment management objectives are encouraged to be translated into Local Government planning schemes (Queensland Government 1999). A five year study of ICM in the Herbert River catchment found that ICM initiative had a significant influence on local government in a relatively short period of time including an improved awareness of catchment management issues, better coordination between authorities in extending the reach of town planning to achieve catchment management strategies as well as the actual implementation of catchment management strategies in the local planning scheme (Bellamy *et al.* 1999a).

Notably, catchment-based management is often the best approach to adopt in combating a weed problem, when water is the primary mode of spread of the weed. As an example, extensive planning and implementation has occurred to contain and control the declared plant parthenium weed in the headwaters of the Bulloo catchment in western Queensland. Three local governments, the DNR and individual landholders have come together to try and prevent further spread of this weed throughout the catchment. Resources from each of the Local Governments have been pooled for the acquisition of equipment and labour to treat the infestation (Queensland Government 1999). An increasing number of catchment management plans now contain a weed management section, and a catchment approach is being adopted in many Local Government area pest plans as well as for fish management issues.

There has been an emerging trend to have local government linked more formally to the ICM process. However there has been only limited progress especially by local government in implementing ICM policies. Many NRM stakeholders in Queensland have noted that there are institutional barriers to the participation and involvement of Local Government in catchment management (Queensland Government 1999). The Queensland Murray Darling Committee identified in its submission to the House of Representatives Inquiry on Integrated Catchment Management that (Queensland Murray Darling Committee Inc. 2000):

> There is no doubt that the involvement of Local Government in the catchment management movement within this region has been a challenge to all concerned. My perception is that Local Governments are, in areas, confused by the actions of the various natural resource management groups within the area and are finding it difficult on how best to become involved. In addition, I also believe that Local Government views the catchment management with some scepticism and in fact, in some areas, as a threat to their activities.

In recognition of the increasing role of local government in the management of land and water resources in catchment areas, the Local Government Association of Queensland has prepared guidelines to support Local Government's role in ICM in Queensland (Lusis *et al.* 2001) and developed a proposal for a coordination framework for NRM in Queensland (LGAQ 2001).

2.2.1.6 Degree of whole of government coordination

ICM has tended to seen by other Government agencies as an initiative of one government agency, i.e. DNR&M, rather than a community-based process requiring a 'whole-of-government' support approach (eg. Bellamy *et al*. 1999a; McDonald *et al*. 1999). In addition, there has been a lack of coordination between the multiplicity of different forms of land and water resource planning being conducted within the key NRM agency itself, i.e. DNR. For example, a recent report identified 28 current forms of planning within the Resource Management Output group within DNR&M alone and that there was no consistent model or usage of terms (DNR 2000). Notably "better integration and broad government support will assist catchment groups in preparing and implementing their strategies" (Rowland and Begbie

1997: 4). In sum, there has been an absence of a 'whole-of-government' approach, commitment or involvement to ICM/NRM.

The lack of integration of NRM within legislation is one factor contributing to a diversity of arrangements and management regimes for NRM. There is no single piece of legislation that integrates across natural resource issues or provides specifically for the establishment of NRM groups (such legislation exists in most other States). Notably, the Queensland Government is currently considering options for underpinning proposed regional NRM approach with such legislation. It is argued that legislation could provide legitimacy and a level of community recognition to regional NRM groups and also improve the credibility and strength of groups in negotiating with other stakeholders (DNR&M 2001a). On the other hand, statutorily appointed groups might not be readily accepted in local communities, and could be perceived as another 'layer of government'. In acknowledging this as an issue, the Draft Discussion Paper points out that there is a precedent for creating statutory groups at regional levels – for example, under the *Integrated Planning Act 1997*, the *Vegetation Management Act 1999* and the *Water Act 2000*. However, at present, regional groups such as Regional Vegetation Management Committees do not provide for *integrated* NRM regional planning.

A key issue has been the lack of political support for ICM in Queensland in recent years (Bellamy *et al.*, 1999a). A review of ICM has recommended that "confirmation of political support within the State Government is needed to ensure the considerable investment by government and community will be able to continue long enough to fulfil its charter" (Rowland and Begbie 1997: 4). Importantly it notes "changes in government and policy positions have a destabilising effect on continued community commitment".

2.2.1.7 Funding/resourcing capacity

Critical to the survival and success of any program is the level of commitment through funding and staffing. Long-term resourcing and support that extends beyond a political term are critical to the success of community-based ICM (Bellamy *et al*. 1999b)).

State government support for the program was initially provided through a $5M new initiative grant from Queensland Treasury for establishment and operating grants. This funding was only available for three years but at the end of the time it was added to base allocation for the Department of Natural Resources. The state also provided over $250K per year in project grants to catchment committees and other bodies for conduct of projects leading to the development of a catchment management strategy. Since 1995, a further $750K has been provided annually as grants for the implementation of catchment strategies. These grants have been administered in conjunction with NHT assessment process and a number of projects have attracted commonwealth funding (Rowland and Begbie 1997: 2).

ICM has survived using a mixture of state program and core funds and, most importantly through the National Landcare Program and its successor, the Natural Heritage Trust. It is difficult to define accurately just what resources have been available for the ICM program and the Catchment Committees. Most significantly, the host Department, DPI then DNR (from 1995), provide in-kind support centrally and in the regions in the form of staff time and operational expenses. No one has estimated this accurately, because catchment related research, planning and implementation support are closely interconnected with many programs. Importantly, CCCs have no statutory powers or revenue raising capability. The apparent loss of interest by State Government in the ICM process is threatening the ICM process, especially the funding of catchment coordinators (McDonald *et al.* 1997).

Funding guidelines and arrangements for ICM in Queensland have kept on changing making the targeting of these resources difficult (Rowland and Begbie 1997: 5). Significantly, the

Queensland Murray Darling Committee identified in its submission to the House of Representatives Inquiry on Integrated Catchment Management "a perception amongst the community that catchment management largely revolves around NHT funding and furthermore, Government Departments are largely the beneficiaries of this funding"(Queensland Murray Darling Committee Inc 2000). Another funding issue identified was the "lack of certainty and continuity in the system of three year funding cycles".

The Queensland Government submission to the House of Representatives Inquiry on ICM suggests that resourcing catchment management activities depends on the development of equitable and effective cost-sharing arrangements between Local and State and Federal Governments, communities and agricultural industries, and that this situation raised a number of issues including" (Queensland Murray Darling Committee Inc 2000):

- Community volunteers increasingly reject the assumption that they should offer their own resources to do work which is for the benefit of the whole community and/or future generations. They expect that the Federal and State Governments identify which actions are in the broader public interest and to require the whole community to contribute to actions which benefit them.
- Community groups and Governments need to leverage more effort from the private sector to contribute to catchment management.
- When investments are made in catchment management initiatives, a portion of the benefits often accrues in downstream catchments and/or coastal, estuarine and offshore areas. Therefore, in determining funding and cost-sharing arrangements, there may be a reluctance by local communities to invest through, for example, levies based on their rates, when they see the benefits accruing outside their catchment.

The traditional funding sources (eg. NHT and agency funding schemes) for catchment management groups are now targeting projects that will help deliver State-wide or regional goals. This shift to a funding approach that is focussed on strategic outcomes rather than individual projects, has highlighted the need for improved communication and partnerships between NRM agencies and groups at State, regional and local levels (Queensland Government 1999).

The proposed regional partnership approach to NRM proposes a different way of funding to achieve outcomes (DNR&M 2001a). Rather than the current piecemeal approach of various agencies providing funding and grants programs driven by application processes, it proposes block funding to be devolved to regional bodies to carry out NRM activities. It is thought this might allow funding to be directed to the highest priority and most cost-effective projects.

2.2.1.8 Monitoring and review mechanisms

Overall ICM in Queensland has suffered from a lack of monitoring and feedback mechanisms to provide data on the impacts of ICM and the effectiveness of the approach (Rowland and Begbie 1997: 5). The needs of accountability and performance are increasing and it will be a challenge for ICM to find ways to identify and monitor the tangible benefits that accrue from ICM.

The first few years of the establishment of community-based catchment management groups are generally focussed on relationship building and planning, and the evaluation of catchment management needs to take into account the fact that many of the benefits are intangible, but are an essential part of the catchment management process. Performance indicators therefore need to be designed for the particular stage of that process. It has also been suggested that reporting to local stakeholders (eg. an annual Catchment Report Card to the community) can be more effective than reporting to the Federal Government (DNR&M 2001a). Requirements

to monitor and report set at a national level can act as a barrier to groups using evaluation as a tool for improving performance.

Cap limits for Queensland Section of the Murray Darling Basin have yet to be determined. The State is in the process of preparing water allocation management plans (WAMPs) and water management plans (WMPs) for the catchments in the Murray Darling Basin. There is a moratorium on issuing new licenses while the concerns of Queenslanders are being negotiated and plans are being put in place. Queensland Government argues that the amount of water being diverted is relatively small in comparison to NSW and Victoria.

2.2.2 Participatory and partnership processes

2.2.2.1 Representational approach/processes/mechanisms

Catchment Coordinating Committees in Queensland are broadly based on voluntary representational membership from the significant stakeholder groups and interests in the catchment. The membership varies from one catchment to another but in general these committees have a majority of non-government members.

ICM has been effective in bringing conflicting groups together to seek compromise and to formulate regional and local approaches to deal with conflict (Bellamy et al. 1999a; AACM 1995). However there is also confusion and, in some areas, friction amongst stakeholders in the Landcare movement and the catchment management approach (Queensland Government 1999: 3). One of the major difficulties with community participation is "the plethora of largely Government introduced committees on which community members are asked to participate … This in itself has caused some concerns within the community and a level of friction and frustration between the Landcare movement and the catchment management concept", and further the issue of "the on-going expectation of increased community stakeholders in consultation processes, combined with the very real demands (financial and time) associated with these expectations" (Queensland Murray Darling Committee Inc. 2000).

Recent reviews of ICM in Queensland found that the representative model used to form management committees is not always effective in getting the "right individuals" involved (Rowland and Begbie 1997; Bellamy et al. 1999a). It leads to assumptions about the quality of communication between the group and constituent member organisations. There is a need for all members to take a 'whole-of-catchment' view of issues and not to protect sectarian interests.

Importantly, it is widely perceived that 'volunteerism' is declining generally in the community, and there are growing expectations by community stakeholders that they should be fairly compensated for their involvement (Queensland Government 1999). Apart from the more senior committees (ie. the LCMC) community members are not paid honorariums or sitting fees. This has been identified as an on-going issue for community members (Queensland Murray Darling Committee Inc. 2000) with growing expectations by community volunteers that they should be reimbursed for involvement, travel and communication costs (Queensland Government 1999).

2.2.2.2 Capacity building mechanisms/approaches

In the experience of Queensland ICM, community capacity is emerging as the key issue in the implementation of catchment management approaches (Queensland Government 1999). Changing institutional, legislative or structural arrangements is of little benefit if communities and individuals do not have sufficient capacity to participate or to implement and adopt changes in their management of local resources. As a voluntary community-based approach,

participation in ICM in Queensland has proven costly and it continues to place a high demand on local participants; such that community participation is often seen as government shedding work onto community groups (Queensland Murray Darling Committee Inc. 2000). The same people within a community are often asked to participate in a plethora of Government committees within a region. In addition, many catchment management groups have reported that they are finding it hard to cope with the bureaucratic demands of running an incorporated organisation, applying for grants and so on. It has been suggested that Governments can play an important role by providing skills training, information, technology and resources to help groups.

One of the clear challenges for the ICM process in Queensland is developing and maintaining broad community ownership and understanding of the concept, aims and objectives of ICM as identified in a Submission to the House of Representatives Standing Committee on Environment & Heritage Inquiry on Integrated Catchment Management:

> One of the real issues facing any partnerships wishing to further enhance the concept is the reality that the ownership of the concept of catchment management within our stakeholders, particularly rural stakeholders, is low.
>
> I would suggest that those who participate within the catchment management authorities and the Landcare movement have varying levels of understanding of the overall concept and therefore the overall aims and achievements of the initiative are not clearly understood or understood at the same level throughout those communities.
>
> The situation results in the reality that catchment management at the present time lacks a high profile within the community.

Significantly, in Queensland a key challenge is to find 'the hook' that provides the focus to bring the community together to address specific issues, such as the salinity issue that has provided the focus in Victoria. "Emerging problems like biodiversity conservation and nutrient enrichment of waterways (particularly the estuarine and marine areas) are not well defined technically, and ICM groups have found it difficult to focus their priorities and activities where these are key issues". In addition, the Queensland Government submission to the Inquiry (Queensland Government 1999) identified the need for more assistance from Governments to develop their capacity to respond to local catchment and natural resource management issues.

Catchment and regional groups are recognising the need for more capacity and resources to respond to the growing emphasis on local stewardship of resources, and to take advantage of advances in information technology (Queensland Government 1999: 3). In addition, while a management framework based on river catchments may be desirable in terms of the environmental or resource issues, it may be impractical to implement where there are inadequate 'social resources', or where a community identifies with NRM issues which cross catchment boundaries (Queensland Government 1999: 5). Based on the ICM experience in Queensland, a number of aspects of community capacity that appears to be crucial in the effective local management of resources have been identified (Queensland Government 1999: 12):

- Community leadership and facilitation skills in order to participate effectively in decision-making and to manage local groups.
- The need for protocols and agreements for catchment management committees in terms of how they do business, e.g. guidelines to liase with Local Governments, decision-making processes, standard agreements for Landcare projects, agreements with State Government agencies for exchange of information, employment agreements and administrative matters such as minute taking.
- The need for capacity-building in the use of information technology. To be effective catchment groups need the infrastructure and the skills to improve communication,

retain ownership and control of information and to make effective use of systems such as GIS and decision support tools.

These principles are now underpinning the proposed new regional arrangements for natural resource management being developed in response to the NAPSWQ. For example, the draft discussion paper on this new framework highlights (DNR&M 2001a):

> Building strong set of regional NRM arrangements will require some resources to be allocated to building the capacity of individuals and groups to carry out their roles and responsibilities. Enhancing the knowledge, skills and abilities of individuals and groups (including government agencies) and the capacity of information systems, communication channels and decision-making structures are important elements of NRM 'capacity building'.

From this perspective, NRM 'capacity building' represents any activity undertaken by resource managers (either individually or collectively) to enhance or develop their ability to undertake effective natural resource planning and management (DNR&M 2001c):. [Note: in this context, 'natural resource managers' refer to landholders, communities, key organisations such as Landcare, Catchment and Regional Strategy Groups, within industry bodies, government service providers and research institutions]. Three key approaches are proposed to support and address capacity requirements for NAPSWQ implementation, namely:

- Strengthening natural resource managers in the region;
- Strengthening information and communication channels between resource managers; and
- Strengthening the knowledge base underpinning management actions.

2.2.2.3 Communication and interaction mechanisms

Generally poor communication exists between key government agencies with responsibilities for NRM (ie. DNR, DPI, EPA and DLGP) (see McCreddin *et al.* 1999). In addition, the Queensland Murray Darling Committee identified in its submission to the House of Representatives Inquiry on Integrated Catchment Management the issue of community capacity to participate effectively (Queensland Murray Darling Committee Inc. 2000: 7):

> This is a real challenge for communities as they are faced with a situation of either not understanding why they are being asked to participate, and when they do, not having the required numbers, skills or capacity to communicate effectively to allow their voice to be carried through to the decision making period.

2.2.3 Catchment planning and implementation arrangements

2.2.3.1 Powers and resources to implement catchment planning

A lack of effective implementation strategies and techniques have hindered the implementation of ICM in Queensland. Implementation of ICM is achieved through local governments, Landcare groups and other sub-catchment groups planning on-ground activities. In particular, there has been only limited progress in the implementation of ICM policies in local government planning. For example the Queensland Murray Darling Committee has identified as a real issue "frustration about the rate of progress in developing and implementing natural resource strategies and plans and achieving on-ground outcomes" (Queensland Murray Darling Committee Inc. 2000: 4). Participants in ICM have expressed concern that the linear planning then implementation approach to ICM in Queensland has resulted in questions being asked about the availability of resources to implement once all the planning is completed (Rowland and Begbie 1997: 4). Significantly, implementation mechanisms for catchment strategies are non-existent or unclear (Rowland and Begbie 1997: 5).

The *Draft Discussion Paper on Regional NRM Partnership Arrangements* identified as a significant problem the lack of formal commitment to move from planning into implementation (DNR&M 2001a):

> Another problem is that while regional NRM strategies and catchment plans have been developed and endorsed in most of Queensland, there is no longer term, formal commitment to implement these plans. Stronger, more formalised arrangements are needed to develop the existing strategies into plans with clear targets and agreed responsibilities for investment and implementation. One aspect of this is the need for stronger linkages between NRM planning outcomes and Local Government planning. The whole cycle of NRM planning needs to be strengthened, from plan development through implementation to monitoring of outcomes and review of plans.

Community groups have identified that members can get disillusioned over the length of time it takes to prepare and negotiate a catchment strategy or plan. Also that they are often unfamiliar with strategic thinking and can feel that planning is something the Government is forcing on them (Queensland Government 1999: 4). Importantly, the administrative requirements placed on local groups can be onerous and can even 'stifle innovation' (Queensland Government 1999: 10).

A big challenge for ICM in Queensland is the identification and establishment of the appropriate implementation arrangements (structure, policy and resources) for it to go ahead (Rowland and Begbie 1997: 4). The proposed regional partnership approach to NRM is different to previous arrangements in that it proposes shifting "more responsibility for planning and implementation to the level where natural resource issues are being dealt with on ground – in local and regional communities" (DNR&M 2001a: 6). However in devolving more responsibility to local NRM groups, it is important that Governments clearly articulate which functions are being devolved.

2.2.3.2 Linkages with other planning

There is no formal basis for linking catchment management planning with other planning processes. One of the key challenges of ICM in Queensland therefore has been to align local or issue-based planning with State and regional priorities (including water planning and vegetation management strategies). Moving to a more strategic approach to NRM and the development and implementation of regional strategies requires improved communication and structural links between community-based groups and regional planning mechanisms (Queensland Government 1999: 10).

2.3 Knowledge context

2.3.1 Monitoring and Review of NRM Condition

The WAMP process is clarifying the knowledge gaps – but poor baseline data will make benchmarking difficult to demonstrate change. In particular there is only limited knowledge of the surface-groundwater interaction or groundwater condition and trend data suitable for assessing and predicting dryland salinity processes and impacts. For example, the NLWRA *Australian Dryland Salinity Assessment 2000* identified that current monitoring networks do not provide a suitable framework for the assessment of dryland salinity and its impacts in Queensland. The lack of available data limits the capacity to provide a State-wide salinity risk assessment that would underpin at fine scales regional and property planning processes for vegetation management.

In addition, the *Draft Discussion Paper on Regional NRM Partnership Arrangements* notes that a key limitation of current arrangements for NRM in Queensland is the lack of access to

appropriate available information and the fragmentation of the knowledge base across many agencies and groups (DNR&M 2001a: 4)

> Many natural resource managers find it difficult to make informed decisions because of the lack of, or limited access to, natural resource data and information. Data is held by many different agencies and groups, and there is no coordinated framework for collating and disseminating this data, or for identifying gaps where extra data may need to be collected.

2.3.2 Integration Approaches/Mechanisms

Catchment managers and decision-makers require a strong foundation of scientific knowledge and understanding of the natural resource management environment to make wise and informed decisions. There is need for supporting information for the various governmental and community forums which are attempting to reconcile the parallel aims of conservation and development at the catchment level. There is a need for the integration of information on condition and trend, opportunities and constraints, and biophysical, economic and social indicators.

A recent review concluded that, overall in Queensland, there is a lack of high quality resource NRM data that is 'fit for its purpose' (DNR 2000: 7):

> Government departments, local governments and private sector bodies are independently undertaking forms of biophysical assessment to suit their own decision-making. The development industry in particular requires a basis of high quality resource information in order to avoid some of the costs associated with project-by-project impact assessments. A survey in the Gosford-Lake Macquarie area in the late 1980s indicated that co-ordinated land resource assessment had a cost-benefit ratio of 44:1; and even un-coordinated land resource assessment had a cost-benefit ratio of 17:1.
>
> The Government has many ongoing and emerging obligations that may be difficult to fulfil without a significant improvement in the level of assessment of Queensland's biophysical resources.

Importantly in the context of catchment management the lack of integrated and interpreted information has significant implications (DNR 2000: 7):

> Communities will not be able to shoulder an increasing responsibility for reconciling conflicting perspectives on IRM unless they are given the tools to do so. The tools require primarily good information backed up by policy analysis. Without this information any semi-autonomous regional catchment bodies will need to devise their own solutions to what are now Sate-wide conflicts (such as tree-clearing and salinity).

2.4 NRM outcomes

ICM has mobilised Queensland communities and laid the foundation for improved community participation in NRM. The Queensland experience is that the ICM approach facilitates ownership of issues, allows stakeholders to get together, promotes sharing of resources, helps build consensus and allows an integrated NRM approach (Queensland Government 1999: 3). It works at three different levels:

- Promoting and coordinating the groups doing rehabilitation, protection or restoration works and ensuring that on-ground actions are undertaken in strategic priority areas;
- Involving Local Government by providing a community representative forum with input to Local Government planning; and
- Conducting awareness raising and education within the general community.

Importantly, recent reviews of ICM in Queensland have identified (Rowland and Begbie 1997: 5; Bellamy *et al.* 1999a, 1999b):

- A critical mass of people has been established with an understanding of integrated catchment management and skills in its application.
- ICM has challenged people to understand causes and respond to them through targeted action to get real changes (for example much of the riparian zone management and rehabilitation activities).
- Local government is being increasingly involved in catchment management in a variety of ways (from stormwater management, rural residential design, wetland management and rural development assessment). Interest by local government continues to grow.
- Among those involved in, or at the fringes of groups doing ICM, there is a much greater acceptance of the need for a planned and strategic approach than prior to the ICM initiative. The challenge is in translating this interest into practical action.
- The planning that has already occurred provides those catchment management groups with opportunities to tap into funding resources that require strategic and integrated solutions to problems (for example the NHT regional component).
- ICM has supported community learning at all levels including the Sate level. This included a substantial increase in awareness of the significance of long term resource management problems in the Sate, appreciation of the need for integrated as opposed to piecemeal approaches, the parallel maturing of community cooperation to address the problem and the development of plans and actions that are agreed by the community.
- Community-based ICM meetings have provided an effective and potentially legitimate community forum for networking, both within the community and between government and the community, as well as a vehicle for exchange of information and more informed and inclusive discussion on natural resource management and planning.

In Queensland ICM has been acutely context-dependent. Established social networks and interactions, fundamental social values, institutional frameworks, historical problems and past actions and experiences have influenced and will continue to shape the current human association with the catchment environment. As a voluntary process without legislative backing ICM in Queensland has had to recognise these and work toward a sustainable future by influencing existing networks, value systems and institutional frameworks (Bellamy *et al.* 1999a: 140).

2.5 References

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APPENDIX 3 - STATE REVIEW - VICTORIA

TABLE OF CONTENTS

3.1 Resource use context

3.1.1 Nature and tractability of resource use issues and tensions at the catchment level

An estimated 70% of Victoria's native vegetation has been cleared as a result of the growth and economic development of the State and ecosystems are now beyond the point of sustainability. Evidence of this is continuing problems of salinity, soil structure decline, reduced water quality and quantity and increased rates of severe flooding. Victoria is still losing an estimated 2500 ha of native vegetation a year and the quality of the remaining native vegetation continues to decline (DNRE 2000b).

Quite apart from the loss of environmental values, the potential agricultural production foregone in Victoria, through land and water degradation has been estimated to approach $600m per annum (DNRE 1999).

Without remedial measures, the area of salt-affected land in Victoria expected to increase ten-fold by 2050 (DNRE 2000a); on top of those areas already affected, an estimated 3.1m ha of Victoria has a high potential to develop dryland salinity by 2050 (NLWRA 2001). The result will be a range of economic, social and environmental costs, including impairment of the long-term productivity of agriculture, deteriorating water quality, loss of biodiversity and dislocation of rural communities. It is predicted that by 2050, 60 Victorian towns will be at risk from shallow watertables (NLWRA 2001).

The NLWRA (2001) suggests that management of stream salinity it perhaps the most important issue for Victoria. The issue is significant because of the State's obligations to the Murray-Darling Basin Salinity Strategy as well as potential impacts on irrigation, urban and industrial use and on aquatic ecosystems.

3.1.2 Previous history of resource use issues and environmental management

Historically, in Victoria, the timing of initiatives to tackle catchment management issues has reflected the priorities of the day; for example, the *Thistle Act* of 1856 was followed by the *Rabbit Suppression Act* in the 1870s and a Sand Drift Committee in the 1930s (Thompson 1981). By the 1960s, the development of cooperative projects with groups of farmers, rather than individuals, was becoming an important feature of Victoria's effort to tackle land degradation. The State's Soil Conservation Authority had a number of group projects in place, some long enough to demonstrate a community benefit beyond that enjoyed by the participating landholders.

Work continued in the 1980s with a strong focus on involving communities and devolving decision-making to regional communities. This was evident in the work tackling salinity and its effects in rural areas, on the establishment of whole-of-catchment waterway management and, ultimately, with the development of the first Landcare programs in conjunction with the Victorian Farmers' Federation and the Australian Conservation Foundation in 1986.

The Victorian Salinity Program was established in 1987 with the release of *Salt Action: Joint Action* (Government of Victoria 1988). Under this program, dryland salinity management plans, strategies or land and water management plans were prepared for major catchment areas of northern and south-west Victoria between the late 1980s and mid 1990s. They focus on dryland salinity but recognise the links to other natural resource issues, Government has accepted all plans and strategies and they are being implemented.

Through these initiatives, many regions of Victoria have had a long association with a catchment approach to the management of its natural resources. There are examples of broad-based community involvement in addressing environmental degradation long before catchment management was generally recognised and endorsed by governments as sound policy for NRM (for example, the establishment of the Avon-Richardson Catchment Improvement Committee in 1980).[1]

3.1.3 Existence and attitude to cross-border or cross-jurisdictional issues

For Victoria, the key area requiring interstate coordination is in respect to Murray-Darling Basin arrangements.

In areas such as the Snowy-Genoa region (Far East Gippsland) and in management of joint groundwater resources with South Australia, interstate arrangements have been put in place (State of Victoria nd).

3.1.4 Identification with the Murray-Darling Basin

Victoria considers the Murray Darling Basin initiative an 'excellent' one 'which is delivering a synergistic program with benefits far in excess of those that individual States could deliver' (State of Victoria nd:15).

Victoria's catchment management bodies located in the Basin are well-familiar with the MDB initiative and recognise that they have a responsibility to downstream communities to act reasonably. The Goulburn Broken Catchment Management Authority, for example, acknowledges:

> The MDBC strategies provide the platform for natural resource planning in the Goulburn Broken catchment, The Regional Catchment Strategy complements the (MDBC) strategies and ensures that Basin issues are not forgotten in out attempts to resolve catchment and local problems.[2]

3.2 Governance arrangements

3.2.1 Policy frameworks and other institutional arrangements for ICM

3.2.1.1 History and political drivers

The advent of Landcare in 1986 is arguably one of the most significant developments in catchment management in Victoria in recent times. It heralded a significant shift in Victoria's approach to land and water management, marked by an increasing emphasis on the community and government working together to solve problems, using an integrated, whole-of-system approach (Doolan and Roberts 1997; Ewing 1999). There was concern, however, that land and water management were still inadequately linked, that community consultative processes were inefficient and that the regulatory framework was inconsistent, narrow and inflexible. A case was put for legislative reform which led, finally, to the passage of the *Catchment and Land Protection Act 1994* (See Section 0).

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[1] North Central Catchment Management Authority, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management.

[2] Goulburn Broken Catchment Management Authority, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 1.

In Victoria, the primary goal of catchment management is:

> To ensure the sustainable development of natural resource-based industries, the protection of land and water resources and the conservation of natural and cultural heritage (State of Victoria nd).

Victoria has developed five basic principles which govern the way in which catchment management is implemented throughout the State (Catchment Management Structures Working Party 1996:5-7; State of Victoria nd). These are:

1. **Community empowerment**
   Catchment management is a partnership between community and Government. Planning and implementation of natural resource management programs should maximise opportunities for the community to make decisions and exercise choice about service delivery.
2. **Integrated management**
   Management of natural resources should recognise linkages between land and water processes and the potential for management of one element to impact on another.
3. **Targeted investment**
   Government and community need to ensure that resources are targeted to address priorities and deliver maximum on-ground benefits.
4. **Accountability**
   Those making decisions about service delivery on natural resource management should be clearly accountable to Government and the community, as partners, for outcomes.
5. **Minimising bureaucracy**
   Catchment management structures should be as efficient as possible and avoid waste resulting from duplication between groups or costly coordination, in order to maximise the funds available for the task.

3.2.1.2 Legislative basis

The *Catchment and Land Protection Act 1994* (CaLP Act) operates in conjunction with a range of other legislation that influences the management of Victoria's natural resources (eg. *Forests Act 1958, Environment Protection Act 1970, National Parks Act 1975, Planning and Environment Act 1987, Conservation, Forests and Lands Act 1987, Flora and Fauna Guarantee Act 1988, Water Act 1989*). These other Acts focus on particular 'subjects' of NRM.[3]

The CaLP Act was subject to widespread public review, with a preliminary scoping paper released in 1993, followed by 10 regional seminars and two statewide conferences to promote discussion of the proposed Act (Christoff 1998).

The CaLP Act rationalised and replaced provisions under related legislation including the *Soil Conservation and Land Utilisation Act 1958* and the *Vermin and Noxious Weeds Act 1958* and established a system of integrated catchment management across the State. It operates in conjunction with a range of other legislation that influences the management and quality of Victoria's natural resources.

Under the Act, a regional Catchment and Land Protection Board (CaLP Board) was established, in each of 10 Catchment and Land Protection Regions covering the State (Figure 1). One of two specific functions of the CaLP Boards was to develop a Regional Catchment

[3] State of Victoria, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 5.

Strategy (RCS), building on extensive planning already undertaken for Landcare, salinity and water quality. Over a period of two years, 10 RCSs were developed and these are now recognised as the over-arching strategy for development, management and conservation of land and water resources in each region.

The other key function of each Board was to provide advice on federal funding programs and State priorities for action in its region. The Act also provided for the appointment of a statewide Council (the Victorian Catchment and Land Protection Council) to advise Government on matters relating to catchment management and land protection, on the condition of the State's land and water resources and on the statewide priorities to be given to catchment and land protection programs.

In 1997, nine Catchment Management Authorities (CMAs), embracing all of Victoria beyond metropolitan Melbourne, were established under the under the *Catchment and Land Protection Act 1994* and the *Water Act 1989*. This was prompted by concern that in order for regional strategies to be implemented, regional bodies with effective decision-making powers were needed (Catchment Management Structures Working Party 1996). In the new CMAs, the roles of existing community-based advisory groups (eg. CaLP Boards, salinity plan implementation groups, sustainable regional development committees) and community-based service delivery groups (waterway management authorities) were brought together.

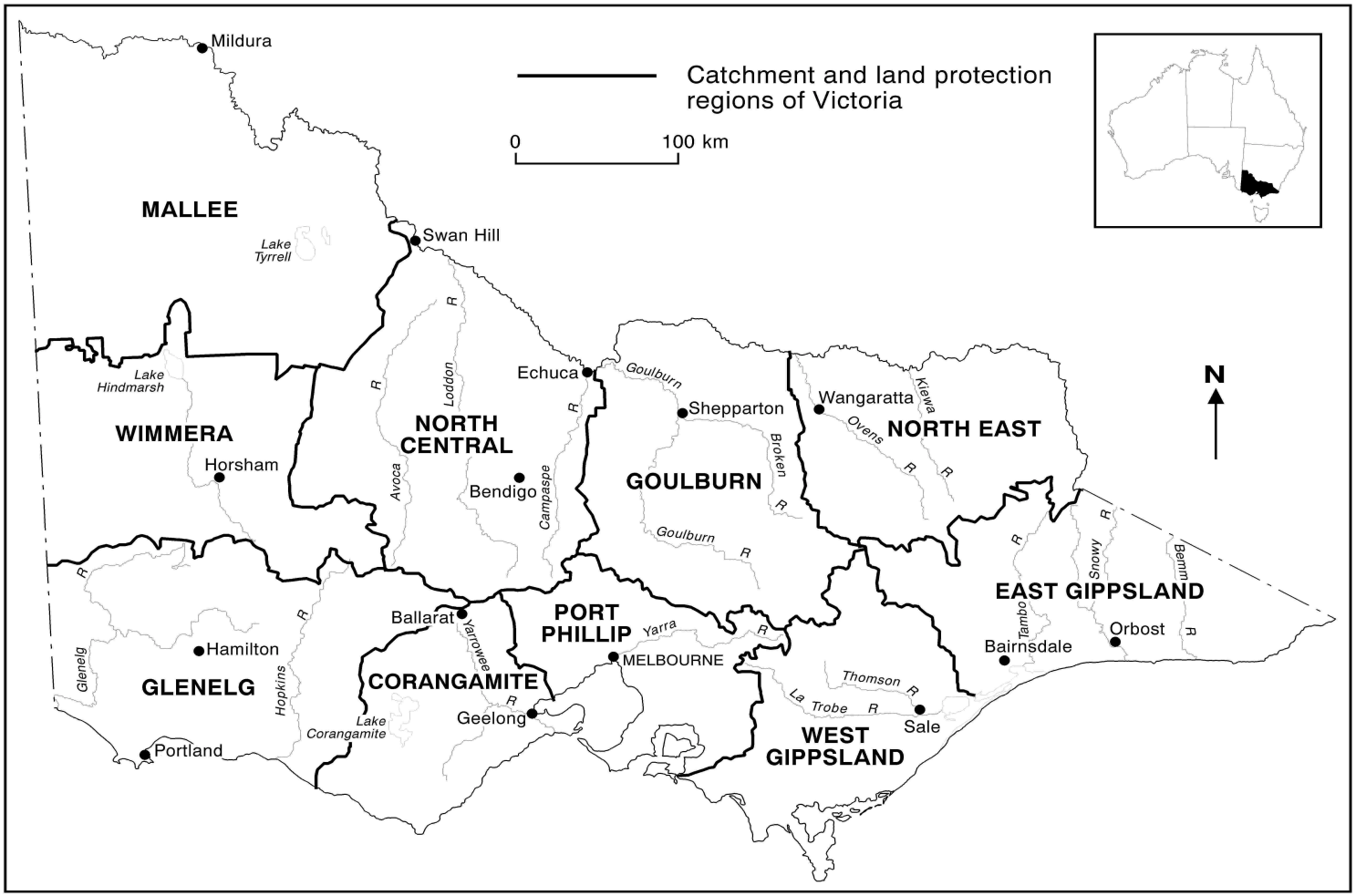
To provide for continuity of pre-existing waterway, water quality, salinity and regional development bodies, each Authority has established 'Implementation Committees' (ICs). These Committees, organised on the basis of sub-catchment or issue, are responsible for the development and implementation of detailed works programs and the overseeing of on-ground delivery. They are appointed by, and report to, the Authority Boards.

In 1997, the Victorian Government also established the Victorian Catchment Management Council (VCMC) (replacing the former Catchment and Land Protection Council) as a peak body to provide statewide advice to Government on matters related to natural resource management.

3.2.1.3 Statewide structures for ICM/NRM

Victoria has established ten Catchment and Land Protection (CaLP) regions for the State (Figure 1). Nine Catchment Management Authorities (CMAs) have been established in the nine rural regions to coordinate the implementation of priority actions of land and water management in these regions (See Section 0). The Port Phillip and Westernport CALP Board is in place in the tenth region, which includes metropolitan Melbourne.

Figure 1 Catchment and land protection (CaLP) regions of Victoria



The roles of key stakeholders in ICM in Victoria are identified in Table 1.

Table 1 Roles of key stakeholders in ICM in Victoria

Stakeholder(s)	Roles
State Government	• setting statewide policy and strategic directions for natural resource management and environmental protection; • establishing legislative frameworks; • establishing effective catchment/regional institutional arrangements; • purchasing natural resource and environment management services to achieve State objectives. These services include the provision of advice, research and monitoring, planning, extension, on-ground works and some referral and enforcement functions. CMAs obtain scientific expertise for the development of on-ground works of all kinds (including private sector contracting), the provision of both strategic and specialist advice, extension and natural resource educational services; [4] • implementing State responsibilities under nationally agreed strategies; • participating in effective intergovernmental processes and national approaches where this is necessary; and • providing funding to groups and individuals to achieve State and regional priorities.
Victorian Catchment Management Council (VCMC)	The Council advises Government on: • the statewide condition of land and water; • the statewide priorities for catchment management; and • the statewide priorities for research and investigation. The Council also: • encourages the cooperation of bodies involved in the management of land and water resources; and • promotes community awareness and understanding of issues relating to catchment management.
Catchment Management Authorities (CMAs) (see Section 0)	The major role of catchment bodies is to ensure the sustainable development of natural resource-based industries; the maintenance and where possible improvement of land, water and biodiversity resources; and the conservation of natural and cultural heritage by: • developing in partnership with the community and service providers, Regional Catchment Strategies (RCSs) and consequential action plans which define the vision for the catchment and set targets for land and water management; • providing advice to the State Government on both Federal and State resourcing priorities at a regional level through budget processes; • the development and implementation with regional service providers of a project-based work program which is in line with the implementation of RCSs; • the development of relationships with other agencies in the catchment, such as rural and urban water authorities, industry and local government; • providing a focus for regional investment in natural resource management; • providing mechanisms for community involvement in natural resource management; and • monitoring the condition and management of the land and water resources in their region.
Local government (see Section 0)	Local government is one of the key groups in the implementation of regional catchment strategies. Its role should include: • incorporating catchment management objectives, priorities and actions into statutory planning processes; • facilitating local industry involvement in catchment management activities; and • providing local support for local action groups.
Rural water authorities	Provide irrigation, drainage, salinity control, some urban water supply and other water-related services, contribute to management of specific water supply catchments.
Non-metropolitan urban water authorities	Provide water and sewerage service to urban communities, contribute to management of specific water supply catchments.
Regional Coastal Boards	Peak regional coastal management advisory bodies. Develop coastal action plans and advise government on coastal development. Facilitate implementation of Victorian Coastal Strategy and specific Coastal Action Plans.
Landcare and other groups	Local community groups, such as Landcare, tree groups, and Waterwatch groups, will continue to lead the way in tackling land, water and biodiversity problems and finding profitable and effective solutions. Their effectiveness will be maximised by being involved in the decision-making process and coordinated under an integrated approach to regional natural resource management.

[4] North Central Catchment Management Authority, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 4.

Stakeholder(s)	Roles
Industry	Industry has a significant stake in ensuring that the natural resource assets on which their industry is based are managed in accordance with the principles of ecologically sustainable development. They also have a major responsibility in ensuring that they minimise their impact on the environment by the implementation of best management practices.
Individuals	One of the strongest lessons from the past is that Government alone cannot achieve sustainable catchment management. The major part of what has to be done, must be done on private land by individual landholders. All landholders within a catchment, both urban and rural, have a major stake in maintaining the land, water and biodiversity assets of their region and passing these on to the next generation in a more productive state.

Sources: State of Victoria (nd: 13-14); State of Victoria, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 7.

3.2.1.4 Functions, roles and responsibilities of CMAs

The CMAs are primarily responsible for (i) the development of regional catchment strategies and for overseeing their implementation and (ii) for provision of advice to government on resourcing priorities in the region. They also have a role in service delivery, particularly through the direct provision of waterway and floodplain-related activities and in the negotiation of works programs with Government agencies. CMAs acknowledge that it is important to maintain a strong partnership with the relevant government agencies to ensure a strong technical underpinning of the decision-making process. [5]

Each CMA is responsible for:

- Ongoing review and development of the RCS;
- Identifying priority activities and work programs to implement the RCS;
- Advising State Government and State resourcing priorities at a regional level;
- Providing services related to integrated waterway and floodplain management. These focus on maintaining and improving river health and minimising costs of flooding whilst preserving the natural functions of the floodplain;
- Monitoring and reporting on the condition and management of land and water resources (State of Victoria nd:8).

The basic structure of a CMA is designed to maximise community involvement in decision-making (See Figure 2). This structure comprises:

- **The Board** which is directly responsible to the development of strategic direction for land and water management in the region;
- **Implementation Committees** which are responsible for the development of detailed work programs and oversight of on-ground program delivery for specific issues or sub-catchments. These committees are the conduit for local community input.
- **Staff** to support the Board and Implementation Committees, and to oversee development and implementation of programs and investment.

One of the CMAs' roles is to develop and coordinate implementation of the RCSs and to develop a coordinated regional investment plan for catchment management activities.

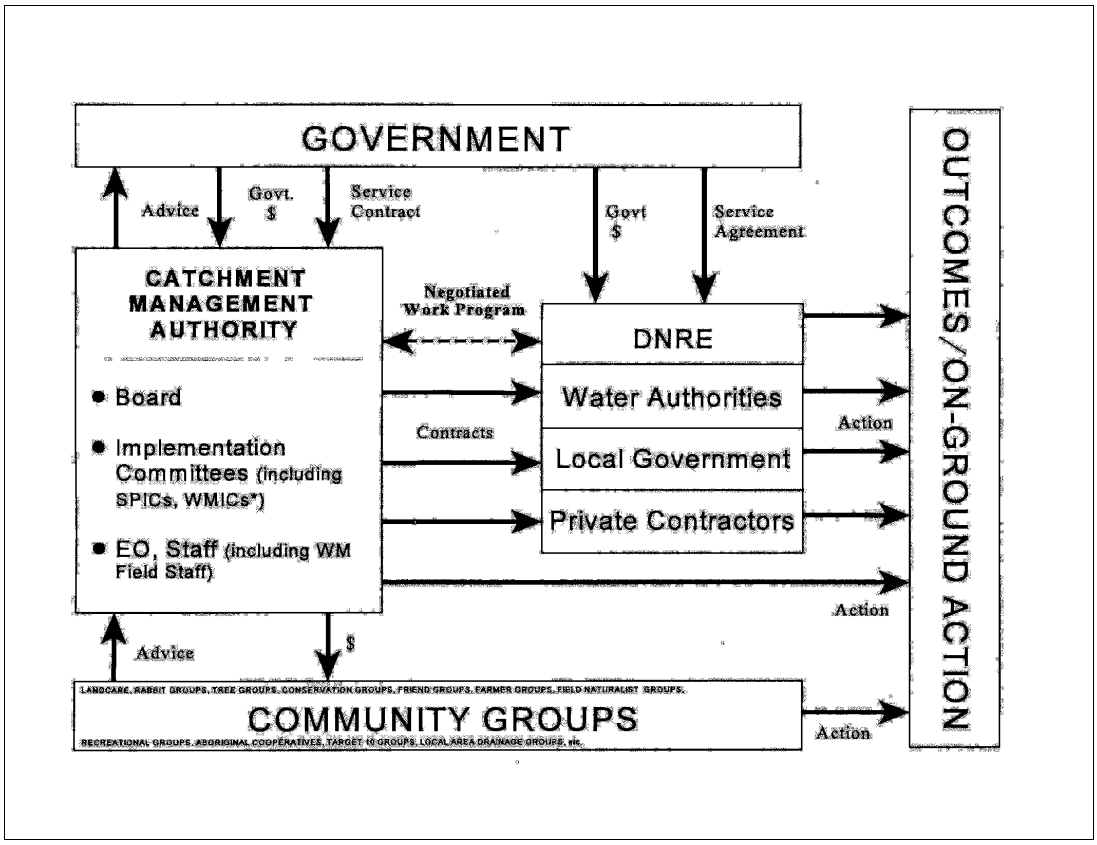
These 'Regional Management Plans' (RMPs) form the basis of clear agreements between Government and the CMAs and other regional service providers (See Section 0).

According to the Victorian Government, the CMAs have demonstrated that, by having one peak body responsible for integrating all NRM issues with an appropriate organisational

[5] For example, Goulburn Broken Catchment Management Authority, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 1.

structure, the key elements of catchment management (planning, resourcing, implementation, coordination and cooperation) can be managed effectively.

Figure 2 **Catchment management arrangements in Victoria**
(Catchment Management Structures Working Party 1996)



3.2.1.5 Role of and level of involvement of local government

Local government in Victoria has relatively broad powers in relation to environmental control, protection and conservation. There is a planning scheme for every council in Victoria. Local government is responsible for developing, administering and enforcing its own planning scheme. The planning scheme sets out policies and requirements for the use, development and protection of land. The planning scheme also states which activities, development or uses of land require a planning permit. In assessing a planning permit application, a council must consider the environmental impact of a proposal. As the planning authority, Local Government, in conjunction with referral authorities, plays the major role in controlling development in the catchment. Local Government also has some land management responsibilities (See also Section 0).

3.2.1.6 Degree of whole of government coordination

As already stated, a major role of each CMA is the strategic overview of management of land, both public and private, and water. To do this effectively, they must facilitate the development of partnerships with key implementing groups, including government agencies,

at the regional level. These include public land managers (such as the Forests Service and Parks Victoria), and DNRE regional staff. The responsibilities of these agencies are outlined in Table 2.

Table 2 Government agencies involved in ICM at a regional level

Stakeholder(s)		Roles
DNRE regions	**Catchment and Agricultural Services**	Support community groups to implement appropriate works and best management practices, provide extension services, monitor implementation and effectiveness, facilitate research in sustainable management practices, enforcement and planning.
	Parks, Flora and Fauna	The role of PFF involves maintenance of biodiversity across the landscape on all land tenures in conjunction with the land and water managers. It includes overseeing the management of parks and reserves.
	Land Victoria	Management of Crown land, including coordinating land-use planning
	Forests Services	Directly manages 3.47 million ha of State forest in accordance with management plans and prescriptions based on Ecologically Sustainable Forest Management principles to provide for conservation, recreation, and education, as well as commercial use, including timber production. The Forests Service also has responsibility for fire management on 7 million ha of State forest and parks and reserves on public land. Both timber production and fire management activities are subject to respective Codes of Practice. Management of State forest which is predominantly situated in catchment headwaters has a key hydrological role.
Parks Victoria		Manages the State's network of national, state, regional and metropolitan parks, other conservation reserves, many significant cultural assets, and Melbourne's bays and major waterways.
EPA Regions		Facilitate the protection of environmental quality objectives established in State environmental protection policies through the application of statutory tools under the *Environment Protection Act*, together with other non-statutory approaches, to control discharges to the environment and encourage improved environmental performance. Some of the key tools employed by EPA in regional operations include licensing, enforcement, development and promotion of best practice environmental management guidelines, scientific and technical support, action partnerships, education and conflict resolution.

The Department of Infrastructure (DOI) has responsibility for the development of State planning policy and the administration of the planning system in accordance with the *Planning and Environment Act 1987*. It is responsible for the Victorian Planning Provisions, the set of standard planning provisions that provide the standard format for all planning schemes in Victoria. In the DOI's 'State Planning Agenda – a sensible balance' released in December 1999, the Government indicated its commitment to reversing the decline in the extent and quality of native vegetation in Victoria.[6] Government also committed to assisting councils to identify biodiversity and establish appropriate management strategies. Close coordination with the work of the CMAs is acknowledged as vital is this regard (DNRE 2000b:19).

State environment protection policy, developed under the *Environment Protection Act 1970*, provides a statutory framework of goals and objectives for environmental quality within which the RCSs are developed and implemented.

[6] www.doi.vic.gov.au/DOI/Internet/planning.nsf

3.2.1.7 Funding and resourcing capacity

When the Labor government came into power in Victoria in 1999, one of its first actions was to fulfil an election promise to rescind the levying powers of the State's CMAs. The 'catchment tax', as it became known, gave CMAs the capacity to raise and manage their own funds for on-ground works. The previous (Kennett) government had introduced these new rating powers with little explanation, for which it was widely criticised. However, the notion of locally-raised funds being spent on *local* catchment projects, with *local* accountability, did gradually win support and even the Victorian Farmers' Federation expressed the view that the tariffs should remain. Waterway tariffs had been collected in the east of the State for many years. Rating in the west occurred for the first time in 1998.

The CMA tariff was abolished in 1999 and the State budget now includes an additional allocation to CMAs equivalent to that which might otherwise have been raised locally.

CMAs are funded through State Government resources provided through the Regional Management Plan (RMP) process (See Section 0) and federal funding through the NHT for specific on-ground projects.

CMAs, through their Implementation Committees and the Regional Assessment Panel identify catchment improvement projects and link priorities to the regional strategy outcomes.

3.2.1.8 Monitoring and review mechanisms

The CMAs, under Section 14 of the *Catchment and Land Protection Act* have the responsibility to report, annually, on the condition of their catchment:

> A Board must submit to the Minister and the Council, on or before 31 August in each year a report on the condition and management of land and water resources in its region and the carrying out of its functions.

The reports are audited by the Auditor-General and tabled in State Parliament.

In 1998, and again in1999, the then Chairman of the Victorian Catchment Management Council was invited, by the Government, to conduct a review of the operation of the CMAs and the Port Phillip CaLP Board. The Boards' progress in tackling key resource management issues in their regions was reported as 'very pleasing'. Several issues of statewide concern were raised, relating to tariffs, planning, communication, Board membership and Landcare.

At the time of writing, a 'Governance Improvement' project is underway in Victoria, commissioned by the Catchment and Water Division of DNRE. As indicated above, a number of legislative structures, and other formal and informal arrangements, underpin the overall governance framework in which all catchment management entities in Victoria currently operate. While these arrangements are generally agreed and understood by all stakeholders, elements of the framework may require further improvement and/or clarity in line with current objectives and the experience gained from three years of operation of the CMA-led framework. The project has several objectives, including:

i. To review and describe the current governance frameworks and relationships for Victoria's key catchment management stakeholders (principally the CMAs and Port Phillip and Westernport CaLP Board, the VCMC and relevant divisions in DNRE);
ii. To determine the operation of formal and supporting governance arrangements and relationships, to identify strengths and areas for improvement;
iii. To develop a specific, priority-based agenda and strategy for implementing governance improvements. Recommendations should cover the legislative,

strategic and operational, cultural and ethical environments, and impacts of community expectations; and

iv. To prepare a draft good Governance Framework/guidelines and/or Standards Manual for use by all relevant catchment management entities.

The project is due to be completed at the end of August 2001 (Major, pers. comm..).

3.2.2 Participatory and partnership processes

3.2.2.1 Representational approach/processes/mechanisms

When legislative reform was first proposed in Victoria, the issue of how community interests might best be represented on the CMAs was the issue which, more than any other, prompted widespread debate. In the final event, the Government resolved that members would be appointed, not to represent a particular interest, but rather on the basis of skill. Nevertheless, it remains a vexed issue. Conservation groups in Victoria, for example, argue that the CMAs are dominated by the interests of primary producers (indeed, the legislation requires this) and are, therefore, designed to protect and preserve traditional economies.

In its 1999 election campaign, the present Government, keen to distance itself from the cronyism of the previous (Kennett) government, vowed to restructure CMAs, 'to make them more representative, skills-based and accountable' (ALP Victoria, 1999: 11). New CMA Boards were appointed in 2000 and are generally composed of people recognised by local communities for their skills and leadership in various natural resource management areas.

Community input and involvement is formalized within the CMA structure by the role of the Board and the Implementation Committees (ICs) (Figure 2) . The ICs are crucial to the success of the CMAs. They are the mechanism by which an Authority can develop and undertake focussed work programs and communicate with and access local views in the community with an interest in a particular resource management issue or sub-catchment. Their membership and method of operation are designed to facilitate these outcomes. The form and membership of the ICs varies across the CMAs; in some regions they are organised around issues (such as salinity) and, in others, they are organised around sub-catchments. The ICs have a major decision-making role in the Regional Management Planning process in setting priorities for work and the specific activities to be undertaken in land and water management in their region.

Linking with Landcare

CMAs provide a focus for coordination of Landcare groups and activities. In doing this, they provide Landcare with a link and input to the broader regional NRM programs.[7] The manner in which Landcare activities are supported is a reflection of regional priorities and CMAs have several different arrangements for Landcare support. In some regions, CMAs directly employ Landcare support staff; in others, different models have been developed, often involving partnerships with government, private industry and other stakeholders. For example, the North Central CMA is working to develop a regional forum for Landcare. It is anticipated that the forum will be based on networks of Landcare groups, each with a representative on a region-wide forum, meeting quarterly. One possibility is that the forum may be adopted by the CMA Board as an advisory committee, which will allow the forum some access to resources and support for its operations.

[7] State of Victoria, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management, p. 11-12.

Within each CMA region, Landcare support staff are linked closely with other NRM networks such as 'Waterwatch', 'Saltwatch', 'Land for Wildlife' and cultural and heritage groups.

Catering for diversity

Victoria has taken active steps to support the involvement of Indigenous groups in NRM. For example, the Victorian Catchment Management Council (VCMC), in partnership with Indigenous peoples, is leading a project to promote and develop protocols for Indigenous land management, for inclusion in regional approaches to land and water management. It is anticipated that these protocols, once developed, will be implemented through CMAs.

There is one Indigenous Land Management Facilitator (ILMF) in Victoria (NHT Funded) covering the State. The role of the ILMF includes:

- linking up the Indigenous Community with the Landcare and NRM community;
- assisting Indigenous access to NRM services and resources; and,
- increasing awareness of Indigenous perspectives about land within the Landcare and NRM community.

Landcare support staff working directly on these initiatives have access to, and are encouraged to participate in, the range of forums and processes available to the State's network of Landcare coordinators and facilitators.

Aboriginal Affairs Victoria (AAV) also has a Regional Cultural Heritage Program in place. Each local Indigenous community is placed within one of five administrative regions across the State. Overall there are five Regional Coordinators and 15 Cultural Heritage Officers; the number of cultural heritage officers in each region varies. The regional bodies act as resource agencies for Indigenous groups in cultural heritage and natural resource management matters within their regions. They have a strong interest in Indigenous cultural heritage and are a useful source of information and contacts for Indigenous and non-Indigenous community organisations. The activities of the officers across the State are broad and involve liaison with a range of community organisations such as Indigenous groups, Landcare groups, service and industry groups, local governments, CMAs and government departments.

People of non-English speaking backgrounds are another group in Victoria whose involvement in NRM needs particular support and recognition. Particularly since 1945, many migrants of non-English speaking background have settled in Victoria's rural areas and have become established in agriculture (Cumming and Mathieson 2000). One key strategy which will assist in achieving participation and empowerment is data collection and analysis. Regions and catchments need an understanding of local demographics and this requires the collection, collation and analysis of data. This is already occurring in key regions within the State, particularly the Goulburn-Broken catchment and some work has commenced with the North East CMA. In 2000, DNRE developed a multicultural strategy and employs a Statewide multicultural facilitator, focused largely on multicultural Landcare work in the Goulburn-Broken catchment.

3.2.2.2 Capacity building mechanisms/approaches

CMAs in Victoria are embarking on a process of review and renewal of their Regional Catchment Strategies (see Section 0 below). The strategies will be required to satisfy the legislative requirements as prescribed in the *Catchment and Land Protection Act 1994* and also the NAP Accreditation Criteria. This includes an outline of capacity building strategies to be adopted within the region.[8]

[8] Draft 'Guidelines for the review and renewal of regional catchment strategies', July 2001, Victorian Catchment Management Council.

Several CMAs already have projects in place designed to enhance stakeholder and community involvement and engagement in catchment management.

3.2.2.3 Communication and interaction mechanisms

The Chairs and Executive Officers (EOIs) of the CMAs meet monthly. These are important fora for, information exchange, the development of joint projects, and strategic planning. The Chairs' and EOs' groups have established several subcommittees and/or working groups to focus on particular aspects of the catchment management framework such as research and development needs and links with local government. Professional staff from each of the CMAs also meet together on a regular basis – for example, the waterway managers.

In addition to the Implementation Committees, most CMAs also have in place other mechanisms to engage with their local community; examples include quarterly meetings with local water authorities; Landcare forums, newsletters and workshops on a range of issues, such as regional development. Typically, CMAs are also involved as partners in several projects within their region embracing other stakeholders in the catchment, such as government agencies, water authorities, local government and research groups.

Catchment Management Conferences are held biennially, sponsored by the VCMC. They bring together representatives of the CMAs and the VCMC with key stakeholders in the catchment management framework such as local government, water authorities, government agencies, Landcare groups and the VFF (Victorian Catchment Management Council 2001)]. In the intervening years, a smaller-scale statewide forum is held, usually focusing on a specific issue of relevance to the catchment management framework.

3.2.3 Catchment planning and implementation arrangements

3.2.3.1 Powers and resources to implement catchment plans

One of the CMAs' roles is to develop and coordinate implementation of the RCSs and to develop a coordinated regional investment plan for catchment management activities.

Most CMAs have developed and implemented a range of catchment-based management plans – these include Land and Water Management Plans, River Health Strategies, Pest Plant Action Plans, Native Vegetation Plans and Rabbit Action Plans. These plans respond to the goals, objectives and strategies of the overarching RCS, which provides the basis for future investment by government and regional communities in land and water resource management.

Mechanisms to translate integrated planning into integrated management include the annual preparation by a CMA of a three-year rolling Regional Management Plan (RMP) which is, in effect, a detailed investment strategy for the use of all NRM funding. To develop this plan, CMAs work with all operational groups in their region who are funded by Government. These include NRE regions, EPA and rural water authorities. The CMAs must also involve their communities through their Implementation Committees. The RMPs document who does what by specifying the responsibilities of the relevant agencies and stakeholders.

The original RCSs were prepared by the former CaLP Boards in 1997. At the time of writing, guidelines for the review and renewal of regional catchment strategies are being prepared. It is anticipated that revised RCSs, for the period 2002-2007 will be prepared by December 2002. The new RCSs, with reference to their accompanying action plans and strategies, will comprise the accredited plans for the National Action Plan on Salinity and Water Quality.

3.2.3.2 Linkages with other planning processes

A close relationship between the CMAs and local government is necessary to ensure that the appropriate environmental and natural resource management concerns identified in the RCSs are incorporated into planning schemes and development controls. This is assisted by a requirement in the State section of the Victorian Planning Provisions for local governments to take account of the RCSs and their component action plans. In addition, guidelines for the interaction between CMAs and local government have been developed.

The Victorian Planning Provisions also require local government to give regard to the approved regional vegetation plans when amending planning schemes and reviewing Municipal Strategic Statements. When considering planning permit applications, local government 'must consider the approved Regional Vegetation Plans' (DNRE 2000b:23).Under Section 55 of the *Planning and Environment Act 1987*,the responsible authority must refer particular permit applications to the body identified in the planning scheme as a referral authority. One of the triggers for referral from local government to DNRE (where technical advice is available on the importance of the native vegetation), is permit applications in which the area being considered for clearing is greater than 10ha (DNRE 2000b:28). Increasingly, local governments are supporting native vegetation protection and management activities through initiatives such as rate rebates and taking a lead role in roadside vegetation management (DNRE 2000b:19).

In 1996, the Victorian Catchment and Land Protection Council recommended the establishment of a task force to examine the relationship between planning and strategic and statutory planning (DNRE 1996). The aim was to achieve effective integration of the catchment management and statutory planning systems. The Group's report identified opportunities for improving the consistency and linkages between regional catchment planning and Victoria's strategic and statutory planning processes. The Task Force was established by two Ministers: of Conservation and Land Management and Planning and Local Government respectively (DNRE 1996).

More recently, in July 2001, the Victorian Catchment Management Council (VCMC) sponsored a forum to help develop a whole-of-government approach to the revision of Municipal Strategic Statements and Regional Catchment Strategies. The forum proposed that a pilot project be developed across the 9 CMA regions and incorporating local government in all regions. Elements discussed included: review of current planning activities; identification of successful planning case studies; the development of agreements of engagement; promotion and publicity of a working relationship between local government and CMAs; definition of responsibilities; and streamlining of statutory planning processes.[9]

A CMA-Local Government forum, also sponsored by the VCMC, is planned for November 2001.

3.3 Knowledge context

3.3.1 Monitoring and review of NRM condition

There are a range of statewide initiatives which relate to the monitoring and review of NRM condition in Victoria, a few examples of which are described here. Considerable effort has gone into the design of systems which will facilitate integration between matched data sets.

[9] Meeting record, Local Government Forum, 11 July 2001, Victorian Catchment Management Council

In 1997, the Victorian Government completed an assessment of catchment condition across the State, using a suite of *interim* indicators (DNRE 1997). The impetus for their development arose from the VCMC's legislative requirement to report to the Minister on the condition and management of land and water resources and the ongoing responsibility of the VCMC, CMAs and DNRE to evaluate the effectiveness of current catchment management activities (DNRE and VCMC 2001).

Indicators were loosely divided into three types:

1. 'empowerment' indicators – allowing measurement of either the output (eg. attendance at a course) or the outcome, (eg. changed knowledge base) of empowerment activities;
2. 'implementation' indicators – measurement of activities undertaken by people that change the condition of the natural resource base;
3. 'condition' indicators – measures of the state of the natural resources base.

At the time of writing, the *Catchment Indicators Development Program* is finalising a report outlining a suite of environmental, social and economic indicators (21 in all) which will help evaluate catchment health and the performance of catchment management initiatives. The Pressure-State-Response model forms the conceptual framework for the project.

Where appropriate, the indicators will align with those proposed at the national level, such as State of the Environment Reporting (SOER), the Indicators of Sustainable Agriculture (SCARM) and performance indicators being developed for the NHT and MDBC programs (DNRE and VCMC 2001).

The *Regional Data Net Project* (RDN) is an initiative of DNRE [10]; Catchment and Water Division (CAW) are funding the project which aims to improve Geographic Information System (GIS) use and resources in regional Victoria, and increase the coverage and quality of Victoria's Catchment Condition Data. A web based computer program has been developed, so that 17 organisations which are currently operating independently, can all use a common system to report to funding bodies on catchment condition and on-ground work activities.

One component of the RDN, that has just been released, is a web-based 'Catchment Activity Management System' (CAMS). This is being used by CMAs and regional staff of DNRE to capture details of catchment and land management activity, such as tree planting. The data is spatially referenced and is being captured in such a way that statewide aggregation of data is possible. This system is already being used to assist local government in vegetation referral processes, particularly the identification of sites where trees have been planted (Forbes, pers. comm.).

Victoria is also developing a *mapping tool* which, similar to a mapping tool used on the National Land and Water Resources Audit web site, can be used to develop a map from a menu. It will include a base mapper and will allow the user to select discrete layers of spatially-referenced information about NRM (eg. discharged sites, vegetation cover (Forbes, pers. comm.).

The Victorian Water Resources Data Warehouse, launched in 2000, is a site dedicated to disseminating up-to-date information on Victoria's water resources through the World Wide Web. [11] The site gives access to both raw and summary data on both water quality and quantity throughout Victoria, and is a central repository for published documents produced

[10] http://www.nre.vic.gov.au/catchmnt/conditn/catch/index.htm

[11] http://www.vicwaterdata.net/

from this data. It is now being expanded to incorporate marine, biological, groundwater and community monitoring data creating a 'one-stop-virtual-shop' for free access to all the State's water resource monitoring information. Catchment managers can use the warehouse functions to track the effectiveness of their water improvement activities with online graphing of time-series data (DNRE 2000a).

Most catchments now have an extensive monitoring network for streams and can report accurately on the condition of the catchment's streams and water resources. The *Index of Stream Condition* (ISC) is being used to benchmark river health. It measures various parameters including hydrology, physical form, riparian zone, water quality and aquatic life to determine river health trends.

3.3.2 Integration approaches/mechanisms

In addition to the integration mechanisms outlined above, DNRE (Catchment and Water Division) is in the process of developing an information services strategy (DNRE 2001). The strategy recognises that the profile of demand for information services in the catchment management sector has changed markedly in recent years and will continue to do so in the future. CMAs, for example, have grown in both capability and scope of responsibility. The strategy anticipates that the catchment management community will become more sophisticated in its use of geospatial information, moving from pre-packaged information, through packaging existing information themselves to wanting the underlying data to analyse and process themselves.

The strategy is structured around six key elements: information, systems, data exchange, access, regional support and information management.

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APPENDIX 4 - STATE REVIEW - SOUTH AUSTRALIA

TABLE OF CONTENTS

4.1 Resource use context

4.1.1 Nature and tractability of resource use issues and tensions at the catchment level

The *State of Environment Report for South Australia 1998* (EPA 1998) reveals that some aspects of the South Australian environment were good by international standards, particularly air quality. However, other aspects were severely threatened and structure decline, wind and water erosion, pest plants and animals, waterlogging and dryland salinity are recognised as the major sources of land degradation in South Australia.

Notably, South Australia has limited water resources and receives water from upstream States (e.g. groundwater from the Great Artesian Basin, surface waters from Lake Eyre and Murray Darling Basins). The condition of many of water-dependent ecosystems in South Australia however has declined and is at risk of further deterioration. It is widely recognised that poor land use planning and poorly integrated planning and management of land and water activities, as well as the low priority that these matters have often been given are fundamental reasons for many of the current problems in these ecosystems (DWR 2000a). Current policy and practices, although some are improved, still put at risk the ecological health and functioning of many of these ecosystems.

The guarantee of good quality water into the future is the major issue for the future. There is very limited, often no scope, to further develop water supplies within the state. In this context, the focus of water resource management has been on the need for management of seasonal and episodic flowing rivers as well as groundwater dependent systems and the establishment of intergovernmental agreements to achieve outcomes for the State. The most significant threats to the quality of the water resource can be summarised as (DWR 2000b):

- The Mt. Lofty Ranges in the Adelaide Hills area are subject to development which pollute streams and where substantial farm development has caused extensive stream ecosystem degradation.
- The River Murray, also a water supply source for urban and irrigation uses, is subject to increasing salinity levels. Its ecosystems, including the floodplain have been altered by significant flow reduction, change in flow patterns and pollutant discharges.
- The general level of development of many of the prescribed groundwater water resources which, in some cases, has exceeded the sustainable limit, causing pressure declines and unacceptable rises in salinity.
- Unsustainable development of the highly valued water supplies and ecosystems of the Lake Eyre Basin and the Great Artesian Basin.
- Extensive clearing of agricultural lands has led to land and watercourse salinisation and erosion of catchments and streambeds.
- Polluted urban discharges to Gulf St Vincent and altered flow regimes in the State's rivers have degraded estuaries and coastal marine environments.

4.1.2 Previous history of resource use issues and environmental management

Soil Conservation

A report commissioned by the South Australian Government in 1938 drew attention to wind erosion in the pastoral areas and the seriousness of water erosion in the cereal belt. This led

to the creation of an Advisory committee on Soil Conservation and the introduction of the *Soil Conservation Act* in 1939. In recognition of the need for the involvement of local community groups to influence landholders, an amendment to the Act in 1945 provided for the proclamation of soil conservation districts administered by Boards of three to seven landholders. Five Soil Boards were established between 1947 and 1985 that covered about 15% of the State. New legislation in 1989, the *Soil Conservation and Landcare Act 1989*, was enacted to support South Australia's commitment to the National Soil Conservation Strategy and the Decade of Landcare. Soil Conservation Boards have now been established across the agricultural and pastoral areas of South Australia and cover 80% of the area of the State.

As outlined in the *Soil Conservation and Landcare Act, 1989*, planning and management of natural resources in South Australia is founded primarily on a regional basis, with the emphasis on "district" planning within Soil Conservation Districts. Covering much of the State and aligned along Local Government boundaries, each district is under the jurisdiction of Soil Conservation Boards (SCB), comprised of representatives from Local Government, State agencies, industry and the community. Links may also exist between SCBs and (more localised) Landcare groups. At the level of government, the Soil Conservation Council (comprising community and government representation) oversees the formation of Boards, reviews draft conservation plans and advises the Minister.

In having responsibility for soil degradation issues in their district, the Soil Boards are required to prepare a district plan describing best practice land management for soil conservation and rehabilitation within their board area within five years of becoming listed as a Board. This involves providing an outline of the key land-use issues and, finally, recommending `best-bet' work programs for managing dryland salinity and/or other problems such as water erosion and wind erosion. Rolls (1997) notes that:

> Most of the Boards have a catchment focus on their planning, but their role has not traditionally been strongly linked with the planning for management of other resources. They have for instance had little influence on Council development plans, even though their districts are based on Council districts. There are however formal and informal links through which integration does occur. For example, in giving consent to the clearance of native vegetation, officers of the Department of Environment and Natural Resources Vegetation Conservation Group are required to discuss with the responsible Soil Board soil management implications of the proposed clearance.

Evidence presented to the *Select Committee on the Murray River* (Parliament of South Australia 2001) shows that a number of these Soil Boards however have been very active in seeking to address a range of natural resource management issues and encourage the adoption of sustainable land management practices.

Importantly, the historical development of the Soil Boards in South Australia has laid the foundation to approach land management on a regionally defined basis rather than a catchment basis (AACM 1995a). Subsequent Soil Boards have been formed on regions that are defined primarily on the social interaction and cohesion of a community and district.

Water Resources Management

Since settlement, the inland waters of South Australia have been profoundly impacted. Surface water has been dammed, diverted, pumped and drained. Groundwater has been used extensively for irrigation, stock watering and domestic supplies. Wastewater has been collected, treated and disposed of. A legacy of this impact in more recent years has been an escalating emphasis on the sustainable management of the State's water resources. Since the mid-1960's, in concert with the management of the State's water supplies, a number of actions have been taken to arrest declines in water quality and to protect resources from

further degradation. Importantly, the management of the state's water resources has been subject to a number of fundamental reforms, including changes to institutional arrangements, statutory powers, regulations and pricing policies. The roles and responsibilities of State Government agencies, local government and community interest groups have altered through this process of change.

Differing from other States, South Australia has devolved much responsibility for water management to catchment boards with powers to levy water users and, to a limited extent, regulate land and water use practices.

In 1976 the first South Australian *Water Resources Act* was passed. This was the first integrated water resources management legislation in Australia. Community involvement in water resources management was established through the Water Resources Council and water resources advisory committees set up under the Act. The introduction of the *Catchment Water Management Act* in 1995 provided a quantum leap forward for water management in the State. It also provides for the appointment of Catchment Water Management Boards (CWMBs) to manage water on a total catchment basis, with the primary aim of improving the quality of catchment water and protecting the watercourses from further degradation. This Act also introduced the concepts of:

(a) catchment water management plans to describe the ways in which the respective Boards carry out their responsibilities; and

(b) a levy as a vehicle for additional funding for the Board's water management programs.

The more recent amendments to this legislation are in the *Water Resources Act 1997*, which further empowered the role of the community in integrated water resources planning and management. This Act establishes a water resources planning and management hierarchy which are planned and regularly reviewed through a community involvement process. The catchment planning process aims to ensure that issues of water quality and quantity and concerns about health and environment are regularly integrated, as are the relationships between land use and water management practices and the potential for future economic development. Coordination between local government, state government agencies, community groups and individual citizens are to be an integral part of the planning process for the catchment plan. Catchment management is advanced by the *Water Resources Act 1997* through formal provisions of water for the environment, provision for effective community participation, better integration of water with natural resources management and an improved definition of rights to water. The Act provides a range of measures to manage activities that can affect water resources and acknowledges the role of better monitoring and information as a basis for continuing improvement.

In 2000, the South Australian Government in response to increasing concerns about expected declines in water quality separated water management from other environmental issues and formed a new Department of Water Resources. This trend goes against practice in other States that seek to integrate all forms of land and water management within one department. This reversal of policy is explained by Ministers as necessary to give a strong political focus to water management in a State which is facing a massive increase in salinity (Hatton McDonald and Young 2001: 65).

Salinity

Salinity is one of the most critical natural resource management issues facing South Australia. Water quality in the River Murray is seriously threatened by rising salinity levels. Without effective intervention to stem the flow of salt into the river, it is predicted that water quality at

Morgan will soon regularly exceed guideline limits for drinking water and affect the high value horticultural and viticultural industries (Hatton McDonald and Young 2001: 2).

Against a background of increasing river salinity in the lower River Murray in South Australia, the MDB Salinity and Drainage Strategy came into operation in 1988. The Strategy provides for a range of measures including a change in river operations to improve dilution flows, jointly funded engineering works and non-engineering solutions such as land and water management plans. A recent review of this strategy has shown that new salinity threats are emerging, particularly from dryland catchments and these salinity hazards would offset the gains of the Salinity and Drainage Strategy (Parliament of South Australia 2000: 19). Land use change has exacerbated the amount of salt moving in the landscape. However much of the salt mobilised does not get exported into the rivers and out to sea but stays in the landscape or gets diverted into the irrigation areas and floodplain wetlands. The 1999 Basin Salinity Audit (Murray Darling Basin Ministerial Council 1999) identified that:

- Salinity in the River Murray at Morgan will increase by approximately 50% over the coming 50 years, with salinity exceeding the World Health Organisation's desirable level for drinking water approximately 40% of the time.
- While irrigation areas are potential sources of large volumes of salt, effective management systems are being implemented. Provided the current level of investment continues, they are not expected to be a major source of further increases in river salinity in the future.
- Approximately 60% of the increased salinity predicted for the River Murray below Wentworth will come from dryland sources (rather than irrigation areas), and of that over half (37 per cent) will come from the Mallee region on the lower and middle Murray.

In addition, the Audit (Murray Darling Basin Ministerial Council 1999) revealed that without further intervention dryland salinity poses a rising threat to very important land and water resources, regional biodiversity and public and private infrastructure. Dryland salinity currently affects approximately 400,000 hectares of land in South Australia and this is expected to rise to 600,000 hectares within 20 years with serious losses in farm production and damage to the natural environment (Government of South Australia 2000a: 7).

Fundamental wide spread change to current land use, in particular Mallee farming systems, is seen as pivotal to providing sustainable solutions to salinity in the South Australian Murray-Darling Basin. The recent NLWRA *Australian Dryland Salinity Assessment 2000* noted that managing and preferably preventing the predicted salt inflows from the cleared mallee region in South Australia (and to a lesser extent Victoria) will be a major challenge requiring long time leads and integrated approaches (NLWRA 2001: 34)

4.1.3 Existence and attitude to cross-border or cross-jurisdictional issues

South Australia's major surface and groundwater resources, the River Murray, Lake Eyre Basin, the Great Artesian Basin and the groundwaters of the Southeast, each have catchments that extend beyond the State's borders. As the downstream State in each of these catchments, South Australia has established partnerships with the upstream states through inter-governmental agreements to recognise and protect its interests in those resources. These include the Murray Darling Basin Agreement, the Groundwater (Border Sharing) Agreement, Lake Eyre Basin Agreement, and the Great Artesian Basin Consultative Committee.

Murray Darling Basin Agreement: The River Murray is South Australia's primary water resource. The *1992 Murray Darling Basin Agreement* is a legal framework for the sharing and management of the resources of the Murray-Darling Basin. It is the most recent in a

series of Agreements and has evolved form a focus of water sharing arrangements toward an integrated approach to the management of the resources of the Basin. This latest agreement builds on previous arrangements and establishes a partnership between the Commonwealth, New South Wales, Victoria, South Australia and Queensland Governments. The partnership is commonly referred to as the *Murray Darling Basin Initiative*. There are a number of important elements to the agreement for South Australia, however, a critical aspect is that the Agreement provides for a minimum entitlement flow to South Australia of 1850 gigalitres per annum. Almost half of this is lost in evaporation while the river flows from the border to the sea. Median flow to the sea has now diminished to one fifth of the annual rate, mostly as a result of river regulation and irrigation development.

Lake Eyre Basin Agreement: Lake Eyre Basin is of natural, cultural and economic importance to South Australia. The signing of the Lake Eyre Basin Agreement in Birdsville on 21 October 2000 by the South Australian Minister for Water Resources and the Queensland Minister for Environment and Heritage marked the first significant step towards achieving the sustainable management of the natural resources of the Lake Eyre Basin.

The Agreement establishes for the first time a cooperative framework for the Queensland, South Australian and Commonwealth Governments to jointly address cross-border issues associated with the management of water and the related natural resources of the Cooper Creek and the Georgina / Diamantina River systems. The Agreement includes a set of guiding principles that acknowledge the ecological importance of the Basin as well as its social and economic values. The Agreement provides for:

- periodic state of the rivers reporting;
- preparation of policies and strategies;
- community and scientific advice; and
- involvement by the broader community in biennial conferences.

The South Australia Parliament passed the *Lake Eyre Basin (Intergovernmental Agreement) Act 2001* on 3 April 2001 and it came into operation on 24 May 2001.

Great Artesian Basin Consultative Council. The deep confined aquifers of the Great Artesian Basin (GAB) provide reliable water supplies and pressure over a vast area where there is often no reliable alternative. The management focus in South Australia is on preserving the aquifer pressure needed to sustain easily accessible supplies for grazing, mining and tourism and to preserve the unique mound springs that rely on upwellings of water in the basin's natural discharge zone.

In December 1996, the Governments of the Commonwealth, New South Wales, South Australia, Queensland and the Northern Territory together with other stakeholders established the Great Artesian Basin Consultative Council, a non-ministerial body, to coordinate the effective management of the Great Artesian Basin across State jurisdictions. The council's primary role has been to advise the participating Governments on the management of the Basin from a whole-of-basin perspective. It released a strategic management plan for the entire basin in 2000.

Groundwater (Border Sharing) Agreement: The groundwater resources of the Otway and Murray Basins along the SA-Victoria border are the subject of the *Border Rivers Agreement 1985* between SA and Victoria. Under this agreement extraction from shared groundwaters is limited to *permissible annual volumes* (PAVs) specified for a number of management zones along the border. The PAVs are subject to on-going review.

4.1.4 Identification with the Murray-Darling Basin

The South Australian portion of the Murray Darling basin covers 70,000 sq. km or the equivalent of 7% of the state. However it is the State's largest and most reliable water resource and it is central to its economic and social development. Irrigated horticulture and agriculture industries using Murray River water have contributed to the State's economy since the late nineteenth century. River Murray water is distributed via an extensive network of pipelines across the State. The River Murray provides 30% of the State's harvestable water and supplies 95% of the State's population.

South Australia clearly identifies very strongly with the Murray-Darling Basin. The *Select Committee on the River Murray* recently identified the River Murray as "arguably the most important natural resource in South Australia. The River Murray supplies water to urban and industrial users throughout the State, water for the horticultural and dairy industries adjacent to the river and provides unique biological resources that support tourism and a variety of recreational uses along the river" (Parliament of South Australia 2001: 4).

River Murray Catchment Water Management Board

The River Murray Catchment Water Management Board (RMCWMB) was established under the *Water Resources Act 1997* in September 1997. In partnership with catchment communities and stakeholders, the task of the RMCWMB is to ensure the health of the river - South Australia's water lifeline. As such, the Board is the principle vehicle for the delivery of South Australia's water resource management plans within the River Murray Catchment area including salinity plans and actions. The Board, which is appointed by the South Australian Minister for Water Resources, is currently preparing a draft *River Murray Catchment Water Management Plan* (RMCWMP) that includes policies and plans for the management of salinity within the catchment, and a *Water Allocation Plan for the River Murray Prescribed Water Resource* (WAP). These are the key strategies that will help ensure the long-term future of the river in South Australia. The policies and plans in the RMCWMP must be consistent with those of the State, the Murray-Darling Basin Commission and the Commonwealth.

Salinity and Drainage Strategy

In 1989, the Murray-Darling Basin Commission introduced the Salinity and Drainage Strategy (the S&D Strategy) to provide the framework for coordinated management of River Murray Salinity, land salinisation and water logging in the Murray-Darling Basin. A key element of this strategy is that each of the States (New South Wales, Victoria and South Australia) is responsible for actions significantly affecting river salinity taken within its jurisdiction since the beginning of 1988.

The S&D Strategy set a vision for maintaining salinity at Morgan, of less than 800 EC units for 95 per cent of the time. In the decade 1975-1985, salinity exceeded 800 EC units for 42 per cent of the time (Government of South Australia 2000b: 6). Over the last decade (1989-1999), the salinity at Morgan has been kept below 800EC for 92% of the time as a result of the S&D Strategy. The MDBC Salinity Audit (Murray Darling Basin Ministerial Council 1999), however, predicts that these achievements of the 1988 S&D Strategy will be lost unless new action is taken. Whereas the S&D Strategy had assumed that the impact of dryland salinity resulting from past land clearing practices was modest, the Salinity Audit showed that the impact of dryland salinity throughout the Basin was significant. It predicted that, within 30 years, groundwater mobilisation fro the Murray Mallee will become the major source of increased salinity in the river valley in South Australia. Specifically, the Salinity

Audit has predicted that salinity at Morgan will increase by 95 EC units in 2015 if there is no further intervention. Of that increase, it is predicted that South Australia will contribute a significant proportion, resulting from irrigation practices and diffuse dryland sources (groundwater mobilisation from the Murray Mallee).

4.2 Governance arrangements

4.2.1 Policy frameworks and other institutional arrangements for ICM

4.2.1.1 History and political drivers

The South Australian Government does not have a formalised structure or recognised process for Integrated Catchment Management (ICM). There is no specific catchment legislation and no statutory authority or agency with a mandate to integrate natural resource management activities within the state or within catchments. Nor are there any catchment management guidelines or policies per se in the State. Besides the South Australian portion of the Murray-Darling Basin, only the catchments in the Adelaide Hills consider resource management issues on a catchment basis.

Planning and management of natural resources in South Australia however is founded primarily on a regional or district basis, normally with separate plans for each resource. Natural resource policy has focused predominantly on the management of water resources and land/soils at a regional level with the overall approach being described as Integrated Natural Resource Management (Rolls 1997; Dore 1999). Rolls (1997) speculated that the reason for this included:

- The prevalence of groundwaters as the dominant source of water in much of the State;
- The lack of obvious definition of catchment boundaries due to the generally flat topography of much of South Australia;
- The lack of appreciation of rivers as continuing features of the landscape due to the aridity of much of the State; and
- A large portion of several of the State's largest catchments lying outside the State (eg. Murray, Lake Eyre).

4.2.1.2 Legislative basis

Catchment management in SA is defined as "the management of water resources in an integrated way to achieve economic, environmental and social goals". There are currently three pieces of South Australian legislation which are critical to catchment management, namely the *Water Resources Act 1997*, *Development Act 1993* and the *Environment Protection Act 1993*.

The *Water Resources Act 1997* is the principal legal framework for policy and planning that can address integrated management of water bodies and associated ecosystems. Responsibility resides with the Minister for Water Resources and administration and enforcement of the Act is carried out by the Department of Water Resources. Water plans, particularly catchment water management plans are the key vehicle for integrating and improving the management of these systems. The plans developed under this legislation have legal status. They also provide the policy direction for the region or catchment and form the basis of its works programs and budgets. The focus of the Act is the management of water quantities and flows, although it recognises the need to manage water quality and seeks to protect water-dependent ecosystems and their biodiversity (Mary Maher, pers. comm).

The administration of the *Water Resources Act 1997* is primarily through catchment-based structures. Key features of the Act are (DNR 2000b: 10):

- Devolution of water resources management responsibilities to local communities, primarily through the establishment of CWMBs and water resources planning committees in any area of the State;
- A more holistic and ecologically sustainable approach to water resources management, including provision for water for the environment;
- Rights to take water from a natural source have replaced common law and the Act separates water property rights from land ownership and allows water property rights to be transferred – that is, water resources are legally separate from land and are the personal property of the owner.
- A mechanism by which the Minister can prescribe water resources where the level of development and regional significance warrant a higher level of management than other areas of the State;
- Management of water resources through a hierarchy of catchment water management plans, water allocation plans and local water management plans prepared and regularly reviewed through a comprehensive process of community involvement; and
- Better integration between water resources management and the management of other natural resources through a number of important strategic and operational linkages with other pieces of legislation relating to planning and natural resource management, including the *Development Act 1993, Environment Protection Act 1993, Native Vegetation Act 1991, Soil Conservation and Landcare Act 1989, Local government Act 1999, Pastoral Land Management and Conservation Act 1989* and the *Soil Conservation and Land Care Act 1989.*

The *Water Resources Act 1997* establishes a hierarchical system of water plans as the major tool to be used in achieving its objective. The Act assigns responsibility for those plans to various bodies with Catchment Water Management Boards having the principal role. More specifically, water plans are defined in the Act to be:

- The State Water Plan (SWP)
- The SWP outlines the policy framework for water resource management and use throughout the state. It sets out the Government's policies and actions for achieving the object of the *Water Resources Act 1997*. All water plans produced under the *Water Resources Act 1997* must be consistent with the State Water Plan. The Plan also provides information on the condition and use of South Australia's water resources.
- Catchment Water Management Plans (CWMPs)
- CWMPs are undertaken by Catchment Management Water Boards (CMWBs) which are being established through South Australia. They are discussed further in Section 2.1.4.
- Water Allocation Plans (WAPs) and trading rights
- These have been implemented to establish a system for the use and management of the state's water resources. They are carried out either through CWMBs or Water Resources Planning Committees.
- Local Water Management Plans (LWMPs)

LWMPs are carried out by local councils for water resources found within their area.

Although key institutional and operating arrangements are stipulated in this legislation, it is not a fully integrated approach. However, a recent review of impediments to best practice in the Onkaparinga Catchment (Hatton MacDonald, D. pers. comm.) notes that the *Water Resources Act 1997* has removed many of the impediments to best practice water management through the separation of title to land and water and it has also put more power into the hands of the community to manage the water resources within a catchment. The Minister is able to search for people with a wide variety of experience, skills and expertise to come together as a CWMB. The Board is charged with putting together a CWMP and WAPs.

These Plans are put together through community consultation and expertise of consultants, Board staff and Board members. The Plans then proceed to the Minister of Water Resources and through a process of review and revision, become statutory documents. The fact that the Plans become statutory documents gives the process teeth and meaning (Hatton MacDonald, D. pers. comm.). Importantly the Plans are not simply an expression of community aspirations.

Land development and land use is covered by the *Development Act 1993* through the Minister of Transport and Planning. The *Development Act 1993* establishes a system for "development" planning and assessment. The Act defines development to include new building work and changes of land use (Moseley and Mavrinac 2001). Approval is required from the relevant planning authority – usually the local Council – before development can be undertaken. Land use can have an immediate impact on ground and surface water or have slow moving effects over time and for this reason, Regional Planning Strategies and Development Plans of Councils often contain a number of requirements to protect water resources of the area. However, Councils are concerned with a variety of social, historical and cultural issues including economic development, which may override the concern for one resource (Hatton MacDonald, D. pers. comm.).

The *Water Resources Act 1997* gives capacity to CWMBs to amend Development Plans. The Boards are the only entities other than local Councils and the Minister administering the *Development Act 1993* that have capacity to initiate amendments to Development Plans. The *Water Resources Act 1997* therefore gives Catchment Boards an important, direct and potentially very effective means to ensure that controls over new land uses and buildings are aligned with catchment management strategies (Moseley and Mavrinac 2001: 259).

In practice, however, there are a number of challenges facing managers and planners in achieving an integrated approach to water resource management, including (Moseley and Mavrinac 2001; Hatton MacDonald, D. pers. comm):

(i) CWMBs have been active in many parts of the state in implementing comprehensive and community-based programs in water resource planning, management, regulation and infrastructure investment. However there have so far been no proposals to amend Development Plan policies as part of either a Catchment Water Management Plan or a Water Allocation Plan. This means there is a risk that policies and controls being established in CWMPs and WAPs will not be supported by, or aligned with, Development Plan policies. A recent review found that the key cause of Board reluctance to amend Development Plans lay in the cumbersome and complex nature of the process – in particular an administrative requirement that Boards give a full and detailed description of proposed Development Plan amendments at the outset of the Water Plan process, before much of the investigations, research and consultation had been undertaken.

(ii) In some cases, local Councils have sought changes to Development Plans based on their understanding of water resource management goals, or in advance of, the required water resource management framework. Such changes however are effective only when supported by a rigorous information base to justify the changes, such as specific and detailed information on water resources provided by a CWMP or a WAP.

(iii) Development Plans do not generally protect or enhance water quality because of the incremental nature of planning approvals. Salinity may be increasing with urbanisation where irrigation is used extensively on landscaping.

(iv) The protection measures of the *Water Resources Act* and the *Development Act* should ideally protect the quality and quantity of water available. However the speed of economic change may place the resource under pressure.

Finally the *Environment Protection Act 1993* allows for the Environment Protection Authority (EPA) to issue protection policies on various environmental quality issues. Recently the EPA has issued a draft policy statement on water quality, which focuses on protecting water quality and controlling and minimising waste discharge.

Draft Integrated Natural Resource Management Bill

When the State Government commenced preparation of the Water Resources Bill in late 1995, the general expectation was that the final Act would provide for true integrated catchment management – NRM within a catchment framework. The original drafting of the Bill reflected that intent. However following considerable pressure on the State Government through its rural electorates, the Bill was 'watered down' to focus on water management rather than NRM (Mary Maher, pers. comm.).

Now that the Commonwealth's National Action Plan on Salinity and Water Quality (NAPSWQ) has placed pressure on the States to develop NRM frameworks, the SA Government released for Public Comment in February 2001 a *Draft Integrated Natural Resource Management Bill* that proposes new overarching legislation to facilitate a consistent and efficient legal framework to integrate natural resource management in South Australia. It is said to be consistent with the State Government's policy of "eliminating duplication and maintaining administration and planning in natural resource management". The draft is an exposure draft and is undergoing a process of wide consultation. As a result, it is likely that it could be changed considerably.

The Bill proposes a Ministerial Board and a network of regional Integrated Natural Resource Management Groups to coordinate approaches to managing the State's natural resources. The proposed Act is not intended to immediately replace any existing legislation; rather it seeks to strengthen community involvement in regional natural resource management decision-making and to improve administrative arrangements by providing a common set of policies and processes across all natural resource management legislation.

Although the basic premise of the proposed legislation, to enhance coordination of all aspects of NRM is highly desirably, the legislation presents a number of difficulties. For example, as an interim measure, the boundaries used for Natural Heritage Trust administration will be used for regional boundaries, but these do not align with existing Water Catchment board areas. The INRM groups could end up serving as yet another layer of government or bureaucracy (Hatton MacDonald, pers. comm.). The CWMBs, the State Water Plan, Council Development Plans, Soil Conservation Boards, all have their own planning cycles and it is difficult to get these processes to line up. There is considerable potential for constraining the process to the point where it is difficult to make decisions.

Following a comprehensive public consultation process, a review of the consultation draft of the Bill has been undertaken to reflect the community response. Parliamentary Counsel has completed a second draft of the INRM Bill and it has been revised further following comments from the NRC and relevant Departmental heads. The second draft of the INRM Bill is expected to be introduced to Parliament before the close of the Autumn session 2001. Nevertheless an administrative structure has been put in place and there are interim INRM groups already operating in the Lower Murray, South-East and Mount Lofty Ranges National Action Plan regions.

Parliamentary Inquiry on the River Murray

In November 1999, the House of Assembly of the South Australian Parliament appointed a *Select Committee on the River Murray* to investigate and make recommendations on various issues concerning the River Murray. The Committee tabled an Interim Report in July 2000

and a Final Report in July 2001. The reports recognise that although many significant changes have been achieved, much needs to be done. The Final Report identifies the new Integrated Catchment Management (ICM) framework, developed by the Murray-Darling Ministerial Council as an important step along the path of change. In particular, it found as very encouraging the commitment in the ICM framework to establish targets for catchment health. The Committee has made 96 recommendations that are relevant at the State and Basin-wide level. In formulating its recommendations, the Select Committee identified a number of underlying themes (Parliament of South Australia 2001: 3):

- *Adaptive management*: The current approach to the use and management of the Basin's natural resources is not sustainable. Resource management must undergo fundamental change, and this can only be based on the best available scientific knowledge. As new information becomes available, there will be a need for further change.
- *Commitment*: There are no quick fixes. Improving the health of the Murray-Darling system an moving towards sustainable development will require a long term commitment by communities and governments.
- *Partnerships*: No one individual State Government, industry group, catchment organisation, research body or conservation group has the necessary skills, expertise or resources to improve the health of the Murray-Darling system. The forging of strong, transparent and accountable partnerships at all levels and across all jurisdictions is essential.
- *Investment*: Current levels of investment are inadequate to combat the scale of the natural resource and environmental degradation impacting on the health of the Murray-Darling Basin.

Other key findings on ICM in the SA Murray Darling Basin by the Select Committee include (Parliament of South Australia 2001: 76):

- The adoption of an integrated approach to the management of the natural and environmental resources of the South Australian Murray Darling is pivotal to delivering the ecological sustainable development of the region.
- The Committee believes that South Australia's current legislative framework must be refined to ensure that we have the mechanisms to efficiently and effectively deliver integrated catchment management within the South Australian Murray-Darling Basin.
- The roles and responsibilities of the various natural resource statutory bodies and organisations are either poorly defined or not clearly understood.
- Currently, there is no forum that fosters working partnerships between catchment management, land use planning and economic development organisations in the South Australian Murray-Darling Basin.
- A regional catchment management organisation with a charter to promote and co-ordinate effective planning and management for the sustainable use of the water, land and other environmental resources of South Australia's Murray-Darling Basin is required.

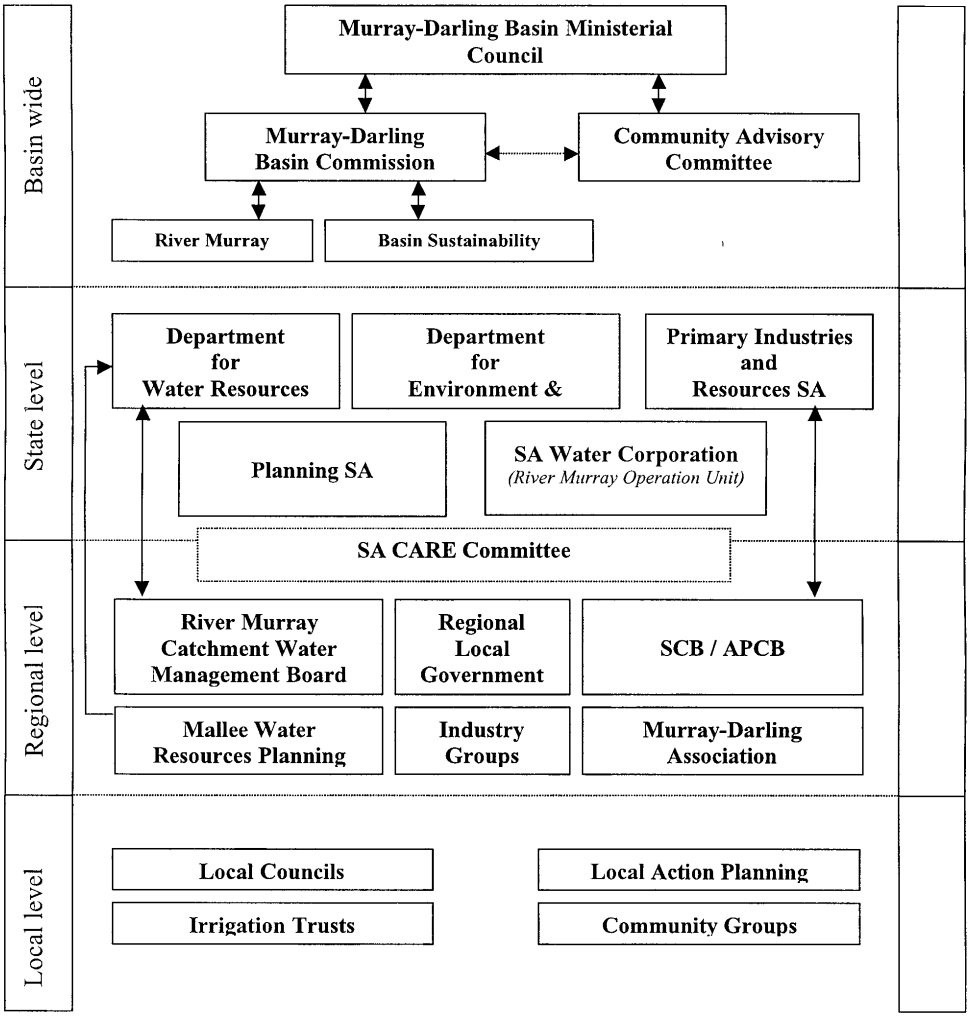
In addition, while the Select Committee supported the underlying intent of the *Draft Integrated Natural Resource Management Bill 2001*, "the mechanisms by which the Bill seeks to establish its objectives are not supported. In particular, the Committee believes the proposal to establish Integrated Natural Resource Management Groups at the regional level will lead to duplication, wasted resources and further confusion in the community" (Parliament of South Australia 2001: 40).

4.2.1.3 State-wide structures for ICM/NRM

Regional management of natural resources in South Australia involves a large number of statutory and non-statutory organisations including government, industry and community

groups all of which operate at various levels – State, regional and local. For example, Figure 1 provides a schematic diagram of the various organisations involved in natural resource management activities in the South Australian portion of the Murray-Darling Basin at the Basin, state, regional and local level.

Figure 1 Schematic diagram of the organisations involved in natural resource management in the South Australian Murray-Darling Basin. (Source: Parliament of South Australia. *Select Committee on the Murray River. Final Report. July 2001*.)



The use, allocation and management of the natural resources of South Australia are controlled by a number of pieces of legislation and responsibilities for their enactment are spread across a number of agencies:

Department of Water Resources: The Department of Water Resources was established in February 2000 as the lead agency for the policy management and administration of the State's water resources under the *Water Resources Act 1997*. Important functions include water allocation and licensing, compilation and maintenance of information on the water resources of the State and continuing implementation of the Council of Australian Governments (COAG) Water Reforms. While catchment management falls directly under most of the 10

Acts of Parliament administered by the Department for Water Resources, it is also affected by many of the 24 Acts administered by the Department for Environment and Heritage. In addition, the Department has a significant focus on securing the supply of good quality water for South Australia from the Murray Darling system.

Department for Environment and Heritage (DEH): DEH is responsible for the administration of water resource management obligations under the *Environment Protection Act 1993*. The obligations are primarily concerned with the protection of water quality and the control and minimisation of waste discharges. DEH is also responsible for the administration of the *Native Vegetation Act 1991* and the *National Parks and Wildlife Act 1972*.

Planning SA: Planning SA is responsible for the administration of the *Development Act 1993*. Under the Act, Planning SA prepares and maintains the Planning Strategy that provides strategic directions for planning and development in South Australia. The *Development Act* also requires that each local council prepare a Development Plan for its area, against which development proposals are assessed. The management of land through landuse planning and development controls is a critical factor in good catchment management (Parliament of South Australia 2000).

Primary Industries and Resources (PIRSA): PIRSA is responsible for agriculture, forestry, fisheries, primary production and Landcare throughout SA with a focus on fostering sustainable economic development. PIRSA seeks to achieve this by providing irrigation and dryland farmers with advice on good land and water management practices. PIRSA also provides support to Landcare and Soil Conservation Boards. Its major legislative instrument is the *Soil Conservation and Landcare Act 1989.* PIRSA is also responsible for the administration of inland and marine fisheries under the *Fisheries Act 1982*.

SA Water Corporation: SAWC is responsible for the provision of public water supplies and the collection, treatment and disposal of sewerage.

SA CARE Committee: The SA CARE (Community Action for the Rural Environment) Program is a partnership between the local community, and State and Federal Governments. It began in 1992 with the development of regional plans by the River Murray Water Resources Committee and the Soil Conservation Boards within the region. Since then eleven Local Action Planning (LAP) groups have formed, which are working towards converting the regional plans into "On Ground Works" that will address the big issues facing the SA part of the Murray Darling Basin. LAPs provide a vital link between the River Murray Catchment Water Management Board and the catchment community. Eleven LAP groups are funded by the River Murray CWMB and the South Australian and Commonwealth Governments to develop and implement on-ground action plans in communities stretching from the South Australian - Victoria border to the Coorong.

In addition there are several key initiatives for INRM at the State level including the Natural Resources Council, the Water Resources Council and the Salinity Council.

Natural Resources Council (NRC). At the State level, the Natural Resources Council (NRC) was established in 1992 as a peak advisory body on the sustainable use and management of South Australia's natural resources. As an overarching non-statutory body, the NRC seeks to coordinate and link the NRM activities of State agencies and regional organisations such as Soil Conservation Boards (SCBs) and Catchment Water Management Boards (CWMBs).

The NCR comprises chief executives of agencies involved in natural resource management, chairpersons of natural resources boards and representatives of local government and the community. The Council's mission is to "advise, encourage and warn the government on

strategic issues relating to the management of natural resources in SA based on the principals of ecological sustainable development". Rolls (1997) notes that the Council has taken an active approach to promoting integrated natural resource management (INRM). However, it "lacks statutory strength and must rely on cooperation to achieve change". The AACM review of ICM also noted "an apparent lack of political will to support the role and activities of the NRC to secure the cooperation of all agencies and their Boards and Councils.

Water Resources Council. The Water Resources Council is a high level forum with Ministerial advisory powers. The Council comprises a Chairperson with relevant water resource management skills and knowledge. Other Board members must be nominated from local government, Conservation Council and Farmer's Federation and one must be a member of a CWMB. Members are selected out of a nomination process by peak bodies. The Council ahs no direct statutory power and no formal link to regional programs of the range of agencies involved in river management-related activities (Mary Maher, pers. comm.). The charter of the Council is mainly concerned with reviewing progress on the State Water Plan and its implementation through catchment-based plans.

State Salinity Committee. A whole-of-government approach to managing salinity problem has been adopted with the formation in January 2000 of the State Salinity Committee consisting of seven agency heads. This Committee has overseen:

- Drafting of the State Salinity Statement *Directions for Managing Salinity in South Australia* (2000), to describe the challenge facing SA in effectively managing salinity.
- Preparation of the *South Australian River Murray Salinity Strategy 2001-2015* (Government of South Australia 2001) by the Department of Water Resources.
- Preparation of the draft *State Dryland Salinity Strategy South Australia* (2000) by the Primary Industries and Resources SA (PIRSA) for the Soil Conservation Council of South Australia.

The State Salinity Statement is an umbrella document for the more specific State salinity strategies.

Soil Conservation Council. The Soil Conservation Council is established under the *Soil Conservation and Landcare Act 1989* and appointed by the Governor. The Council consists of 12 members who are appointed based on prescribed expertise. The functions of the Council are specified in Section 19 of the Act but in general terms they advise the Minister on the administration of this Act and the policies that should govern that administration.

4.2.1.4 Functions, roles and responsibilities of catchment body

Water resources management and planning has been subject to significant institutional changes within South Australia over the past few years. There has also been a growing interest in the community to become involved in the planning and management of water resources. The State Government has thus established community based catchment water management boards and water resources planning committees, which work with Local Action Planning Groups (LAPGs) to achieve on-ground action.

Catchment Water Management Boards (CWMBs)

Responsibility for determining water requirements lies with Catchment Water Management Boards (CWMBs) or Water Resources Planning Committees. Eight CWMBs have been established in South Australia since 1995 covering a large section of the State, including the Northern Adelaide and Barossa regions, Torrens and Patawalonga catchments, River Murray

catchment, Arid areas and the Eyre Peninsula. The River Murray Catchment Water Management Board has recently released its draft catchment plan for public consultation.

The boards were created in response to community demand for a greater level of involvement in the management of water resources. The Boards have community, agency and scientific representation and are entrusted to develop and implement a Catchment Water Management Plan (CWMP) for their area. Community members are appointed by the State Government from relevant catchments on the basis of skills (not representation) by the Minister for Water resources.

CWMBs have wide ranging responsibilities and powers under the *Water Resources Act 1997* including the ability to raise funds through a catchment levy. CWMBs are semi-autonomous reporting to the Minister for Water Resources. Boards must work to achieve the object of the Act including:

- Recognising the need to protect water resources and associate ecosystems from degradation;
- Restoring those resources where they have been degraded;
- Maintenance and improvement in water quality;
- Identifying opportunities for developing alternative sources of water, such as reclaimed effluent and stormwater;
- Encouraging members of the community to take an active part in water resource planning and management; and
- Promoting public awareness of the importance of river water and the sustainable use of these resources.

In South Australia, a CWMB has the powers to set and collect a levy to fund its activities and it also has the power to ask the Minister to amend a Local Government plan for them. A joint submission to the House of Representatives Standing Committee on Environment and Heritage's inquiry into catchment management from the Patawalonga CWMB and the Torrens CWMB noted that:

> The Boards have a high degree of autonomy and an impressive array of powers through recent legislation, The Water Resources Act, 1997. They have an independent and purpose-built source of funds from a catchment levy. The Boards are accountable and accessible to both government and the community through a very open and transparent management structure.

Local Action Planning Groups (LAPGs).

Within the South Australian portion of the Murray Darling Basin 11 Local Action Planning Groups (LAPGs) have been established as a part of the Murray Darling Bain Initiative. LAPS are incorporated bodies under the *Associations Incorporation Act 1985*. Generally speaking most LAPS appoint a management committee according to their constitution. Elections occur at AGMs and the membership varies. Some constitutions prescribe special membership arrangements (eg Local Government) but in general terms the mix of membership picks up a broad cross sectoral representation of community, industry, government etc.

Local Action Planning is designed to enable communities and governments to work in partnership to address a variety of natural resource issues within the Murray Darling Basin. The LAPGs provide advice to the National Heritage Trust Board on priority actions for funding in their local area. The Select Committee on the River Murray notes that Local Action Planning:

> … represents the only truly integrated catchment management framework operating within the South Australian Murray-Darling Basin. Local Action Plans, prepared by these groups provide the framework for applying an integrated approach to the management of

the environment and natural resource management issues at a local scale. Collectively, these plans outline a range of actions for addressing land degradation across the entire South Australian Murray-Darling Basin.

LAPs are the key delivery mechanisms for implementing natural resource and environmental management programs. A recent review (EFECT Pty Ltd 2000) of 11 LAPs in the South Australian Murray Darling Basin region revealed comprehensive planning processes in each LAP region to address priority NRM issues. However the review found that several of the LAPs are yet to make the transition from planning to on ground works. Whilst all LAPs had undertaken extensive on ground works during the process of plan development, few have progressed into large works programs. The "Coorong and Districts LAP is a notable exception which has not only successfully made the transition from planning to on ground works, but has integrated the two into a near seamless activity" (EFECT Pty Ltd 2000).

Importantly, the Select Committee's key findings regarding Local Action Planning Groups were:

- Local Action Planning Groups (LAPs) are the only truly integrated catchment management organisations operating in the South Australian Murray-Darling Basin.
- Local Action Planning Groups are a key delivery mechanism for natural resource and environmental management programs in the region.
- Local Action Planning Groups are powerful 'champions for change'. However, the current level of support (administrative, technical and professional) and existing funding arrangements are two major issues that threatened to undermine the ability of Local Action Planning Groups to achieve significant on-ground strategic outcomes.
- The key role of Local Action Planning Groups in the delivery and management of natural resource management programs has yet to be recognised by government agencies.

4.2.1.5 Role of and level of involvement of local government

Traditionally in South Australia, explicit attention to natural resource issues has been separated from the State and local governments' statutory planning processes (Dore 1999: 60). This has changed since the passage of the *Water Resources Act* 1997. Local government now plays a significant role in water resources management (Government of South Australia 2000c: 17). Local government is empowered under the *Local Government Act 1999* to administer various aspects of land use planning and development controls under the *Development Act 1993*. Under the *Development Act*, each Local Council has to prepare a Development Plan that is consistent with the objects of the Act. These Plans provide the policy framework for decision-making on development applications. Local Councils through the administration of their various Development Plan's can potentially have a major influence on controlling activities that affect natural resources and in turn impact on the health of the catchment and its water resources. For example, where a development plan seeks to promote the conservation of a watercourse adjacent to a future residential area, councils may decide to direct their public works programs toward the improvement of the watercourse for the benefit of the residential area.

In the preparation of Catchment Water Management Plans (CWMPs) specific requirements however are set down for consultation with local governments in the catchment planning process. These requirements cover a range of matters including (Government of South Australia 2000c):

- Obtaining consent of all relevant Councils to the establishment of a Board for their municipalities

- Including local government in all management structures
- Obtaining Councils' comments on the statement of proposal for a CWMP
- Obtaining Councils' comments in the preparation and Ministerial adoption of the CWMP
- Informing the Minister administering the *Development Act 1993* and relevant Councils about proposed amendments to Councils' Development Plans as a result of CWMP or WAP recommendations; obtaining that Minister's approval for amendments
- Obtaining Councils' consent to a special purpose levy where Councils constitute one of the special parties in the levying process.

Importantly, the *Water Resources Act* 1997 gives power to CWMBs to recommend amendments to any Development Plans of local government as part of the catchment planning process. No amendments have actually occurred as a result of CWMPs to-date (Moseley and Mavrinac 2001: 260). The capacity for the catchment body to require amendments for the purpose of achieving consistency between catchment and local planning schemes is a first for catchment management in Australia. Based on experience with the Onkaparinga Catchment Water Management Board's (OCWMB) planning process, Bellette (2001) argues that:

> As the new kid on the block, it is not politically, or (questionably) achievable for a new Board to enter the region without any plan or endorsed strategy of its own, and attempt to change well established local government's development plans. Rather, the OCWMB has been working with its five constituent councils; to amend each of their development plans via a whole of catchment Plan Amendment Report [PAR] under the Development Act, under which Local Government undertake Plan Amendment Reports. A steering committee comprising senior planners of each council, planner representatives from Planning SA, the Water Resources Department and Board members, has been formed which has oversight of the catchment PAR that is funded and coordinated by the Board on the behalf of councils.
>
> …. The catchment PAR will encompass issues such as land capability, appropriate zoning, land management practices, requirements for water sensitive design for new developments and aquifer storage recovery of treated wastewater and stormwater. Thereby facilitating future development, which is water resource friendly and minimise conflicts of the future.

In addition, the ability to manage water resources within their area is provided to those councils who wish to do so, through the preparation of a local water management plan under the *Water Resources Act 1997*. While this role is not mandated under the *Water Resources Act 1997*, the development of such plans is particularly important in areas where catchment water management boards and water resource planning committees do not exist. However, to-date there have been no amended local government development plans, although there has been interest from councils outside catchment water management board areas in developing local water management plans (Moseley and Mavrinac 2001: 260).

The South Australian Parliament's *Select Committee on the Murray River* recognised the important role local government has to play in achieving sustainable use and management of the Murray Darling Basin's resources. However, the Committee was concerned by "evidence that local government, with a couple of notable exceptions, is not a visible active participant in the management of the Basin's resources" (Parliament of South Australia 2001: 42).

4.2.1.6 Degree of whole of government coordination

At the state-level, the governing bodies with an interest in natural resource management in South Australia include the three layers of government (federal, state and local) and the CWMBs. These four layers are interconnected largely through fiscal arrangements but also regulatory authority (Hatton MacDonald, Pers. Comm.). However coordination on NRM

across agencies has been limited to date. The AACM review of ICM noted that "South Australia has enacted modern legislation that provides for comprehensive management of individual natural resources with no positive requirement for coordination" (AACM 1995a: 50).

In principle, the integration of plans – water quality, development, and multiple plans under the *Water Resources Act 1997* – is a key part of effective integrated catchment management. The CWMP must, as far as is practicable, be consistent with plans under the *Coastal Protection Act*, the *Development Act*, the *Environment Protection Act*, the *National Parks and Wildlife Act*, and the *Soil Conservation and Land Care Act*, and with guidelines relating to the management of native vegetation adopted by the Native Vegetation Council under the *Native Vegetation Act*. However, the focus is on 'linking' different plans rather than integration of management of an area (Nevill *et al*. 2001: 99).

The catchment levying process is tightly linked to the catchment management strategy, which in turn is closely tied into the tiered planning framework (outlined previously in Section 2.1.2). Levies then raise money for specific works and can target specific groups eg. water uses or special interest groups. This element of the Water Resources Act together with the legislative framework are seen as the two fundamental elements contributing to success in water resource management in SA (Bellette 2001). However, Farrier (2001) points out that although catchment management plans must, "as far as practicable", be consistent with other plans, including land use plans and native vegetation guidelines, "the catchment plan is relegated to the position of last kid on the block, rather than setting the parameters within which land use plans must operate".

The *Select Committee on the Murray River* highlighted poor coordination in agencies, action groups and committees involved in natural resource management (Parliament of South Australia 2001: 41):

> There are many organisations involved to varying degrees in the management and use of the natural resources of the South Australian portion of the Murray Darling Basin. Evidence presented to the Committee has highlighted the high level of bureaucracy within the South Australian Murray-Darling Basin … The Committee has heard that the roles and responsibilities of various organisations are unclear and that there is widespread confusion amongst groups and the wider community.
>
> The Committee is concerned that under current arrangements the South Australian Murray-Darling Basin region does not have a single organisation that has a charter to provide a regional focus for the delivery of integrated catchment management.
>
> This situation needs to be resolved if we are to maximise the environmental and natural resource management gains to be derived from major policy announcements, such as the Murray Darling Basin Ministerial Council's Integrated Catchment Management Policy statement and the Prime Minister's National Action Plan for Salinity and Water Quality.
>
> The Committee acknowledges the existence of the Interim Integrated Natural Resources Management Group within the Basin. However it believes that formal establishment of this Interim Group will only add another layer to what is an already overly bureaucratic resource management framework. Action needs to be taken to simplify, wherever possible, the current bureaucracy associated with natural resource management planning and the delivery of environmental and natural resource management programs.

However, more recently a whole-of-government approach to managing the growing salinity problem in South Australia has been adopted with the formation of the State Salinity Committee, consisting of seven agency heads. This body has overseen the formulation of the overarching policy statement *Directions for Managing Salinity in South Australia* and the more specific *South Australian River Murray Salinity Strategy* and the *State Dryland Salinity Strategy*.

4.2.1.7 Funding/resourcing capacity

Although relying heavily on programmatic funding from federal and state agencies (eg. NHT, NAPSWQ), NRM activities in South Australia are in practice funded jointly by the community and the Local, State and Commonwealth Governments. For example, the Mount Lofty Ranges program activities (see www.mlrcp.sa.gov.au) are funded jointly by the community and the Local, State and Commonwealth Governments. During 1999/00 this amounted to almost $5 million. The Commonwealth contribution is provided as a grant from the Natural Heritage Trust through the National Landcare, Rivercare and Bushcare Programs. In the 1999/00 financial year the NHT provided $1.95 million. The combined contributions from the community and the State and local Governments were $2.79 million. The community contribution is through labour and other in-kind support and through matching funding for all on-ground works projects. The State and Local Government contribution is made primarily through technical and administrative support. State Government also pays the full cost of operating the Mount Lofty Ranges Catchment Centre at Mount Barker.

Catchment Levy

Importantly, in South Australia, a CWMB is able to charge a levy based on requirements for future infrastructure and resource management. Most irrigation schemes charge fees based on operating costs of delivering the irrigation water. The importance of the use of the levy is noted by Bellette (2001: 223):

> … the levy differs from traditional funding bases in that funding is directly provided to a management strategy based on regional policy (the catchment plan itself). Furthermore, that this regional policy has a foundation in national and state policy, via the policy hierarchy; the State Water Plan (SA Government 2000), and the COAG water reform (Commonwealth Government 1994). … The levy does serve another purpose – there is nothing like a levy to raise community awareness of an issue. Further that the income sourced from the levy remains in the catchment where it is collected engenders a sense of ownership and interest in catchment management amongst the catchment community.
>
> …The levy serves to:
> - facilitate the sharing of resources and value add to existing projects,
> - facilitate new projects on a partnership basis that otherwise would not have had the means to come into fruition, and
> - provide seed funding, and act as leverage to secure external funding, from the private sector or federal government – in this case, bringing dollars into the State.

Nevertheless, the Final Report of the South Australian House of Select Committee on the Murray River expressed concern at the 'high level of uncertainty regarding funding for natural resource management programs (Parliament of South Australia 2001: 81), as well as the lack of support and funding being provided to the LAPs (Parliament of South Australia 2001: 42):

> What has become clear to the Committee is that these Groups are not receiving the necessary level of support or recognition that they deserve or require from State agencies or The River Murray Catchment Water Management Board.
>
> Key issues of concern to these groups are security of funding for on-ground works, operational funding support, employment arrangements for project officers working with these groups and access to technical and professional expertise within the State agencies.
>
> The Committee believes the ongoing operation of these groups is essential. A base level of operating funding to cover administrative costs needs to be made available to these Groups.
>
> Evidence has highlighted that the project officers supporting these groups are often the people that enable LAPs to function. A number of Groups have identified that the

> employment arrangements under one or two year contracts often result in officers looking for alternative employment arrangements with improved job security. The consequence of this is that when a change in project officer occurs, groups lose momentum with their energies being diverted away from achieving on-ground action towards obtaining professional and technical skills to drive their initiatives. Groups feel they are continuously having to 'recreate the wheel' which is compromising their ability to deliver tangible results on the ground.

In addition, the Select Committee concurred with the findings of the House of Representatives Standing Committee on Environment and Heritage report on an inquiry into ICM that, at present there is insufficient funding available from the public and private sector to address the scale of degradation in the Australian landscape (Parliament of South Australia 2001: 73).

4.2.1.8 Monitoring and review mechanisms

The basic framework for an adaptive approach to water resource management is relatively strong in South Australia. The *Water Resources Act 1997*, combined with two Government initiatives, the State Water Monitoring Review and the Stressed Resources Assessment Review provides the legal, institutional and technical framework for the application of adaptive management of South Australia's water resources (DWR 200b: 26). The *Water Resources Act 1997* allows allocations to be reduced if the ecosystem is damaged. In addition, Catchment Water Management Boards must monitor and improve quantity and quality of water and the health of aquatic ecosystems. CWMBs report direct to the Minister and to constituent local government councils. The adaptive management provisions in these instances are resource-focussed. (Mary Maher, pers. comm.). However reductions in water allocations can only be undertaken by the Minister acting on the basis of a new water allocation plan (reviewed every five years) or acting on an emergency basis (e.g. over allocation) (Mary Maher, pers. comm.).

At the State level, the performance evaluation framework for the *State Water Plan 2000* is designed to measure change by evaluating the performance of selected indicators against targets or trends over time and to report back to the Government and the community about how effectively the policies and actions contained in the Plan are being put into practice. There are two components to the evaluation of performance:

1. Evaluating progress in implementing the specified actions (evaluating *State Water Plan 2000* outputs);
2. Evaluating the effectiveness of the policies against their desired outcomes.

The State Water Monitoring Subcommittee will coordinate the development of the performance monitoring and reporting systems, based on the framework developed in the *State Water Plan 2000*.

At the regional/catchment level, CWMB operations have an open and accountable planning and decision-making process, funding source and expenditure. A joint submission to the House of Representatives Standing Committee on Environment and Heritage's inquiry into catchment management from the Patawalonga CWMB and the Torrens CWMB noted that:

> One of the strengths of the South Australian catchment water management program is the ability to have Boards active in decision-making and being accountable to their catchment communities. The Boards meet monthly in public where all agenda material, including financial information, is made available to any interested member of the public. To date, while the public galleries have not been large, on key issues a range of interested people, including media reporters and local members of Parliament, have attended Board meetings as observers.

In addition, the *Directions for Managing Salinity in South Australia* recognises the importance of accountability and individual responsibilities (Government of South Australia 2000a: 15):

> Responsibility for its [salinity] management lies with all tiers of government, primary industries that use the land and water resources, interest groups, and landholders and householders. A strong, accountable partnership of all stakeholders that recognises individual responsibilities is needed.

It also identifies one of the six key principles for salinity management as (Government of South Australia 2000a: 3):

> Landholders should be accountable for any salinity impacts that may arise from future land management change.

While the *Draft State Dryland Salinity Strategy* identifies as key principles that landholders have a duty of care, responsibility should be shared across regions and generations but cost sharing should take into account all stakeholders. It notes (Government of South Australia 2000b: 24):

> At the local level, several local action planning groups have developed cost-sharing principles for on-ground works. The Coorong District Local Action Plan has been the template for many of these groups and demonstrates the efficiencies from collaboration between community groups. The details vary from group to group, but the basic principle is landholders are compensated in proportion to the public benefit to be gained from the management activity undertaken. Where there is considerable private benefit (either because the outcome is local or profitable) the incentive offered is considerably less.

4.2.2 Participatory and partnership processes

4.2.2.1 Representational approach/processes/mechanisms

The *Interim Report* of the South Australian House of Select Committee on the Murray River identified:

> … there is considerable opportunity for community involvement in the management of the Basin's resources at all levels. This involvement was provided through the Community Advisory Committee (CAC) at the Basin wide level, the River Murray Catchment Water Management Board and Soil Conservation Boards at a regional level, Local Action planning Groups, Landcare groups and Environment Groups at a local and property level. Furthermore, programs such as the Murray-Darling Basin Natural Resources Management Strategy, National Landcare Program and the Murray Darling 2001 Program have provided funding for on ground activities by the Basin community since the early 1990s.

Catchment management involving community input has been underway for many years in South Australia through Catchment Management Water Boards (CMWBs) and Water Resources Planning Committees. CWMBs are designed under the *Water Act* 1997 to be skills based and to prepare catchment plans and water allocation plans. They have a non-government chairperson plus five to nine members based on knowledge and expertise in community affairs in the catchment, knowledge and expertise in water resources (development and use and/or conservation of ecosystems and/or local government members) and other members covering regional economic development and public administration. The Minister nominates members of these structures having regard to advice from the Water Resources Council and to the requirements for a broad spectrum of knowledge and experience areas. It has been suggested that (Hatton McDonald and Young 2001: 68):

> A skills based board does not guarantee that conflicts will not arise. Instead the catchment becomes a forum for constructive discussion among various interests in the catchment.

> The various players must negotiate through contentious issues before a water allocation plan can be adopted.

In addition to specific representational requirements, the *Water Resources Act 1997* stipulates that the preparation of plans by these responsible bodies must be through an exhaustive process of consultation with the residents of the catchment (ie. key agencies and the public). Bellette (2001: 222) notes that:

> The insightful execution of community-inclusive consultation process outlined in the Act is necessary to attain the social acceptance required for effective implementation of the resultant plan. To this end, government bodies must utilise true and effective consultative processes and couple this with capacity building to facilitate self determination. This allows for constructive on-ground activities rather than simply devolving responsibility without allowing influence over decision making.

Although participation opportunities are high, in some areas this does not mean that all interests are represented (Mary Maher pers. comm.).

4.2.2.2 Capacity building mechanisms/approaches

A key issue is the community capacity to participate particularly in rural areas away from the more intensely populated areas along the River Murray or in the Adelaide Hills. There are a multitude of committees in rural areas, as previously noted. Responsibility for community involvement in NRM tends to fall on a select and willing few with the risk of burn-out becoming a major issue. Building community capacity and skills to act however is a core principle of the *Directions for Managing Salinity in South Australia* (Government of South Australia 2000a: 15)

> To act effectively in salinity management, individuals and groups need appropriate mechanisms and support as a basis for sharing the responsibilities and costs of action across the community.

It is also clearly recognised in the *Draft State Dryland Salinity Strategy* that communities need to have the skills and the confidence to take on their responsibilities (Government of South Australia 2000b):

> This dryland salinity strategy relies on a strong partnership between all stakeholders – all levels of government, non-government agencies, industry groups, land holders and the general public. Each partner must have the capacity that is found in confidence, motivation and constructive relationships as much as in knowledge, skills and resources.

However, the Select Committee on the River Murray noted that (Parliament of South Australia 2001: 72):

> During the course of the inquiry, the Committee has become aware that the knowledge and in-depth understanding of complex management arrangements under the Murray-Darling Basin initiative are held by a small number of people within State government. The Committee is concerned that this situation could leave South Australia vulnerable and at a distinct disadvantage when seeking to progress issues at the Commission or Ministerial Council levels. Consideration must be given to enhancing South Australia's institutional capacity to deliver and support the scale of change required to address issues of land and water degradation in the South Australian Murray Darling Basin.

The Select Committee on the River Murray also found that although South Australia had a committed and dedicated community that is keen to be part of the solution to improving catchment health (Parliament of South Australia 2001: 81):

> A lack of clear direction and difficulty accessing professional and technical support is hampering the true potential of community groups to deliver change on the ground.

4.2.2.3 Communication and interaction mechanisms

Effective communication and interaction with stakeholders through partnerships are core to the overall philosophy to natural resource management in South Australia. However little information exists other than that relating to consultative mechanisms identified previously. Some tensions on communication do exist as identified by the Select Committee on the River Murray (Parliament of South Australia 2001: 81):

> The Committee is very concerned about evidence highlighting a significant 'breakdown' in communication between community groups and various statutory organisations operating within the South Australian Murray-Darling Basin.

This issue was also raised in the AACM Review of ICM (AACM 1995b: 39) with poor communication and little cooperation between water resources professionals and natural resource management professionals within the state agencies. However in the Mount Lofty Ranges, district councils are collaborating in regional amalgamations of several local governments for certain planning and economic development functions. Whilst this does not have a catchment focus, this collaboration improves communication between councils and works towards overcoming inconsistent approaches to natural resource use and management (AACM 1995b: 39).

4.2.3 Catchment Planning and Implementation Arrangements

4.2.3.1 Powers and resources to implement catchment plans

One of the specific functions of CWMBs is the development and implementation of a catchment water management plans and water allocation plans for its prescribed water resources that will guide and integrate the management of the region's water resources to achieve the object of the Act. A catchment water management plan must include information about:

- The quality and quantity of the water comprising the water resources of the board's catchment area;
- The health of the ecosystem that depend on that water;
- The need for water of those ecosystems;
- The water resources (if any) in the board's catchment area that are suitable for recreational use and should be preserved or enhanced for that purpose; and
- Outline the relevant economic, environmental and social considerations relating to the management of water resources in the board's catchment area.

Boards are required to take into account and be consistent with other natural resource management and development plans in their catchment water management. All plans have to be reviewed after 5 years. To-date eight catchment water management plans have been drafted of which two have been completed.

Boards also have a key role as facilitator and coordinator of activities related to catchment management in a board's area. This is brought about by the fact that the boards do not have the resources to undertake all the actions required to improve the management of catchment water, but seek partners in a range of projects.

Most of the Water Allocation Plans (WAPs) in progress (15 have been drafted with 9 completed) are in areas managed by Catchment Water Management Boards. Once the CWMB has prepared a WAP, it has to be approved by the Minister, which is unlikely to happen without review by Department of Environment and Heritage. When a water resource

does not fall within a CWMB region a WAP is developed by a Water Resources Planning Committee. There are currently 4 such committees (Arid Areas, Clare Valley, Eyre Region, Mallee).

There is also a second regional structure which in part overlaps the role of the CWMBs, best exemplified by the long standing Mt Lofty Ranges Catchment Management Program (MLRCMP 2000), originally established under the aegis of the SA Department of Primary Industries and resources. The MLRCMP aims at integrated natural resource management across the Mt. Lofty catchments, and provides 'devolved' grants (sourced largely from NHT) for on-ground works. Its boundaries overlap, at least in part, the CWMBs. Both CWMBs and the MLRCMP work closely with local governments and with various other regional players and agencies (soil boards, industry, etc), and in some cases, operate joint community grant schemes (River Basin Management 2000).

4.2.3.2 Linkages with other planning processes

Overall planning processes relevant to catchment or natural resource management 'run in parallel' rather than being formally linked. Nevertheless, the *Water Resources Act 1997* recognises the important role that other legislation plays in water, water body and catchment management. Accordingly it requires water plans to be consistent, as far as practicable, with plans, policies and guidelines prepared under legislation or regulations. The Act also recognises the special role that development plans play in natural resource management. Accordingly water plans can amend development plans. Outside of catchment water management board areas, local government can address the management of water bodies and associated ecosystems through local water management plans.

4.3 Knowledge context

4.3.1 Monitoring and Review of NRM Condition

An essential feature of the recently released *South Australian River Murray Salinity Strategy 2001-2015* is the identification of quantifiable time-based targets that provide a means by which progress towards achievement of outcomes can be measured and reported. Government agencies will provide long term salinity monitoring. A State Salinity register will be established to account for the anticipated outcomes of each salinity action. The River Murray Catchment Water Management Board, supported by the Department of Water Resources, will provide a report on progress of this Strategy in its annual reporting of the catchment plan outcomes. The State target of maintaining salinity at less than 800 EC for 95% of the time has been set for Morgan (Government of South Australia 2000: 3). The Morgan target has also been agreed as the target for the shared rivers by the Basin governments. South Australia has established additional targets at other salinity monitoring sites near the border and at Berri and Murray Bridge.

Outside this strategy, monitoring and review processes for catchment management are predominantly concerned with the efficiency and effectiveness of Catchment Water Management Plans and Local Action Plans. The review of NRM condition in these plans focuses on measuring on-ground outputs (eg. area of vegetation/habitat protected, length of fencing erected to protect water courses, area of planting, etc.) rather than NRM outcomes (eg. effect on water quality or water table levels). One exception is the Coorong and Districts LAP which aims to monitor the effectiveness of on-ground works in meeting the overall aim of the Plan (eg. monitoring the effects on water table levels; monitoring the effects on water quality). The monitoring framework assesses for each objective identified (a) the level of action achieved in relation to set targets (ie. implementation), and (b) the effectiveness of these works in meeting the overall aim of the Plan (ie. condition of the natural resources)

(Coorong District Local Action Plan Committee. 2000). Indicators have been established for each objective, as well as means of verification and responsibility. A crucial strength of this approach is the close linking of issue/cause/severity/impact/solution/justification/works program (Coorong District Local Action Plan Committee. 2000).

4.3.2 Integration Approaches/Mechanisms

This is a developmental area that is now considered as very important to the South Australian Government.

4.4 NRM outcomes

Outcomes of catchment management initiatives in South Australia are not measured in terms of NRM outcomes to-date except in terms of salinity in the River Murray. However, Catchment Water Management plans and the State Salinity Strategy focus on mechanisms such target setting, data management and performance evaluation which have a clear outcomes focus. Also see Section 4.3.1 above.

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APPENDIX 5 - STATE REVIEW - NEW SOUTH WALES

TABLE OF CONTENTS

5.1 Resource use context

5.1.1 Nature and tractability of resource use issues and tensions at the catchment level

New South Wales has a diverse set of catchments and terrain, including a large part of the Murray Darling Basin. It includes highly mountainous areas in parts of the Great Dividing Range, coastal catchments, and inland catchments ranging from agricultural uses to relatively flat rangeland country. Catchments are thus more or less easily demarcated in the public eye. NSW also includes a large area of the Great Artesian Basin, which can be viewed as an underground catchment. Since these provide alternate sources of water for rural industry in some catchments, such as the Namoi, scarcity and allocation difficulties in both groundwater and surface water need to be considered. Irrigation is a major issue, made prominent in recent years by the Snowy River Inquiry's recommendation that a percentage of environmental flows be restored to the Snowy River, which had been diverted to provide irrigation waters along the Murray.

Urban reliance on water resources contributes to catchment issues, for instance the seriousness of blue-green algae growth in inland rivers related to urban disposal of wastes, and urban run-off and other pollution problems in heavily populated areas such as the Hawkesbury Nepean near Sydney. The need for large clean reservoirs for urban water needs constrains agricultural activities and urbanisation in some catchments, for instance those meeting Sydney water needs. Excess nutrients causing water degradation by blue-green algae and other algal blooms in inland rivers and lakes are a significant problem, reaching state emergency proportions in 1991 when a 1000 kilometre-long algal bloom appeared on the Darling-Barwon system (Smith 1998: 71-73). Sources were diverse, with major ones being effluent from sewerage treatment works and agricultural run-off.

Salinity is a serious concern, and estimated to be at risk of increasing 8-fold over the next 50 years (National Land and Water Resources Audit 2001, p.16). Over 90% currently occurs in the Murray, Murrumbidgee, Lachlan, Macquarie and Hunter rivers. Most of this is on agricultural land.

5.1.2 Previous history of resource use issues and environmental management

New South Wales took its first administrative initiative towards managing river basins as integrated systems in 1947, when it established a conservation ministry to co-ordinate the management of the State's water, soil and forest resources. This led to the establishment by legislation of the Hunter Valley Conservation Trust in 1950. This had its own Act of Parliament requiring it to coordinate the management of land and water resources in that catchment. In practice the Trust functioned mainly as a flood mitigation authority, and for many years did not develop the broader responsibilities that its Act permitted (Burton 1986). This Trust was not replicated in other parts of the State.

Before the introduction of Total Catchment Management (TCM), numerous agencies and legislation related to the management of catchments. This included three main agencies with wide powers, the Department of Environment and Planning, the Water Resources Commission and the Soil Conservation Service (Burton 1986), as well as the State Pollution Control Commission with responsibilities for water quality.

TCM evolved in rural areas, where the focus was on issues such as soil degradation and salinity (AACM 1996:17). Only recently attention has extended to catchment management in urban and peri-urban areas.

5.1.3. Existence and attitude to cross-border or cross-jurisdictional issues

NSW is most strongly engaged with Queensland and Victoria in cross-border issues, and also shares a border with South Australia. The ACT also engages with NSW as a very active participant in the Upper Murrumbidgee Catchment Management. Pigram (2001) documents several cross-border, cross-jurisdictional issues. NSW and Victoria have cooperated to support a long-term target of restoring 28 per cent of natural flows to the Snowy River, and have committed considerable funding to water conservation measures and irrigation efficiency. Interstate trading of water rights in accordance with the water reforms of the Council of Australian Governments has been impeded by between-state differences in property rights in water, pricing policies and subsidies. A pilot scheme for a 'free trade' zone in water rights in the Mallee region across NSW, SA and Victorian borders started in 1996. Difficulties had to be resolved in 2000 between Victoria and NSW, over their differences in rights to carry over water allocations from year to year which could have given NSW irrigators windfall gains (Pigram 2000, 77).

Pigram argues that despite the Murray Darling partnership arrangements States tend to continue to act within their boundaries. On the western part of the NSW-Queensland border jurisdictional catchment divisions follow the state boundary, rather than biophysical boundaries. He reports that Queensland's water allocation planning for the Condamine-Balonne catchment paid insufficient attention to flows into NSW. He cites the Border Rivers Flow Management Planning process as a good example of joint planning across a border, in accordance with an Intergovernmental Memorandum of Understanding on management of interstate catchments and their representation on the Border Rivers Commission (Pigram 2001, 77-78).

NSW also engages with its neighbouring states as a partner in the Great Artesian Basin management structures (see case study).

5.1.4 *Identification with the Murray-Darling Basin*

A high proportion of NSW area is within the Murray Darling Basin. As a party to the Murray Darling Basin Agreement NSW participates in all of the basin initiatives. It has joined with Victoria and the Commonwealth in a system of targets to reduce salinity flows in the Murray-Darling system, as measured at Morgan, SA. This is under the former *Salinity and Drainage Plan 1988*, State *Salinity Strategy 2000*, and *MDBC Basin Salinity Management Strategy 2001-2015* (released in 2000). A paper detailing a proposed approach to putting in place a system of salinity targets was released in October 2000 (New South Wales Government 2000).

NSW is in the process of implementing a system of salinity targets, under mechanisms detailed in a strategy paper (Department of Land and Water Conservation 2000). The new Catchment Management Boards are to play a focal role in designing and implementing the targets regime, by setting directions for salinity planning in each catchment, and providing a focus for community consultation.

As part of the cap on water diversions, NSW has agreed that it will constrain future water diversions to the estimated amount had development remained at 1993/94 levels (NSW Government 2000, p. 17). A number of NSW catchments have also introduced 'environment flow' rules to increase the amounts of water remaining in-stream, and to enhance the health of the river systems.

5.2 Governance arrangements

New South Wales is in the process of implementing modifications to its ICM structure including a major overhaul of its regional catchment management bodies. Review materials (AACM 1995, 1996; anon., n.d.) are partially dated, and it is premature for formal reviews of the new structure.

Dore (1999) points out that a challenge for NSW is to clarify the roles and responsibilities of different structures and their parties, in Total Catchment Management (see below), vegetation and water. While the following text synthesises material from reports specifically on TCM, it is important to recognise that there are also parallel committee structures providing for government-community collaboration in addressing water and vegetation issues. Water issues are coordinated state-wide by a Water Advisory Council, formed to help the Minister for Land and Water Conservation to deliver its 1997 water reform package. At regional level, there are 11 river management committees, 5 groundwater management committees, and 4 committees combining river and groundwater management. This structure is non-statutory. Vegetation management under the Native Vegetation Conservation Act of 1998 is also under the Minister for Land and Water Conservation. There is a state-wide Native Vegetation Advisory Council, and about 17 Regional Vegetation Committees.

Both these structures were set up subsequently to TCM, in water from 1995 and in vegetation from 1998. Dore explains that NSW chose not to make the pre-existing TCM system the central 'player' in vegetation management, but to make it a mandatory member with the same status as others (Dore 1999: 17). It had a narrower function than TCM, but was more inclusive. The water management committees also have broader representation than TCM had initially, though this is being changed under current modifications to the TCM committee system (see below).

5.2.1 Policy frameworks and other institutional arrangements for ICM

5.2.1.1 History and political drivers

The TCM concept began to be promoted in the 1980s, to replace the former single-issue, single-agency approaches and to co-ordinate agencies with other stakeholders in natural resource management. A Steering Committee, then an interdepartmental committee, were established to consider the concept in 1984, leading to a consultancy report in 1985 (Burton 1986). These considered TCM as a state environmental planning policy under the *Environmental Planning and Assessment Act 1979.* Some Shire Councils commenced preparing catchment management plans for catchments within their regions well before the enabling legislation, the *Catchment Management Act 1989*, was in place.

5.2.1.2 Legislative basis

The policy and operational framework for TCM is set out in the *Catchment Management Act 1989*, combined with the *Catchment Management Regulation 1999* which encompasses recent structural changes (see below). The *Environmental Planning and Assessment Act 1979* and the *Local Government Act 1993* are also relevant to the management of land and water resources, environmental management and regulation (AACM 1996: 36-39). The Environmental Planning and Assessment Act is the most influential act in NSW affecting land use and natural resource management decisions, has related objectives to catchment management, and provides for statutory plans at State, regional and local levels as well as development control plans. The Local Government Act gives local governments a role in the management and development of natural resources in their areas and requires them to have regard to environmental protection when carrying out their activities. Local government boundaries do not coincide with catchment boundaries, but local governments have an important role in implementing catchment management through its planning roles under the environmental planning and assessment act. Local governments' capacity to levy funds for special works and services could also contribute to the resourcing of catchment management. The Water Act 1912 is now replaced by the *Water Management Act* 2000 (DLWC 1999).

Verhoeven (1997) lists several other acts as affecting TCM: the Coastal Protection Act, National Parks and Wildlife Act, (the then) Water Act, Soil Conservation Act, Forestry Act, Mining Act, Fisheries Management Act, Clean Air Act, Rivers and Foreshores Improvement Act, and the

Threatened Species Conservation Act. In addition, policies on rivers and estuaries, groundwater, trees, soils, coasts, and floodprone land increase the complexity of catchment management.

While the structures comprising TCM are established under legislation, their activities are not. (AACM 1996:37 shows how catchment management strategies could be given a statutory basis under the Environmental Planning and Assessment Act). NSW considers that giving the regional TCM bodies powers to direct other organisations would confuse existing accountabilities, and that the coordinating role of TCM bodies can be accomplished using non-statutory means (Outcomes n.d.). Catchment and regional strategies are intended to inform and assist planning and management by state and local government bodies, committees, community-based stewardship groups, environment and industry groups.

5.2.1.3 State-wide structures for ICM/NRM

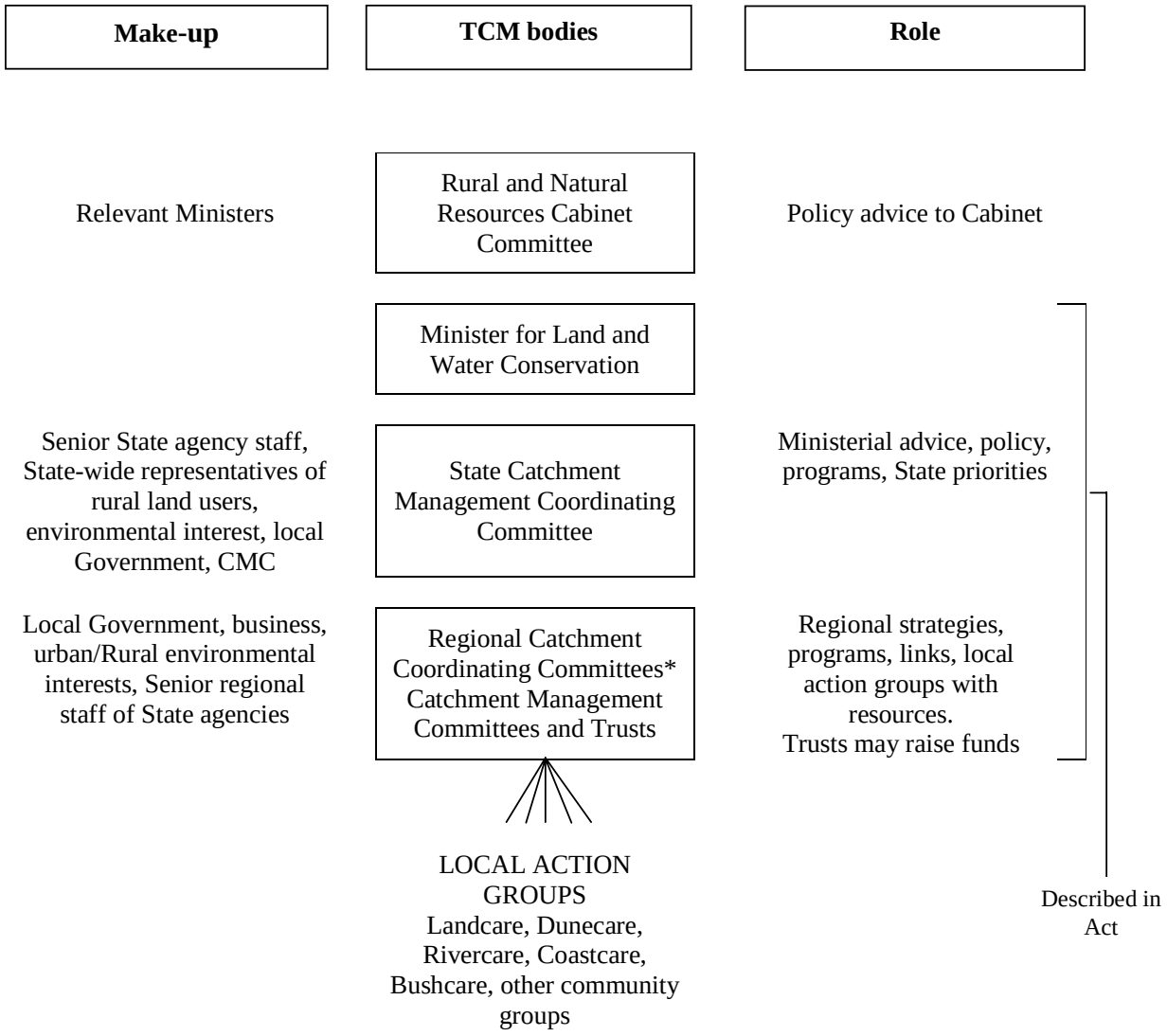
Around 99 per cent of NSW is covered by the TCM structure (Verhoeven 1997). This consists of tiered committees with responsibilities from state to catchment levels. These are illustrated in figure 1. (Anon., n.d. p.3).

- The State Catchment Management Coordinating Committee provides Ministerial advice, policy, and manages programs and establishment of State priorities. It consists of senior state agency staff, and representatives of rural land users, environmental interests, local government, and Catchment Management Boards (formerly committees).
- The regional level is catered for by Catchment Management Boards (replacing former Committees) and Trusts (which differ from the Boards in having fund raising and financial administration capacities). The new structure being implemented since a major review of TCM in 1996-97 adds Indigenous interests to the previous membership, of senior regional staff of state agencies, business interests, local government and environmental interests. Their role is described below.
- The Boards provide a framework for supporting and integrating the activities of (mainly voluntary) Local Action Groups such as Landcare, Dune Care, Salinity, Stream Watch and vegetation groups. In the past they linked such groups with resources and provide some coordination. They are now charged with providing a more strategic framework for local activities through catchment planning.

Members of the state committee and regional boards and trusts are appointed by the Minister for Land and Water Conservation, from nominations provided by organisations in the categories to be represented.

The lead Minister and Agency are those for Land and Water Conservation. Other agencies' inputs are coordinated through participation in the regional Boards, and n Interdepartmental Committee on TCM (AACM 1995: A10). The other agencies are the Department of Water Resources, Public Works Department, Department of Planning, NSW Agriculture, NSW Fisheries, Department of Mineral Resources, Environmental Protection Authority, National Parks and Wildlife Service and the Forestry Commission of NSW. In its review, AACM (1996) pointed out deficiencies in whole-of-government commitment and recommended the Premier become the Minister responsible for integrated resource management (supplanting TCM) assisted by another Minister and the entire membership of a more active Rural and Natural Resource Cabinet Committee (1996:101). AACM also identified difficulties with the lead-agency arrangement, and recommended the TCM secretariat be moved to the Premier's department to be more accessible to the whole of government. This was not adopted, but most natural resource management functions are concentrated in the Department of Land and Water Conservation under a single Minister.

Figure 1. Structure and roles of TCM bodies



* Regional Catchments Coordinating Committee (RCCCs) are new sub-committees of SCMCC, established as a result of the TCM review.

5.2.1.4 Functions, roles and responsibilities of catchment bodies

In December 1999, the Minister for Land and Water Conservation announced a restructuring and some role changes in the regional catchment management bodies. This was to achieve improvements recommended by its review (AACM 1996), to

- strengthen the community-government partnership
- make catchment bodies more strategic
- link catchment bodies more effectively to other natural resource management and planning processes
- resolve confusion about the roles of state and local government, as regulators, and in investing in NRM outcomes (1996:106).

Forty-three of the former catchment management committees and five regional catchment committees were replaced by 18 new Catchment Management Boards. Two other committees continued under the structure of the Sydney Catchment Management Authority, and the Hunter Catchment Management Trust and the Upper Parramatta River Catchment Trust also continued. Members were appointed to these boards in May 2000, representing community, industry and government through:

- Nature conservation interests
- Primary producers/natural resource users
- Local government
- Indigenous interests
- State government.

The new boards, like their predecessors, are established by legislation under the *Catchment Management Act 1989* and the Catchment Management Regulation 1999. Dore (1999:17) points out, however, that the state and catchment bodies have no legislated *powers*. The former catchment management committees were essentially advisory and coordinating bodies with no real powers. This remains technically the case, but the Boards formed to replace the committees have a much more focused role, to develop plans for catchments and to strengthen links to local groups such as landcare groups.

The Boards will focus on five specific tasks:

1. Identify the opportunities, problems and threats associated with the use of natural resources to support rural production and protection and enhancement of the environment.
2. Identify the first order objectives and targets, within the overall legislative and policy framework, for the use and management of the region's natural resources.
3. Develop management options, strategies and actions to address the identified objectives and targets.
4. Assist in developing a greater understanding within the community of the issues identified and action required to support rural production and enhance the environment.

Initiate proposals for projects and assess against the targets, all projects submitted for funding under Commonwealth and State natural resource management grant programs.

In the first year of operation, each Board is to produce the 'key components' of a draft Catchment Management Plan addressing the first three of these tasks. Their purpose is to ensure the health of the landscape is improved by meeting key targets. Each draft Plan will provide focus and direction to individual and community initiatives, help coordinate government investment, such as extension work and grant funding, and contribute to the implementation of legislation such as the *Native Vegetation Conservation Act 1997* and the new *Water Management Act 2000*. Each draft Plan will be considered by the Minister for Land and Water Conservation in consultation with other Ministers involved in natural resource management. State agency staff and local government are to work with communities and industry groups to implement strategies developed by the new boards.

If implemented successfully, these new arrangements appear well designed to address many of the problems of horizontal and vertical linkage identified throughout NSW's TCM system by AACM (1995, appendix A; 1996).

- Lack of co-ordination and policy-level integration across state agencies, particularly at state office level. This includes lack of success in the 'lead agency' role played by the Department of Land and Water Conservation (formerly Conservation and Land Management). AACM (1996) suggested that locating TCM in one agency made difficulties for coordination with others, and is

inconsistent with international best management practice for ICM[1]. This is exacerbated by differences in agency role devolution: the lead agency worked in a more decentralised way, and was far better staffed at regional level, than key counterpart agencies whose few regional staff had to refer many policy-related matters to their head office rather than be able to work on them with their regional partners. AACM noted a perceived need for stronger agency commitment to regional committees, in participating in the planning and implementation of catchment management processes.

- Poor linkage between TCM, national and state policy making, and other regional planning initiatives. AACM identified that the main agencies participating in TCM saw it as providing them with mechanisms for public participation (which they had not at that time attempted to duplicate in other fora, but have since) but the full range of capability for integrating ecological and economic activity was not being used. There was no linkage to ecologically sustainable development initiatives, nor to many regional planning initiatives including some focused on rivers and water resources.
- Problems in horizontal linkage at the lowest level, among the activities of landcare and other stewardship groups, and vertical linkage of these to strategic directions by catchment management bodies (this is also being addressed since the review).
- Weak linkages with local government, which was represented through its bodies at state and catchment levels, but lacked a degree of influence commensurate with its strength of control over environmental management. This included the implications of urban expansion for water quality. One difficulty was that a single individual from one local government could not easily speak for or report back to the great number of other local governments.
- Isolation of TCM within the broader community, for instance Indigenous communities, industry, development and financial sectors of the economy (1996: 12).

At face value, the structure provides for strong upwards accountability, as TCM is linked to the most senior levels of government through a Minister and Cabinet Committee. Accountability to community-based groups is less clear (see below).

There is an annual reporting system for TCM. AACM (1995, 1996) argues despite this there is no monitoring or reporting of the ecological and economic gains made through TCM or Landcare (see 2.1.10 above). The financial auditing of TCM also does not link to environmental outcomes. AACM 1996 suggests a framework for monitoring and evaluation, including verifiable social, financial and environmental indicators.

Commonwealth initiatives, particularly from the then Department of Primary Industries and Energy (now Agriculture, Forests and Fisheries Australia) were in 1995 key drivers of TCM in NSW, yet there were mixed messages from the Commonwealth and no national indicators for the effectiveness of catchment management.

5.2.1.5 Role of and level of involvement of local government

Local government is represented at the key levels of TCM, the state Committee and regional Boards. AACM (1995, 1996) commented on weak linkages with local government, which although represented on some (not all) regional committees, lacked a degree of influence commensurate with its strength of control over environmental management. This included the implications of urban expansion for water quality. It remains to be seen whether the new Catchment Board structure will improve on this.

[1]. The present authors do not necessarily agree with AACM about the undesirability of a lead-agency as a mechanism of inter-agency co-ordination in integrated natural resource management. Ross 1999 records case studies where USA agencies worked very successfully under a lead-agency arrangement.

The recent changes to Catchment Management Boards are intended to achieve better cooperation with local government.

5.2.1.6 Degree of whole of government coordination

Whole of government coordination is ostensibly designed into the TCM system through its reporting to a Cabinet Committee, and the structure of having a 'lead agency' (Department of Land and Water Conservation) with a coordinating role. AACM identified practical difficulties with government coordination in environmental protection, agriculture, planning and local governments, describing TCM as 'isolated' within government (AACM 1996). AACM (1995) identified problems with integration with regional planning, TCM and other planning initiatives proceeding relatively independently of one another. This was particularly the case with river basin planning, water planning and water management plans, regional water management (each evolving separately to TCM, even marginalised by it, at the time of that report) and irrigation-based land and water management plans, which lacked strategic linkage to TCM processes. The link between landcare and TCM needed to be formalised. There were tensions between floodplain management, estuarine management and TCM (AACM 1996). Further, some agencies had no 'onwership' of TCM while others used it mainly to market their views to community members (AACM 1996:15). Low overall levels of staffing and differences in the relevant agencies' allocations of staff and responsibilities between state and regional offices hampered coordination at regional levels (AACM 1995). Dore (1999) notes that addressing these issues was an important consideration in the main review of TCM (AACM 1996, NSW Government 1997, Department of Land and Water Conservation 1999).

Coordination at the catchment level varied, with some of the former catchment management committees coordinating research, education and investments successfully, while others were excluded from initiatives led by state agencies.

AACM (1996) also identified lack of bipartisan support as a factor limiting TCM.

TCM offers a strong potential framework for integration with other governance systems such as Indigenous land management and local government, through the sectoral representation (local government, business, rural land users, environmental interests, and since 2000 Indigenous interests) available on the State Catchment Management Coordinating Committee and the Catchment Management Boards and Trusts. This potential is however limited by an unclear and fragmented policy framework (dating from when resource management policies were for development of a 'frontier' rather than sustainable development), and lack of planning linkages. AACM (1996:18) argues that 'having some resource users represented on a CMC is not as effective as having members of the CMC sitting on resource management decision-making bodies in the catchment. This is especially relevant for industry associations'.

Further, there was no capacity to integrate TCM and Landcare with State of the Environment Reporting (see below).

5.2.1.7 Funding and resourcing capacity

At the time of the review the major sources of funding for TCM were State agencies through their own budgets[2], funds raised by catchment management trusts (see below), the national soil conservation program, the national landcare program, and the salt action program (AACM 1995). The last three have since been folded into the Natural Heritage Trust. Catchment Management Trusts such as the Hunter Catchment Management Trust operate like Catchment Management Boards, but have the capacity to raise their own funds through a levy system. For instance, the Hunter Trust's

[2] Providing for committee operational and coordinator costs, agency support, catchment planning, secretariat functions and small grants for projects.

main source of income is a 'catchment contribution', which is collected on its behalf by the local governments in its area. This has been well accepted in the Hunter Trust's area, but AACM (1995: A21) noted the capacity to establish trusts was being avoided elsewhere owing to concern about farmer backlash towards government. Dore (1999: 18) reports that the Hawkesbury-Nepean Catchment Management Trust had avoided using its rating powers owing to 'fear of compromising its negotiated mandate with the many players in the catchment'.

AACM (1995) identified a lack of adequate funding to the then TCM committees in regions, to implement catchment management activity, and low agency staffing levels devoted to TCM:

> 'the substantial lack of resources allocated to whole catchment planning and processes threatens to perpetually undermine the effectiveness of catchment management, and so lose its credibility in the eyes of the public. Consequently, catchment management suffers from not seeing identifiable gains from TCM in NSW being made to effect change after 7 years of operation' (AACM 1995: A23-24).

This under-resourcing contributed to 'burnout' both among agency personnel and private individuals involved in TCM. It is not clear to what extent the resourcing is being addressed following the review.

Commonwealth moneys through the national soil and landcare programs, seemed in 1995 to be working negatively through fragmented local initiatives, in the absence of any linkage to strategic resource management planning at regional and local levels. There was also serious under-resourcing of TCM to *implement* planned catchment management activities, and also a dearth of agency staff assigned (either part or full-time) to TCM. The NSW government has made arrangements to address this following the review, by linking the activities of local programs into the strategic plans made by Catchment Management Boards, and by a regional approach to funding (see below).

AACM (1996) noted that budget information was directed towards accounting for inputs, rather than outcomes, making assessment of the cost-effectiveness of investments in TCM extremely difficult. While case studies suggested that regional bodies operated and produced outcomes cost-effectively, AACM identified and made proposals to rectify inefficiencies in the costs of running the committee structures, and noted lack of an investment cycle approach; duplication; imbalances in planning, implementation and monitoring investments; little use of cost-sharing and pricing mechanisms, and unclear accountability for outcomes (1996:30-31). Given this, there was a risk that the investments would not achieve their intended outcomes. AACM recommended strengthening an *investment approach* to catchment management, in contrast to traditional funding programs. This should be based on contestable public sector investment with:

- a clear role for government, with agencies establishing strategic and policy frameworks for allocating investments to purchase outcomes, rather than directly providing the services needed to achieve outcomes
- a project cycle to allocate investment, in which regional communities and industry groups could development action plans for review by the investors
- an active role for the beneficiaries (AACM 1996: 31-32).

Further recommendations dealt with cost-sharing for on-ground works, which were inadequately resourced; and domestic and irrigation water pricing reforms to ensure users pay the full cost of resources.

The NSW government decided in response to channel investment in NRM through larger regional structures consisting of groups of Catchment Management Boards and Trusts, which were to be responsible for developing and carrying out regional investment strategies. This was to include overseeing strategies to form the basis of allocating externally derived funds. These would allow

government and the community to jointly develop priorities, and enhance both parties abilities to achieve TCM outcomes (Outcomes, n.d.).

5.2.1.8 Monitoring and review mechanisms

AACM (1995, 1996) emphasised lack of monitoring of either ecological or economic performance as a deficiency needing attention. At that stage, the effectiveness of TCM was examined principally through Decade of Landcare reporting, which covered the formation of landcare groups and their activities, but not ecological or economic outcomes. AACM identified that there should be explicit linkage of both TCM and Landcare to monitoring of the state of the environment, but at the time of that review there was no formal mechanism to do so. While a 'state of the rivers' approach to environmental reporting had been accepted by the NSW Water Resources Council, in 1995 it had yet to be fully realised.

Following the review of TCM the NSW government decided to introduce performance indicators for TCM activities, to be developed by the SCMCC. Regional bodies were to report regularly to the SCMCC against these. The indicators were to address the coordination of policies, programs and activities; active community participation in NRM, identification and rectification of resource degradation, and promotion of the sustainable use of natural resources (Anon., n.d. p. 13-14). The SCMCC would report regularly on the effectiveness of TCM, while the state government would continue its role in state of the environment reporting.

5.2.2 Participatory and partnership processes

Participation is regarded as the most successful component of TCM (AACM 1995, 1996).

> 'People are the core of catchment management in NSW. It is they who plan, implement and monitor catchment management activities and it is they who make economic use of the land and water resources in a catchment (AACM 1996: 19).

AACM (1996:19) reports that its review participants considered TCM an effective mechanism for public participation in catchment management, but that they felt this did not necessarily lead to improvement in catchment condition.

Some agencies looked to TCM mainly as a source of public participation (AACM 1995), neglecting its integrative functions between planning and management, government agencies and non-government resource managers. The participatory component has evolved with TCM, at different rates in different catchment committees.

5.2.2.1 Representational approach/processes/mechanisms

The majority of members of the former Catchment Management Committees had to be 'landholders or land users within the catchment area'. Additional members were to represent the environment, local government, and NRM agencies or authorities. The new Board structure retains these categories, with the addition of Indigenous interests. Representatives are appointed by the Minister for Land and Water Conservation, from nominations by the categories of stakeholders to be represented.

AACM (1996) identified a number of difficulties with the former approach. Representative participation was adopted as an efficient mechanism for engaging key segments of the community, but the definition of groups encouraged members to represent their group interests rather than those of the catchment environment and natural resources. AACM considered that TCM had matured to a stage where the need for representative participation was less clear, and a need for greater expertise among the members was evident. It advocated competency-based selection of members for the

regional bodies, with a competitive element to engage people with relevant expertise (AACM 1996:12-13).

AACM (1995) noted a further difficulty with representative approaches, that some groups are not socially endorsed or administratively equipped for a representative-constituency relationship. They commented, for instance, that farmers cannot represent one another. The same applies to Indigenous people, whose decision-making and rights to speak for others focuses on areas of traditional country that do not coincide with and are generally smaller than catchment scales. An Indigenous individual cannot represent others outside their traditional country, and alternatives can be difficult. Organisational representation, most likely through local or regional land councils (linked to the State-wide NSW Land Council) may be the most practical: Indigenous people would need to be consulted about the best arrangements for their participation.

The breadth of community involvement in TCM relies on a combination of structure – formal composition of regional and state bodies – linked loosely to access, whereby a wide range of voluntary groups have roles. The members of the latter are self-selected, and cannot be presumed typical of all landholders. Indigenous people have only recently gained official representation, and are likely to take time to attain a strong voice among the more established members. We were unable to find reference in the reviews to gender and age-group participation in TCM and its related voluntary groups.

AACM (1996) documented concern among participants that some of the former CMCs were isolated from organisations and sections of the community making decisions about resource use in catchments. Indigenous people were clearly isolated, and industry groups were reluctant to become involved in what they perceived to be an inefficient way of addressing NRM.

5.2.2.2 Capacity building mechanisms/approaches

AACM's reports do not focus directly on capacity-building for catchment management bodies, allowing that the concept was less in use five years ago than today. The 1996 report does, however, note some important related issues (1996: 5-9):

- Inability of agencies to provide senior, regular and ongoing support to catchment management bodies because of the number of such bodies and lack of commitment by some agency managers. The number of catchment management bodies has recently been reduced.
- Experienced people leaving the process due to burnout, attributed to overburdening of key individuals such as managers, coordinators, chairpeople and members. (AACM suggested training and development programs, and greater recognition of the needs of volunteer organisations and their efforts).
- Poor planning and coordination (by agencies) of consultative processes leading to overuse of catchment bodies for policy review and community endorsement processes, to the detriment of other priority activities
- Insufficient resources and unclear status of catchment management bodies and their strategies
- Lack of leadership, information, technical expertise and funds. AACM suggested ensuring chairs had strong leadership qualities through selection, and training of CM executive officers and chairs.
- Insufficient management skills among members, and in some instances lack of background knowledge.
- The need for a 'lean and efficient' executive support core group for each CM body.
- Inefficient processes and poor communication leading to wastage of capacity in preparing projects for which no funding was available, lack of long term funding for implementation or focused investment.

Buchy and Ross (2000) identify some important key principles for participatory processes. A number of AACM's observations reflect on lack of *clarity* about the roles of catchment management bodies

and their members. There do not appear to be specific steps to cater for differences in stakeholders' *access* to and *power* within the catchment bodies.

While AACM focuses largely on structural and financial remedies to these deficiencies, the points listed here suggest an analysis of capacity-building needs in skills and resourcing is also necessary. This is the subject of a concurrent research study for the Murray Darling Basin Commission.

AACM (1996) also reported results of a survey for the Marketing and Community Involvement sub-committee of the SCMCC, which showed that public awareness of TCM was low, as was the case with any environmental programs. Awareness of TCM was far lower than for landcare or Greening Australia, and highest among people living in rural, remote and coastal areas.

5.2.2.3 Communication and interaction mechanisms

AACM (1995) mentioned a struggle between top-down and bottom-up approaches in TCM, as providing a 'healthy dualism' which made agencies more proactive in obtaining local participation in resource management planning, but that agency staff were frustrated by the slow pace of working through regional TCM committees in achieving planning and management (1995: A14). Implementation of water planning mechanisms was given as an example.

AACM (1996) observed some frustration that the processes and activities (in 1996) focused on information-gathering and planning, although this was understandable at that stage of TCM's development. It could also reflect landcare groups' strong orientation towards on-ground works. The same report emphasised the importance of gearing up for implementation as planning activities neared completion.

The recent restructuring of TCM bodies includes formalisation of an idea commenced by a number of catchment committees. There are now regional groupings of Catchment Management Boards, consisting of their chairs. These should provide a convenient communication mechanism as well as a useful scale at which to compare strategic initiatives and organise allocation of funding.

5.2.3 Catchment planning and implementation arrangements

5.2.3.1 Powers and resources to implement catchment plans

As noted above, Catchment Boards have no formal powers to implement catchment plans. AACM (1996) proposed a method by which such plans could be endorsed under planning legislation.

Historically, implementation has been a serious difficulty in NSW, owing to lack of resources for implementation. This applies both to lack of direct funding to implement plans made by the catchment management bodies, and insufficient agency staff to contribute to the process.

5.2.3.2 Linkages with other planning processes

In both its 1995 and 1996 reports, AACM noted linkage among state planning processes as a major deficiency (see 2.1.4 above). Dore (1999) also noted this is a major challenge, with parallel agency-community partnership structures working in TCM, water allocation, and vegetation management. The advantage of this is the spread of membership across these different roles, and the ability of each to hold a specific focus – it would be hard to imagine single groups dealing in depth with all three. The disadvantage is that these issues are linked ecologically. NSW new strategy is to build in cross-membership, so that there is a TCM representative on the other committees. There is further lack of integration with planning, and with local government.

5.3 Knowledge context

5.3.1 Monitoring and Review of NRM condition

AACM (1995,1996) was highly critical of the lack of capacity to review catchment management outcomes (see 2.1.8 above). NSW has committed to addressing this, through the development of indicators of TCM performance, as a basis for regional body reporting to the SCMCC, while state of the environment reporting would be used to assess environmental quality (see 2.1.8).

There is specific analysis of the prevalence of dryland salinity (National Land and Water Resources Audit 2001). NSW water management reforms (Department of Land and Water Conservation 1999) include an auditing program on water management plans, including inventories of water resources.

5.3.2 Integration Approaches/Mechanisms

NSW is aware of the integration challenges created by its separation of participatory planning activities in water resources, vegetation management and TCM, local government, and state planning processes. The main integration mechanisms relied on so far are the lead-agency arrangement for the first three (which are all under the same Minister and agency), and recently, cross-membership between integrated resource management bodies.

5.4 Outcomes

What are the outcomes?

AACM 1995 argued that the linkage between TCM activities and actual outcomes could not be measured owing to lack of monitoring mechanisms. They pointed out there were scant funds for implementing catchment management plans, suggesting a risk that desired outcomes could not be attained.

AACM (1996:94-97) proposed an approach to rectify the former lack of ability to assess natural resource and financial outcomes from TCM, as well as social and institutional outcomes. It proposed a monitoring and evaluation system based on a 'logical framework', linking goal, purpose, outputs and inputs through analysis of the impact on the population and environment, the effectiveness with which outputs satisfy needs, and the efficiency with which inputs and activities translate into outputs. These involve ex-post evaluation of long-term trends, ongoing evaluation including community environmental monitoring, and input-output monitoring comparing budgets against outputs. They suggested a set of social, financial and environmental indicators to achieve these.

The review materials available are the products of evaluation of institutional effectiveness. The catchment management arrangements were originally put in place after careful review (committees, policy development, consultancy over several years). They were reviewed within a national review of ICM after some five years (AACM 1995), then NSW embarked on its own review consisting of another, more detailed study by AACM (1996), consideration of this report by the State Catchment Management Coordinating Committee, and consideration of its recommendations by the Minister (outcomes nd). The linkage issue is partially addressed: a white paper (DLWC 1999) on water management legislation for NSW makes brief reference to TCM, but links Catchment Management Boards and Vegetation Management Committees to the new water management committees through membership and a requirement that they work closely with CMBs and VMCs.

The 1996 review document (AACM 1996) includes assessment of the financial performance of TCM, to the extent possible with the types of information then available. It discussed adoption of an

investment approach to catchment management, attention to cost-sharing mechanisms for effective investment, and pricing mechanisms for efficient investment.

In participatory terms, TCM has been a noted success, though with the mixed blessing that it was treated by state agencies predominantly as a mechanism for public participation in natural resource management, to the relative neglect of both ecological and economic outcomes. Other social outcomes of TCM, if identifiable, are not featured in reviews.

5.5 Acknowledgments

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APPENDIX 6 - STATE REVIEW - WESTERN AUSTRALIA

TABLE OF CONTENTS

6.1 Resource use context

6.1.1 Nature and tractability of resource use issues and tensions at the catchment level

The Western Australian environment is unique, comprising a richness and diversity of plants and animals, many of which are endemic, particularly within the South West Region. The biological complexity of the living environment reflects adaptations over many millions of years to the harsh physical environment characterising much of the state. Over most of the State, arid and semi-arid conditions prevail, with erratic rainfall and drought occurrences common. The soils are generally infertile and sandy, being derived from highly weathered and eroded, ancient basement rocks (Select Committee into Land Conservation 1991: 9).

Soil salinity was identified as early as 1903 by a railway engineer and by a Royal Commission in 1917 (Esbenshade 1994). It is now the greatest environmental threat facing the State. In the south-west agricultural region, which produces agricultural goods worth more than $4b annually for local and export markets, 1.8m hectares (about 10%) of agricultural land is already affected by salinity. Projections show that without rapid, large-scale intervention, including significant changes to current land use practices, about 3m hectares will be affected by 2010-2015 and 6m hectares (30% of the region) will be affected by the time a new groundwater equilibrium is reached. Up to $400m per year will be lost in agricultural production by 2050 (State Salinity Council 2000).

The area of salt-affected land in the South West has already had a serious impact on biodiversity, current and future water supplies, agriculture and regional infrastructure, including roads, rail, water and wastewater facilities, public and private buildings. Furthermore, it is estimated that, without intervention, 450 plant species endemic to the region will become extinct and three-quarters of the region's waterbird species will severely decline (State Salinity Council 2000).

In WA, as elsewhere in Australia, issues challenging rural and urban communities are becoming increasingly complex and the magnitude of the adjustment required to address many landscape issues such as salinity, greenhouse and biodiversity, and the encroaching impact of globalisation will be substantial (Soil and Land Conservation Council of Western Australia 2000:3). Issues include the cost to rural communities of declining population, loss of business (both existing and potential) , the cost of rural restructure if farms become unprofitable, and increased health problems due to stress on families affected by change (State Salinity Council 2000).

As Bradsen (1992) points out, while most conservation issues in Australia emerged in the 1970s, even 1980s, the issue of land conservation was a matter of great social concern 50 – 60 years ago. Parliamentary debates suggest that this is certainly true of Western Australia, which reveal a widespread appreciation of the nature of the significance of the land. It was widely said, for example, that: '… the thin crust of top soil (is) the life-giving portion of the earth's surface' [1]; and 'the most precious of all a country's resources'.[2] In 1945, it was reported in the Western Australian Parliament, that a questionnaire to mixed farmers showed that soil erosion was no doubt increasing and that farmers were aware and ready to collaborate.

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1 Hansard, W.A. September 1945, p. 681 (cited in Bradsen 1992:26)

2 Hansard, W.A. October 1945, p. 1227 (cited in Bradsen 1992:26)

6.1.2 Previous history of resource use issues and environmental management

Robertson (1989) reports that the 1970s saw in WA, the 'end of the dream' that agricultural technology could turn 'any and all land' into profitable farming country. New land farming had expanded rapidly since 1945 under a broad philosophy of settlement and development which saw the large-scale rapid clearing of native vegetation, and in some instances 'get rich quick' crop/fallow/crop rotation practices. (Esbenshade 1994). However, poorer terms of trade, brought to an end the massive expansion of agriculture of the 1950s and 1960s. By the early 1980s, there was considerable concern in both public and private sectors about the land degradation and associated socio-economic problems resulting from several decades of agricultural expansion in WA. Salinity had begun to appear in the landscape.

Clearing of land clearly caused the salinity and in 1979, the Government prevented the further clearing of land in catchments earmarked for potential water supply to urban areas. According to Robertson (1989), the political sensitivity of this action served to further heighten awareness of the issue of land degradation across the community. The Government responded with a range of initiatives, one of which was to revise the *Soil and Land Conservation Act 1945*, with the intention of making the legislation stronger and broadening its scope to include all aspects of land degradation.

In 1982, amendments to the *Soil and Land Conservation Act 1945* provided the legal basis for several new activities, particularly the establishment of Land Conservation Districts. The Act provides for a Land Conservation District (LCD) to be established where a group of land users make such a request of the Minister for Agriculture.[3] The applicants determine the boundary; Districts, therefore, range vastly in size, from small areas addressing acute problems to whole shires. When a District is formed, the Minister appoints a Land Conservation District Committee (LCDC) to represent the interests of landholders, producer groups, local government and conservation groups. This was the beginning of formal farmer involvement with the State government in developing policies for land degradation control (Esbenshade 1994). LCDCs are active in sharing information and perform an administrative function for Landcare (Robertson 1989). There are now roughly 150 LCDs, covering most of the State.

6.1.3 ICM policy

Western Australia established its first State Government policy to guide ICM in 1988 but it was not until 1989 that a policy booklet entitled *Working Together* was published (Government of Western Australia 1989). By that time, the main areas of concern included widespread clearing of native bush for agriculture, eutrophication of water bodies, salinisation of land and water, erosion, and soil degradation. In addition, an ever-increasing human population had heightened the demand for the proper use and protection of natural resources (Wallis and Robinson 1991). The nature and extent of these problems was documented by a parliamentary Select Committee into Land Conservation (1990a; 1990b; 1990c) and the Steering Committee for Research on Land Use and Water Supply (1989).[4]

The policy emphasis was not on the establishment of new institutions but, rather, on the more effective coordination and strengthening of existing State authorities and legal arrangements. The Government's rationale for not establishing any new legislation or agencies was that

[3] Initially, under the amendments made in 1982, the Committees were known as District Advisory Committees. Amendments in 1988 changed the name of Districts from Soil Conservation to Land Conservation Districts (Robertson 1989).

[4] From Mitchell and Hollick (1993: 736)

institutional arrangements in Western Australia were not complex and the public service was relatively small. On that basis, it was believed that the desired cooperation and coordination could be achieved by working within the existing system (Mitchell and Hollick 1993; Thurlow and Hamilton 1997). In theory, this scenario may have been true but, in practice, ICM proved difficult because of the disposition of power among several government agencies (Wallis and Robinson 1991).

ICM was described as an 'umbrella' policy, 'pulling together and streamlining activities carried out by local government and a number of State government agencies' and providing opportunity for community involvement. ICM was to:

1. include the coordinated planning, use and management of water, land, vegetation and other natural resources on a river or groundwater catchment basis;
2. involve landowners and local communities at all stages from the identification of issues and problems in the particular catchment to planning and on-the-ground management; and
3. provide a streamlined "whole-of-government" approach to complex and interconnected issues of balancing resource use and conservation (Government of Western Australia 1989; Mitchell and Hollick 1993).

Mitchell (1993: 736) notes that several key decisions were made by the government of Western Australia during 1988 regarding implementation. Having decided that ICM should be implemented through coordinating the policies and activities of existing agencies under existing statutes, it was resolved that a mechanism would be established to coordinate policies and activities, including formation of a secretariat. Priorities were also to be set. It was in this context that implementation began.

An ICM policy group (ICMPG), representing key government agencies was established to develop detailed policies and coordinate the activities needed to put the policy into action; it was chaired by on officer of the Department of Premier and Cabinet and answered directly to the Premier. In 1990, an Office of Catchment Management (OCM) was established as an independent office reporting to the Minister for the Environment, comprising the Chairman and Executive Officer of the ICMPG and three others (Mitchell and Hollick 1993).

6.1.3.1 ICM review: 1991

A review of ICM in Western Australia was undertaken in 1991 (Mitchell 1991). Cabinet reaffirmed the importance of ICM as the prime means of sound natural resource management and adopted changes based on the review (Office of Catchment Management 1992). The review concluded that ICM as a state policy must be given legitimacy and credibility through explicit political, administrative and financial commitment. Specifically, it was recommended that the state government should publicly endorse ICM, release a revised ICM policy, and direct chief executive officers of state agencies to include ICM as a key component in their corporate plans and programs. The recommendations were designed to provide credibility for ICM and to provide some direction to, and pressure on, state agencies to incorporate ICM into their activities (Mitchell and Hollick 1993: 741).

The review also recommended that the Chair of the ICMPG be rotated every two years among the key natural resource management agencies (Mitchell 1991). Robinson and Humphries (1997) argue that whilst this was a step designed to 'remove agency paranoia' and stimulate agency ownership of ICM, in effect it removed the driving energy for ICM which had, until then, been focussed in the OCM. Thereafter, they argue, the 'downgrading' of the OCM continued, it finally being subsumed into the structures of the Department of Environmental Protection in 1995. According to Robinson and Humphries (1997), the OCM sought to obtain ownership of the many issues that fell in gaps between agencies and for which no agency would take responsibility (such as the protection of remnant vegetation). As a body

independent of the agencies, and a strong advocate of community-based catchment management, it was perceived as a threat to existing agencies not wanting to have their priorities driven by others. There were several attempts to have the office subsumed or disbanded.

According to Mitchell and Hollick (1993), the OCM did, nevertheless, have some notable successes. For example, it played a key role in helping the Department of Planning and Urban Development and the Environmental Protection Authority to develop an approach through which regional plans and environmental protection policies could complement each other. The OCM had a central role in persuading state agencies not to define problems and develop solutions on their own, but to do this in consultation with those living in the areas of concern, and to consult with other state agencies. It also informed community groups about the opportunity to create community catchment groups and how to establish them. One such group was the Blackwood Catchment Coordinating Group (now the Blackwood Basin Group), which obtained funding for a full-time catchment coordinator in 1994 (Robinson and Humphries 1997).

Mitchell and Hollick (1993:739) conclude that ICM was often perceived as a threat:

> Some government ministers and senior officials considered it as a threat to traditional areas of responsibility and ways of conducting business, because it implies greater sharing, and sometime a redefinition of roles. Some individuals and NGOs viewed ICM as a "top down" process in which the state would impose regulations and other constraints, thus hindering local development. Some local government officials did not understand how their responsibilities related to ICM activities of state agencies and CCGs. Developers and development agencies worried that ICM would extend a planning and regulatory proves, which they already considered to take too long and/or would create another layer of bureaucracy.

Mitchell and Hollick (1993:737) also conclude that ICM, as first presented in WA, was a vague and ambitious concept, in part because the initial emphasis was on developing the philosophy and process of ICM (rather than a product). They suggest that the reasons for this were as follows:

> First, in the long term one of the most important contributions of ICM is fostering an organisational culture and associated attitudes that view cooperation and collaboration as essential. Second, if ICM is to be effective, there needs to be a well understood process through which it can be delivered. Third, the product of ICM will vary from place to place depending upon conditions and needs.
>
> The relatively late attention given to defining a product contributed to a lack of understanding about ICM.

6.1.3.2 The role of community catchment groups

Mitchell and Hollick (1993) note that by the early 1990s, Community Catchment Groups began to be considered or established in WA, particularly in the coastal plain catchments of the South West. It quickly became apparent that clarification of their role and authority was necessary:

> There is a danger that the approach described in *Working Together*, when combined with the formation of CCGs with ill-defined terms of references will create community expectations which the government cannot satisfy, or is not yet prepared to satisfy. This could lead to community frustration and loss of confidence in the process (Hollick and Mitchell 1991: 11).

Some CCG members expected the CCGs to become involved in making decisions. State agency officials, on the other hand, usually viewed the CCGs as having an advisory role. Further difficulties arose because the relationships between the CCGs and other public

groups, such as LCDCs which worked with the Department of Agriculture, were left unspecified.

The CCGs were not visualized in the state ICM policy released in 1989. Community groups then existing, such as Greening Australia, the Soil and Land Conservation Council, and the LCDCs (or Landcare groups) were, however, expected to 'play a vital part in integrated catchment management' (Mitchell and Hollick 1993: 739). As the ICM process evolved, a decision was taken by the government to create CCGs in some catchments with representatives from community-based groups. According to Mitchell and Hollick (1993:739) that decision facilitated the involvement of local people in defining problems and developing strategies. However, it also created some uncertainty regarding the relative roles and responsibilities of CCGs, Landcare groups, state agencies, and local governments (Mitchell and Hollick 1993:739).

6.1.3.3 Further reviews

Despite the rhetoric of ICM, there persisted evidence of fractured, rather than integrated, approaches to the management of natural resources in WA. For example, in 1994, a Ministerial Discussion paper on river management noted that:

> Most Western Australian rivers have no clear focus of responsibility for management. Some rivers and sections of rivers are well managed, by single agencies and in partnership, but no management responsibility is assigned for others, and adequate management is not necessarily undertaken by some nominally responsible managers (Western Australian Water Resources Council 1994:2).

And, the Paper's final recommendation was:

> That Government improve management of rivers through increased integration of natural resources management at the State policy, regional and land planning levels, and through clearly assigning responsibilities to agencies for all aspects of natural resource management (Western Australian Water Resources Council 1994: 10).

In 1995, a Task Force was appointed by the Minister for Primary Industry, to review natural resource management and viability in agriculture in WA (McLeod 1996). Its task was to review and make recommendations on the way that natural resources would be managed by agricultural industries in the future and to recommend changes to existing legislation in the agriculture portfolio. The Task Force considered that achieving appropriate sustainable NRM in WA would requires substantial change from the status quo. In particular, it noted that (i) coordination of NRM within Government was without statutory backing and clear mechanisms of accountability; and (ii) that the status of community-based groups (such as catchment groups) within the NRM planning and management hierarchy needed to be better defined and formalised. It urged a 'major overhaul of the policy and legislative approach for dealing with sustainable natural resource management in WA', specifically a new comprehensive nrm and planning approach, supported by clear, robust and objective-driven legislation (McLeod 1996:41). The Government did not act on the report (Rowe, pers.comm..).

6.2 Governance arrangements

6.2.1 Policy frameworks and other institutional arrangements for ICM

6.2.1.1 History and political drivers

Rather than ICM, the preferred policy framework in WA is now regional and sub-regional natural resource management (NRM) (Government of Western Australia nd). Within this, the concept and principles of ICM have been endorsed as the primary means of NRM. The Western Australia government defines ICM as 'the co-ordinated planning, use and management of water, land, vegetation and other natural resources on a river of groundwater catchment basis'. The aim of Western Australian ICM is to 'bring all stakeholders together to form a plan of action that addresses, social, economic and ecologic concerns within a catchment' (HRSCEH 2000:33).

The WA government is developing a State natural resource management framework policy that will include as a key element, the development and implementation of regional strategic plans (State Salinity Council 2000:26). It is underpinned by a wide range of Acts and a range of government agencies, statutory bodies, policies and regional structures. These include non-statutory advisory boards such as the State Salinity Council; strategies such as the Salinity Strategy and the State Planning Strategy; and regional NRM bodies.

The importance of natural resource management in regional development is recognised in the State's Regional Development Policy. The policy includes strategies to strengthen the partnerships between government and community, increase knowledge and understanding of NRM options, and help community groups build their capacity to manage the natural resource (State Salinity Council 2000).

NRM framework

In December 1999, the Cabinet Committee on Salinity Management endorsed a framework to assist in achieving sustainable NRM in WA. The framework was jointly developed by the chairpersons of the five regional NRM groups in WA and the Chief Executive Officers of the four natural resource management agencies ((then) AGWEST, CALM, DEP and WRC). The framework set out the State directions in natural resource management and articulated the principles for engaging with community groups to achieve sustainable NRM. This process included the development of partnership agreements between each regional NRM group and relevant State Government agencies that included agreed outcomes and relative roles, responsibilities and accountabilities (Standing Committee on Salinity Management 2000).

The types of groups with whom Government either has, or could have, partnership arrangements were outlined as follows:

1. Statutory bodies – there are a large number of statutory bodies that have a 'community' focus to their natural resource management activities. These include the Soil and Land Conservation Council (SLCC), the National Parks and Nature Conservation Authority (NPNCA) and the Pastoral Lands Board (PLB). The Department of Agriculture and WRC have particular responsibilities as they each administer legislation, the *Soil and Land Conservation Act* and the *Waterways Conservation Act* respectively, that allow the formation of statutory community-based groups (such as LCDCs and Waterways Management Authorities) with interests in natural resource management. Both agencies provide support to such groups (Government of Western Australia nd:6).

2. Non-statutory boards/councils – organisations such as the State Salinity Council, the Natural Heritage Trust Regional and State Assessment Panels and the Western Australia Greenhouse Council have non-statutory functions but work closely with Government (Government of Western Australia nd:6).
3. Local government - has a key responsibility as defined in the *Local Government Act* and the *Town Planning and Development Act* (Government of Western Australia nd:7).
4. Regional groups – non-statutory regional NRM groups, with agency representation. These groups have the responsibility of coordinating efforts between smaller, more localised, community groups in their regional areas, as well as developing priorities and strategies and securing resources (Government of Western Australia nd:7).
5. Catchment groups – Government works closely with catchment groups on a number of issues. For example, the Salinity Strategy incorporates work with 'focus catchments' and 'recovery catchments' in priority areas (Government of Western Australia nd:7).

A Partnership Agreement in place

At the time of writing, a Partnership Agreement has been signed between the State Government of Western Australia and the South West Catchments Council to deliver maximum public benefits from coordinated Natural Resource Management (NRM) in the Region. This Agreement is the *first and only* one of its kind in Western Australia.[5]

The Agreement recognises the following outcomes by all parties:

- An integrated Regional Strategy for the South West, incorporating an agreed level of community consultation and participation, with responsibility for delivery placed with SWCC;
- State Government Agencies will be responsible for delivery of their statutory responsibilities in the region and it is recognised this will involve close liaison with a variety of interest groups. South West Catchments Council will endeavour to support liaison with some interest groups where relevant;
- The South West Catchments Council, its committee structures and decision-making processes will be based on democratic principles;
- Effective communication between parties to the agreement on NRM matters within the South West, with responsibility for delivery at the regional level placed with SWCC and Agencies in partnership. Responsibility for an effective communication network between the State and the Region will be primarily the responsibility of both SWCC and the State Government;
- Agency operational policy and priorities will remain consistent with government priorities and policy objectives. South West Catchments Council will provide a regional forum to have input towards such priorities;
- Effective communication with and participation on the Regional Chairs group, with responsibility for delivery placed with the Chair of SWCC;
- Effective communication between SWCC and the communities of the subregions, with responsibility placed with the respective subregional members
- Effective partnership between Government and community to ensure resource management is integrated at the regional scale, and an agreed process and criteria for establishing priorities to address natural resource management issues.

[5] Sasha Taylor, SWCC, Pers. comm.., 12/07/01

WA's NRM framework also allowed for the formal endorsement by the Cabinet Standing Committee on Salinity management of regional strategies, once developed and finalised by the regional groups and the State Government agencies. It also recognised the relationship between regional strategies and State natural resource management strategies (for example, the Salinity Strategy) and the need for these to be consistent (Standing Committee on Salinity Management 2000:9).

The NRM framework was to be reviewed a year after its launch (Government of Western Australia nd). However, a change of government ensued and the document has not been reviewed, nor has the current Labor government published a similar document. However, the Salinity Taskforce will likely comment on NRM arrangements in WA, which may result in the previous policy being amended (Rowe, pers. comm.) (See Section 6.2.1.3).

Salinity Strategy

In 1996, the Western Australian Government launched a Salinity Action Plan with a 30-year vision to address dryland salinity in the State (Government of Western Australia 1996). The State Salinity Council was formed in mid-1997 representing key stakeholder groups with a role in salinity management. In 1998, in response to calls for the Salinity Action Plan to be more community-focused, a revised plan was released as a draft for public comment (Government of Western Australia 1998). The 'Salinity Strategy' aims to reduce the impact of salinity in the South-West agricultural region of Western Australia (State Salinity Council 2000).

The Plan has 5 key implementation mechanisms: [6]

1. implementation by individual landholders;
2. implementation through focus catchments;
3. implementation through recovery catchments;
4. implementation through regional catchment-based strategies; and
5. integrating and aligning community groups, landholder and community support.

6.2.1.2 Legislative basis

No single group or agency has overall responsibility for catchment management in WA and there is no legislation that provides a total framework. A number of government agencies are responsible for catchment management in Western Australia. They include the:

- Water and Rivers Commission (WRC)
- Department of Environmental Protection (DEP)
- Department of Conservation and Land Management (CALM)
- Department of Agriculture
- Office of Water Regulation; and
- Water Corporation.

Together these agencies are responsible for 77 legislative Acts, and many of these have both a direct and indirect effect on catchment management (HRSCEH 2000: 34).

The absence of legislation in WA for integration of NRM through ICM is still a cause of concern. The Swan Catchment Council, for example, argues that partnership agreements, on their own, are not sufficient to address natural resource issues:

> Agencies can withdraw from partnership agreements if other priorities take higher precedence and where agency budgets are increasingly restricted. What is required is legislation to support nrm as well.[7]

[6] http:www.wrc.wa.gov.au/protect/Salinity/index.htm

Without legislation which defines ICM groups and their roles and powers, upper levels of government and agencies as whole entities do not formally recognise or 'see' ICM groups as part of their business.[7]

6.2.1.3 Statewide structures for ICM/NRM

Soil and Land Conservation Council (SLCC)

The Soil and Land Conservation Council is the peak landcare body for Western Australia. It is a statutory authority established under Section 9 of the *Soil and Land Conservation Act 1945* and reports directly to the Minister for Primary Industry.

The Council started quite informally in 1945 with the passing of the *Soil and Land Conservation Act*. It started initially as a drought consultative committee and was not a statutory body at that time. As the landcare movement evolved, this changed into a Soil and Land Advisory Committee in the early to mid 1980s. It was at this time that the membership of the committee was also set down. In the early 1990s it became the Soil and Land Conservation Council and a statutory body through amendments to the *Soil and Land Conservation Act 1945*. The Council's mission is 'to provide policy and advice to government on the conservation, sustainability and improvement of soil and land resources'. (Wardell-Johnson, pers. comm.).

Section 16 of the *Soil and Land Conservation Act 1945* defines the Council's functions. These functions fall into four main areas of activity:

- Leadership
- Policy development
- Monitoring
- Providing assistance to the Commissioner of Soil and Land Conservation

Table 1 demonstrates the relationship between Council's statutory functions and its main activities.

Table 1 Functions of the Soil and Land Conservation Council [8]

Activities	**Functions listed in Section 16 of the *Soil and Land Conservation Act***
Policy Development	• Make recommendations to the Minister as to land use, soil and land conservation policy and programs for the implementation of that policy. • Supervise soil and land conservation programs undertaken by the State Government.
Leadership	• Co-ordinate and advise on the implementation in the State of soil and land conservation programs funded by the Commonwealth Government. • Promote awareness of land degradation and conservation. • Co-ordinate the establishment of, and activities within, Land Conservation Districts.
Monitoring	• Advise the Minister as to the condition of soil and land resources. • Co-ordinate, monitor and review soil and land conservation programs and activities.
Assist Commissioner	• Generally assist the Commissioner in the carrying out of his functions under the Act. • To carry out such functions under this Act as the Commissioner or the Minister, respectively, may refer to the Council.

[7] Swan Catchment Council, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management.

[8] Christine Wardell-Johnson, SLCC, Pers. comm.., 12/06/01

The Council has 11 members with expertise in land conservation issues, appointed by the Minister for Primary Industry. There is a balance of community and government representatives.

Council's membership consists of:

- Two land user representatives (Chairman, Rex Edmondson)
- One member nominated by the Western Australian Farmers' Federation
- One member nominated by the Pastoralists and Graziers' Association
- One member nominated by the Country Shire Councils' Association
- One member nominated by the voluntary conservation movement
- One member from the Department of Agriculture
- The Commissioner of Soil and Land Conservation
- Three officers employed under the *Public Service Commission Act*

State Salinity Council

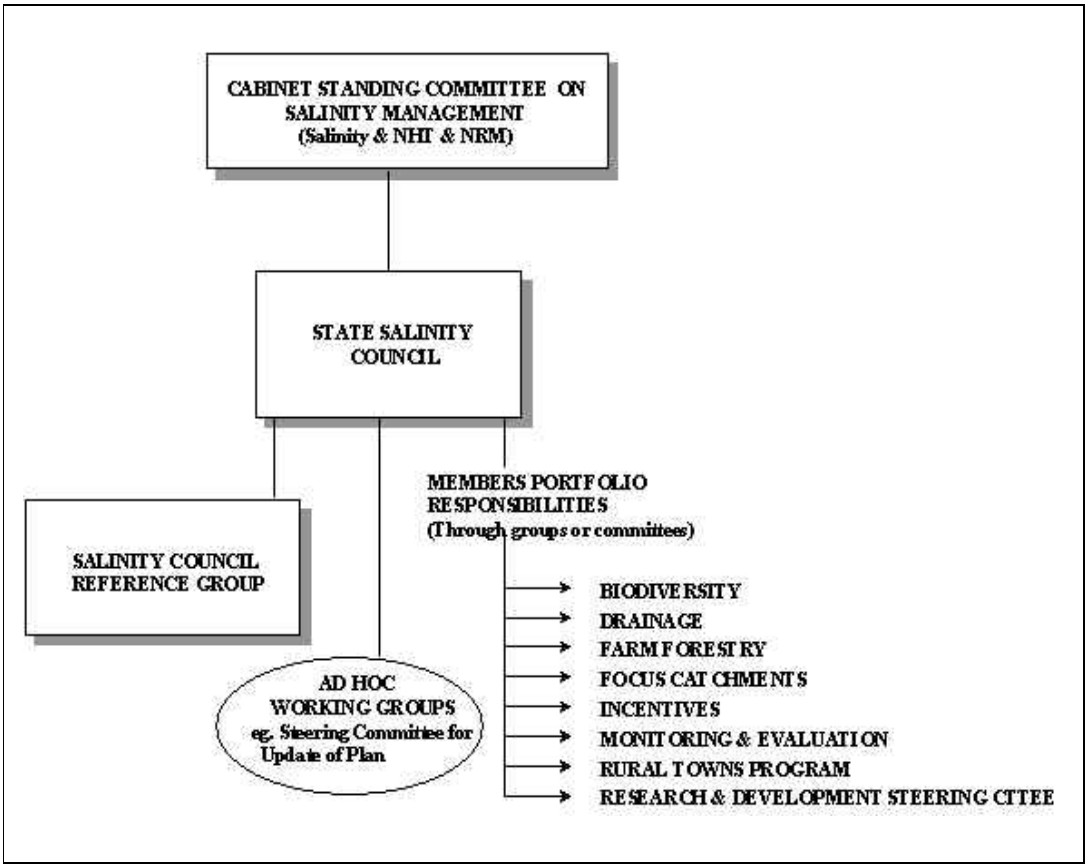
The release of the revised salinity plan coincided with the restructure of the Salinity Council 'to facilitate greater integration between government, industry and regional and local community groups, reflecting a broader approach to salinity management for the future' (State Salinity Council 2000). The Council has a role in leading and supporting the community in addressing salinity. It is formed of representatives from both community and government stakeholder groups (see Appendix A).

The State Salinity Council is not a statutory body. There are links between the SLCC and the Salinity Council in that the Chair of the SLCC (currently Mr. Rex Edmondson) is also the Deputy Chair of the Salinity Council. The Chair of the Avon Working Group represents the Chairs' Group on the Salinity Council Executive (Wardell-Johnson, pers.comm.).

To assist in networking with the community, the Council has established the Salinity Council Reference Group. This group comprises the chairpersons of the five NRM regional groups and the NHT regional assessment panels (RAPs), together with representatives from tertiary institutions, Indigenous interests, and Greening Western Australia, and it can co-opt experts in biodiversity and other areas as required (State Salinity Council 1998: 47). This group meets less frequently than the Council, and discusses and analyses issues referred to it by the Council, or which it feels need to be dealt with by the Council.

The Council also establishes portfolio committees and ad-hoc working groups to address issues as required, and has allocated portfolio responsibilities to some members so that they can keep abreast of key issues or programs (State Salinity Council 1998: 47) (Figure 1).

Figure 1 Salinity management structure in Western Australia [9]



Salinity Taskforce

On 31 May, 2001, the WA Minister for Environment and Heritage announced the appointment of a four-members Taskforce to recommend to the Government improvements to the state's salinity program. The Taskforce was an election commitment and was described by the Minister as necessary to provide a more targeted and cohesive response to Western Australia's salinity threat:

> … the taskforce will evaluate current State salinity programs, recommend key improvements, and consider whether the level of response is appropriate to the scale of the problem. It will also recommend how we can better use salinity funds, to ensure programs are delivered to high priority areas. [10]

The Taskforce terms of reference are given in Table 2; the Taskforce is due to report by the end of August, 2001.

[9] http://www.wrc.wa.gov.au/protect/Salinity/index.htm

[10] Media statement, The Hon. Judy Edwards MLA, Minister for the Environment and Heritage, 31 July 2001

Table 2 Salinity Taskforce Terms of Reference [11]

1	Review the strategies and actions of the State Salinity Action Plan and Strategy, and their implementation, paying special attention to: • Community support and capacity building; • Progress is assessing the feasibility of engineering options; • Integration of actions across government at ministerial, agency and regional level; • The potential role of industry, and research and development groups in salinity management; • Progress in the development of new solutions, including the level of support to development programs; • The relationship to and the congruence with regional NRM strategies; • Mechanisms to encourage adoption of improvements in land management practices and to discourage continuation of inappropriate land management practices; and • Mechanisms to support biodiversity protection.
2	In a strategic context, advise on the adequacy of the State's Salinity Program, paying special attention to: • Funding gaps ie actions which are not funded in the current program; and • Whether the level of response is appropriate for the scale of the problem.
3	Review the statewide structures that support a whole of government and community partnership approach to the implementation of the State Salinity Strategy and Action Plan.
4	Review the processes through which these statewide structures report and are accountable to government and community.
5	Taking into consideration the development of the Inter-Governmental and Bilateral Agreements for the National Action Plan for Salinity and Water Quality and other national, state and regional funding programs, review the process for prioritising the future expenditure of funds to combat salinity.
6	Review existing monitoring and evaluation arrangements and processes to: • Advise on appropriate social, economic and biophysical goals and targets; • Advise on how to determine whether strategies and projects are contributing to the targets and outcomes required; • Advise on how to ensure salinity funds are achieving positive change in priority areas on-the-ground; and • Ensure monitoring arrangement are adequate as the basis for annual and five yearly reviews of the effectiveness of the Strategy in delivering relevant environmental and social outcomes.

Regional NRM groups

There are five regional NRM groups in the agricultural regions of the State: the South Coast Regional Initiative Planning Team (SCRIPT), the Avon Working Group (AWG), the Swan Catchment Council (SCC), the South West Catchment Council (SWCC) and the Northern Agricultural Integrated Management Strategy Group (NAIMS). Under the auspices of the State Salinity Strategy these regional groups will be allowed 'to evolve into mature, responsible entities, that have considerable support and respect from the local and sub-regional communities'(SCSM 2000). It is intended that partnership agreements will be

[11] *Emphasis added*

developed, between each regional group and relevant State Government agencies; one partnership agreement has, so far, been signed (Edmondson, pers. comm.) (See Section 6.2.1.1). It is argued that regional groups are well placed to manage salinity issues at the landscape level, and it is primarily at the regional, catchment and farm scale, where the impacts of management practices are felt and the responses best directed (State Salinity Council 2000:27).

The roles of other key stakeholders in NRM in Western Australia are identified in Table 3.

Table 3 Roles of key stakeholders in NRM in Western Australia

Stakeholder(s)	Roles
State Government Water and Rivers Commission (WRC); Department of Environmental Protection (DEP); Department of Conservation and Land Management (CALM);Department of Agriculture; Office of Water Regulation; and Water Corporation	In March 2001, the WA Government appointed a Taskforce to review the number of departments, statutory authorities, boards and committees in the WA public sector and to recommend a package of proposals which would enhance the operation of the machinery of Government. The Taskforce reported in June 2001 (Machinery of Government Taskforce 2001). Already, a new Department of Environment, Water and Catchment Protection (DEWCP) is being formed, amalgamating the Water and Rivers Commission with key elements of the Department of Environmental Protection. The DEWCP is intended to provide an integrated environment and NRM agency for WA.[12] (See Section 6.2.4).
Soil and Land Conservation Council	Section 16 of the *Soil and Land Conservation Act 1945* defines the Council's functions. These functions fall into four main areas of activity: • leadership • policy development • monitoring • providing assistance to the Commissioner of Soil and Land Conservation (See also Table 1) The Machinery of Government Review has recommended that the roles, functions and need for the continuation of the SLCC be reviewed immediately (Machinery of Government Taskforce 2001) (See Section 6.2.4).
State Salinity Council	Non-statutory advisory Council established to: • provide leadership • provide strategic advice to the Cabinet Standing Committee on Salinity Management • coordinate decision and activities between stakeholder groups; and • monitor and evaluate the success of the Salinity Strategy (State Salinity Council 2000:54)
Natural Resources Council	The recent Machinery of Government review proposed that an advisory Natural Resources Council be established to provide holistic policy advice and a high profile, direct interface between the Government and the community (Machinery of Government Taskforce 2001) (See Section 6.2.4).
Salinity Taskforce	Short-term, four-member, taskforce established in May 2001 to recommend to the Government, improvements to Western Australia's salinity Program (See Table 2).
Regional NRM Chairs' Group	Non-statutory advisory group; a forum for exchange of ideas and information between the regional NRM groups.
Regional NRM groups (SCRIPT, SWCC, SCC, NAIMS and AWG) (See Section 6.2.1.4 below)	Non-statutory regional NRM groups, with agency representation. These groups have the responsibility of coordinating efforts between smaller, more localised, community groups in their regional areas, as well as developing priorities and strategies and securing resources (Government of Western Australia nd:7).

[12] http:www.wrc.wa.gov.au

Stakeholder(s)	Roles
Land Conservation District Committees	Established under a 1982 Amendment to the *Soil and Land Conservation Act 1945* . Districts variously define problems, develop and test solutions, conduct field days, purchase and lease machinery, conduct research, plan and implement projects, encourage land conservation and establish standards for land management. The Machinery of Government Review has recommended that a review of LCDCs be undertaken as soon as possible (Machinery of Government Taskforce 2001) (See Section 6.2.4).
Sub-regional groups	Sub-regional NRM organisations (non-statutory), such as the Blackwood Basin Group operating within the South West region (one of 6 subregional NRM groups which make up the South West Catchments Council , a regional NRM group).
Local government	Local Government has a key responsibility as defined in the *Local Government Act* and the *Town Planning and Development Act*. The main responsibilities relate to land use, zoning and development approvals.
Waterway Management Authorities (WMAs)	Five authorities were established under the *Waterways Conservation Act 1976*. The areas covered by the Act (in the South West of WA), and therefore the WMAs, were waterways then under significant stress. Three of the authorities (Albany Waterways MA, Avon River MA and Wilson Inlet MA) have declared areas based on catchment boundaries. The other declared areas (Leschenault Inlet MA and Peel Inlet MA) are limited to the waterway and its immediate riparian zone. The latter have been proposed for extension to take in the catchment but this has been stalled by the evolution of NRM catchment groups. The WRC has been actively overseeing the evolution of the existing WMAs towards catchment based NRM groups (Sparks, pers. comm.).

6.2.1.4 Functions, roles and responsibilities of regional NRM groups

Since the early groups of the 1980s, the structure and function of rural and regional community groups have been adapting to accommodate natural resource management. Over 700 catchment and landcare-related groups now operate throughout Western Australia. They have been developing local strategies and plans and undertaking works in partnership with local and State Government agencies (State Salinity Council 2000:56).

Now, regional NRM groups have evolved in recognition of the need for an integrated, coordinated and "systems" view of natural resource management issues. They provide 'an umbrella network for the smaller landcare, and environment and catchment groups and open the possibility of regionally-developed and implemented strategies to address a variety of environmental issues' (State Salinity Council 2000: 56).

The Regional NRM Groups are intended as community representative structures based on democratic principles. They aim to provide a transparent and accountable mechanism for the facilitation, integration, coordination, delivery and review of on-ground natural resource and salinity management in Western Australia's regional areas.

The Soil and Land Conservation Council (SLCC) observes that quite apart from the opportunity that a regional approach offers for the effective integration of many elements of the resource system, another advantage is that the elements can be reflected by the representation of skills and interests of the membership of the regional group (Soil and Land Conservation Council of Western Australia 2000).

However, whilst acknowledging its strengths, the SLCC concedes that a regional approach has significant weaknesses. A significant risk, for example, is that regional groups may have their strategic capacity overwhelmed by bureaucratic and political pressures. A second weakness is the risk that the wider community may devalue the regional approach over a period of time:

> Currently, the regional model has both the State and federal political and local and regional community mandate to be leaders in natural resource management. However, there is a risk that this approach may ' lose its freshness' and impact and therefore relevance over time, if it is perceived that the regional group is not making and impact 'on the ground' (Soil and Land Conservation Council of Western Australia 2000:21-22).

For these reasons, the SLCC urges that regional groups must have the capacity to maintain flexibility, openness and a systemic approach; this will be aided through partnerships with State and national level agencies.

As mentioned earlier, there are five NRM groups operating within WA. Each has its own constitutional, strategic and operational frameworks, which are outlined briefly below.

6.2.1.4.1 South Regional Initiative Planning Team Inc (SCRIPT)

SCRIPT was formed in 1995 out of local interest in, and government support for, a strategic framework for NRM and associated community development in the South Coast region of WA. Its core responsibility is to:

> bring people, organisations and information together so that the regional community drives sustainable management of natural resources with positive social and economic outcomes.[13]

SCRIPT is an incorporated organisation. It is open to all people of the South Coast region and does not incur membership fees.

The Management Committee is made up of 10 community members and 5 state agency members. Membership is for 2 years. To ensure regional representation, SCRIPT endeavours to draw membership from the Management Committee from each of 6 sub-regions. Opportunities also exist for ensuring improved representation for local government and indigenous interests.[13]

6.2.1.4.2 South West Catchments Council (SWCC) [14]

The SWCC's mission is to promote and coordinate the effective and sustainable use of land, water, biodiversity and coastal natural resources through effective planning and management, research and monitoring and community development.

The formation of SWCC began in 1996 –1997. In 1997 a group of leaders in the South West of Western Australia, submitted an NHT application to develop a Regional Strategy. The group also prepared a Framework document to guide the Strategy. The NHT application was successful and the proponents called together a representative group from across the region to ensure equitable community and stakeholder involvement. Members of this group work together as the South West Catchments Council.

The role of the SWCC is to coordinate partnerships and relationships for NRM to:

- influence coordinated NRM across the south west
- identify regional priorities and opportunities to make a difference
- enhance and protect regional values for natural resource management
- improve communication and promote partnerships
- bring people together in a dynamic forum

[13] http:www.script.asn.au

[14] Sasha Taylor, SWCC, Pers. comm., 12/07/01

- negotiate, advocate and broker support for improved NRM
- create a strategic investment framework through a regional strategy
- integrate action and add value to existing work by creating linkages

A Working Group was formed in 1999 to help develop a Regional Strategy. The Working Group is open to officers and coordinators who represent the range of interests across the region.

As detailed above (Section 6.2.1.1), a Partnership Agreement has been signed between the SWCC and the Government of Western Australia.

6.2.1.4.3 Swan Catchment Council [15]

The Swan Catchment Council (SCC) is an incorporated body whose interest is in the nrm of the Swan sub-catchment of the Swan-Avon catchment. The Swan catchment region covers most of the metropolitan region of Perth and has a population of over a million people. The SCC acts as an overall coordinating group for the whole of the Swan region where there are a number of individual Swan ICM groups, working in sub-catchments of the Swan River. These include 2-3 LCDCs.[16]

The Interim Board of the Swan-Avon Integrated Catchment Management Program made the decision in March 1995 to form the Swan Working Group (expanded and renamed the Swan Catchment Council in February 1999) to coordinate ICM activities in the Swan region. A sister group, the Avon Working Group, was convened to coordinate events in the Avon. The Swan Catchment Council (SCC) was incorporated in 1997.

There has been long standing, active participation in the SCC by Swan catchment group and community representatives and the Department of Agriculture, the DEP and the WRC. The Council expanded to incorporate representation from CALM, the WA Municipal Association, the Ministry for Planning, the Urban Bushland Council, the Wildflower Society of WA, the Environmental Weeds Action Network and the Conservation Council of WA.

The SCC plays a lead role in supporting and coordinating the activities of ICM groups in the Swan Region. As new ICM groups have formed, representatives have been nominated to attend Council meetings. This is vital for communication amongst groups, coordination and focus on key catchment issues of common concern.

The objectives of the SCC are to:

- raise community awareness and involvement in natural resource management in the Swan Region.
- bring together State and Local Government agencies and key community groups.
- raise and pursue priority issues to be addressed in natural resource management on behalf of peak community groups.
- ensure support of all Swan natural resource management activities.
- pursue the integration of natural resource management objectives into political agendas and into operational plans of Government at State and local level.

[15] Robyn O'Grady, CSS, Pers. comm., 16/07/01

[16] Swan Catchment Council, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management.

6.2.1.4.4 Northern Agriculture Integrated Management Strategy (NAIMS) [17]

NAIMS was formed in 1996 due to community and agency recognition of the importance of protecting, enhancing and developing the valuable resource base of the Northern Agriculture Region of WA. To achieve this aim, members of the community, local industry and government agencies, representing the four sub-regions of the NAR, began work to developing strategies and action plans for NRM in the Region.

The NAIMS Group brings together community and government agency representatives that have a role in natural resource management in the Northern Agricultural Region (NAR). NAIMS reflects the recognition that sustainable management of natural resources is necessary for the economic, ecological and social viability of the NAR and that management must be coordinated at the regional level. The NAIMS group is providing direction to a positive future through the identification of key regional natural resource issues, development of strategies to best manage these issues and coordination of plans for implementation of the strategies.

NAIMS is a 'cooperative approach aimed at providing strategic directions and developing on ground actions for natural resource management throughout the Northern Agriculture Region' of WA.[18] The strategy identifies the key issues, how to address these issues and responsibilities for on-ground actions.

6.2.1.4.5 Avon Working Group

In 1994 an opportunity existed for a regional group to be formed for the Swan-Avon Catchment. The introduction of the first Federal Government Regional Initiative for Natural Resource Management (NRM) across Australia saw the formation of the Swan-Avon Integrated Catchment Management (ICM) Coordinating Group, which coordinated the NRM activities in the Swan and Avon regions. This realised the formation of the Avon Working Group (AWG) as a key regional body to oversee regional initiatives in the Avon River Basin (ARB) which consists of the Yilgarn, Avon and Lockhart sub-catchments. [19]

The role of the Avon Working Group in the Avon River Basin is to:

- Lead the Integrated Catchment Management (ICM) Program and instigate new natural resource projects;
- Oversee the management of the NRM Plan in the Avon River Basin;
- Provide support to Community Landcare Coordinators (CLCs) and community initiatives; and
- Secure opportunities critical to the well being of communities in the region.

Members of the AWG represent their community by putting forward issues that affect communities in the catchment. They determine regional priorities and provide information and advice to the Natural Heritage Trust (NHT). They are developing a regional strategy that will drive the future management of all natural resources throughout the catchment. The group coordinates ICM projects, manage State and Federal funds, and plans for improved natural resource management.

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[17] Megan Abrahams, NAIMS, Pers. comm.., 3/07/01

[18] http://www.agric.wa.gov.au/programs/srd/NorthAg

[19] http://www.avonicm.org.au

6.2.1.5 Role of and level of involvement of local government

As in other parts of Australia, the capacity of local government to contribute to NRM in WA is limited. For example, while recognising that local government has an important role and stake in the achievement of ecologically sustainable land management in Western Australia, the Soil and Land Conservation Council has commented:

> Their limited financial resources means that local governments have few staff, particularly in professional areas, which limits their skills and knowledge base necessary for undertaking their functions in ways which contribute to ESLM principles.[20]

Local Government has a key responsibility as defined in the *Local Government Act* and the *Town Planning and Development Act*. The main responsibilities relate to land use, zoning and development approvals.

Members of local government are also part of the community and have close contact with industry and community groups involved in natural resource management. LCDCs all have local government representation on them and they frequently work together with the local Shire, or Shires, which assists in developing and maintaining close communication networks between the community and local government (Government of Western Australia nd:7).

6.2.2 Degree of whole of government coordination

Bradsen (1992) identifies that, historically, a common weakness in the legislative framework for soil conservation in Australia, is the unsatisfactory provision of the relationship between various branches of government. The typical focus of soil conservation Acts, on cooperation and coordination between agencies, has long been misplaced. He argues that, in general, legislation ought to provide that the conservation of land and its administration should prevail over its shorter term productivity and its administration. The WA's *Soil and Land Conservation Act 1945* seeks to deal with this by providing, in a complex section, that it is 'paramount' over 15 other Acts listed in the schedule. This is largely ineffective 'not least because it is legally impossible' (Bradsen 1992:23). Bradsen (1987: 122) notes that:

> Cooperation is highly desirable, but the legislative requirement for mutual cooperation and coordination is entirely unsatisfactory. It is particularly inappropriate in the relationship between soil conservation and agriculture, where the former is located within the latter. Goliath cannot feel much compunction to cooperate with a captive David.

The So*il and Land Conservation Act 1945* is still in place but, nowadays, WA's NRM framework seeks to provide the mechanism for a coordinated and integrated approach to NRM by the four key NRM agencies in the state (Government of Western Australia nd). But, the issue of continued fragmentation of NRM responsibilities between four state agencies has been a matter of considerable discussion and debate in WA (See also Section 0).

For example, the Task Force for the Review of Natural Resource Management and Viability of Agriculture in Western Australia commented on institutional arrangements in the State in the following terms:

[20] Submission (153, p. 11) to the Industry Commission Inquiry into Ecologically Sustainable Land Management (Industry Commission 1998:120).

> There is a plethora of State-based regional structures (including at least two within the Agriculture portfolio – the six Sustainable Rural Development Programs regions and eleven Agriculture Protection Board Zones Control Authorities) that have been set up for specific, advisory, management and support purposes, all of which work to a different set of regional boundaries (Industry Commission 1998:123; WA Task Force 1997).

The Task Force also noted that the CEOs and staff of the agencies meet regularly to enhance the coordination of services: 'However, this arrangement exists without statutory backing and clear mechanisms of accountability and is susceptible to change… ' (McLeod 1996:33).

In a submission to the Industry Commission, in 1998, the Conservation Council of WA concluded that:

> Attempts to deal with issues such as clearance of native vegetation and drainage have been hampered in WA because the issues of who does what have not been resolved by the Government agencies involved, nor is the legislation adequate to deal with many issues (Industry Commission 1998: 123)[21]

The Industry Commission (Industry Commission 1998) itself noted that fragmentation of responsibilities exists even with those jurisdictions which have undertaken rationalisation in recent years (specifically AGWEST) (Industry Commission 1998).

More recently, in a submission to the inquiry into catchment management, the Swan Catchment Council cited the lack of integration amongst NRM and planning agencies as the biggest ICM issue in its region (including local government) and notes that at the senior officer level, NRM agencies appear to be 'somewhat territorial'. It went on:

> Time and time again there is community concern expressed about the lack of integration of natural resource initiatives into the land use planning process and decisions made by the WA Planning Commission. In urban ICM, the headstrong development ethic seen here in WA is implemented at the expense of the natural environment, of community aspirations for environment enmity values, and of future generations.[22]

And in 2001, the Machinery of Government review has noted that WA has:

> an excessive number of overlapping Government agencies … Despite a range of independent and expert reviews, WA's machinery of Government has continued to grow in a haphazard fashion, offering no cohesive support for the delivery of Government priorities (Machinery of Government Taskforce 2001: ii) (See Section 6.2.4 below).

6.2.3 Funding and resourcing capacity

All of the NRM groups are largely dependent on NHT funding and in-kind support from regional NRM agencies, local governments, community groups and individuals.

Increasingly, however, they are accessing funds from other funding sources. For example, the SWCC receives some funding support from the Regional Development Trust Fund (Government of Western Australia). NAIMS has recently received interim funding from the Department of Commerce and Trade's Regional Development Policy Implementation Projects Scheme (RDPIPS) for the position of Executive Officer which has until now been

[21] Submission (177, p. 7) to the Industry Commission Inquiry into Ecologically Sustainable Land Management (Industry Commission 1998).

[22] Swan Catchment Council, submission to the House of Representatives Standing Committee on Environment and Heritage Inquiry into Catchment Management.

provided by the Department of Agriculture. NAIMS manages projects which are funded by State Salinity Council Community Support Scheme 2000 and the Department of Employment and Training.

6.2.4 Monitoring and review mechanisms

As described earlier, the WA Government has recently established a salinity taskforce to review current State salinity programs and recommend key improvements (See Section 6.2.1.3).
The Taskforce's work will be assisted by data being collected by a State Salinity Council audit, which is currently reviewing 10 specific salinity projects. One of the State Council's roles is to monitor and evaluate the success of the Salinity Strategy.

Machinery of Government review

In March 2001, the WA Government appointed a Taskforce to review the number of departments, statutory authorities, boards and committees in the WA public sector and to recommend a package of proposals which would enhance the operation of the machinery of Government. The Taskforce reported in June 2001 (Machinery of Government Taskforce 2001).

Significant changes are proposed in the Environment and Heritage portfolio. A new Department of Conservation and Department of Environment, Water and Catchment Protection (DEWCP) are proposed. The DEWCP will (amongst other outcomes):

- Provide a framework for catchment management (agency focus and leadership role across Government);
- Sustainable use of water resources; and
- Protection and enhancement of the quality of the State's surface and groundwater (Machinery of Government Taskforce 2001: 129).

Other proposals include the establishment of:

- an advisory Natural Resources Council to provide holistic policy advice and a high profile, direct interface between the Government and the community; and
- an independent high level Ministerial advisory body, the Catchment, Water and Environment Commission (CWEC) to provide strategic advice to the Minister fo water resources policy, allocation, licensing fees and other issues related to the responsibilities of DEWCP.

An interim structure has been proposed for the Agriculture, Fisheries and Forests Portfolio, while further review is undertaken. In the meantime, immediate measures will be taken to reform other areas such as the various statutory authorities, boards and committees and policy coordination. The role of the Soil and Land Conservation Council, the Landcare Trust and LCDCs are all recommended for review (Machinery of Government Taskforce 2001).

The Department of Local Government and Regional Development will combine the roles of the current Department of Local Government and the regional functions currently undertaken by the Department of Commerce and Trade. One focus of the new Department will be on the support of 'individual and community capacity building, with particular emphasis on leadership and governance'(Machinery of Government Taskforce 2001:159).

6.2.5 Participatory and partnership processes

6.2.5.1 Representational approach/processes/mechanisms

The Salinity Strategy emphasises the importance of community participation in decision-making and of participatory planning for salinity management on a catchment and farm basis (State Salinity Council 2000:61-62). It notes that effective community participation in natural resource management must continue to be developed 'through financial support of identified endeavours, good technical support and expertise, and the involvement of a wide range of people, including young people and Indigenous people' (State Salinity Council 2000:65).

The membership of each of the Regional NRM groups is based upon representation of the regional community and stakeholders with an interest in NRM in the region. Typically, this includes nominated representation from subregional groups (often the Chair), local government and government agencies (of which there are often several). The Management Committee of NAIMS, for example, is made up of eight community members, two from each of four sub-regions, a representative from the Western Australian Municipal Association. and representatives of *seven* state agencies involved in NRM. These agencies are the Department of Agriculture, CALM, WRC, DEP, Ministry for Planning, Wheatbelt Development Commission and the Mid West Development Commission.

In the AWG, nominations for community representation are received at the end of each year and elections are held at the beginning of the following year. Prospective new members should be nominated by two gazetted Land Conservation District Committee members (although the nominee does not have to be an LCDC Member).

6.2.5.2 Capacity building mechanisms/approaches

The importance of capacity building to the successful implementation of the Salinity Strategy is acknowledged:

> Within each catchment, it is the community's capacity to manage vegetation, soil and waters that provides the potential for sustainable natural resource management. It is important that this capacity is given the best opportunity to develop, which means that we must address issues of equity, biophysical data and information availability, decision support systems and capacity building (State Salinity Council 2000). [23]

Under the auspices of the Department of Agriculture, there have been several recent initiatives in WA which have, as their focus, community capacity building. One of these is the 'Rapid Catchment Appraisal Process', a statewide program in which landholders, with technical assistance, make an assessment of their farming operation and of the alternative options they have for future management of the farm and its natural resources. Thousands of landholders have already participated in this program, which is likely to continue into 2002/3.

One important 'spin-off' of the RCA process, has been the 'Supporting Communities' initiative, which takes a broader 'non-technical' view of farming and community futures, helping local communities to collectively consider their future. This has involved direct mentoring within existing catchment and community groups, and the formation of LDCD 'clusters'. These groups and networks provide a forum in which regional communities can

[23] 'Capacity' refers to the ability of a community or a group of people to pursue their own development. Capacity building is generally recognised as including knowledge building, access to information (and removal of barriers to adoption of that information), leadership development, network building and community involvement (State Salinity Council 2000:26).

consider options such as regional branding, the formation of marketing cooperatives and similar schemes which serve the collective interests of local people.

Another recent initiative, under the banner of 'Progress Rural Western Australia', has been a suite of 5 programs designed to build capacity amongst rural communities. In the NRM arena, the 'Rural leaders' and 'Community builders' programs have been particularly important, providing opportunities for many hundreds of rural residents to have training opportunities in these areas, including, at times, visits to projects elsewhere in Australia and overseas.

In addition to these programs, there is the new 'Farm Biz' model which was launched in July, 2001. Like the previous PMP initiatives, the strategic management of business enterprises, including sustainable management of the NRM resource, in an important course component. Programs have been developed in conjunction with the Indigenous Land Corporation, to ensure that these opportunities are relevant and meaningful to indigenous land managers as well.

> As for the other states, Landcare groups have also played a critical role in capacity building in WA.[24]

6.2.5.3 Communication and interaction mechanisms

All Regional NRM groups are members of the Regional NRM Chairs' Group. The Chairs' group is a non-statutory group with limited executive support. It provides a forum for the exchange of ideas and information between the Groups.

Each of the NRM groups are also involved in a number of other organisations and activities at State level. These include membership of the State Salinity Council, membership of the NHT State Assessment Panel and membership of the WA Planning Commission's Environment and Natural Resources Management Committee (See Section 6.2.6.1.).

The NRM groups place great emphasis on the importance of effective communication with their member organisations and the broader community and have initiated projects to facilitate effective exchange of information. For example, an NHT-funded NAIMS' project (entitled *Community Access to Local Catchment Information***)** is aimed at helping community groups manage the natural resources in local catchments through improved access to base information. The outcome sought is the establishment of a central depository of information for the Northern Agricultural Region and improved transfer of information to and from community groups and government agencies.

6.2.6 Catchment planning and implementation arrangements

6.2.6.1 Powers and resources to implement NRM plans

WA's Salinity Strategy identifies the importance of integrated planning at a catchment level that addresses the broad issues of land and water management, and economic, environmental and social concerns (including equity considerations). Regional strategic plans will guide funding priorities at a broad level and the Plan suggests that catchment management plans should be the primary framework to guide investment at the implementation stage (State Salinity Council 2000: 58).

All of the NRM groups have developed (or are in the process of developing) regional NRM strategies. For example, SCRIPT plays a major role in the development of *Southern Prospects*, a regional NRM strategy providing the vision and framework for NRM in the

[24] http://agweb/landcare/snapshot.htm

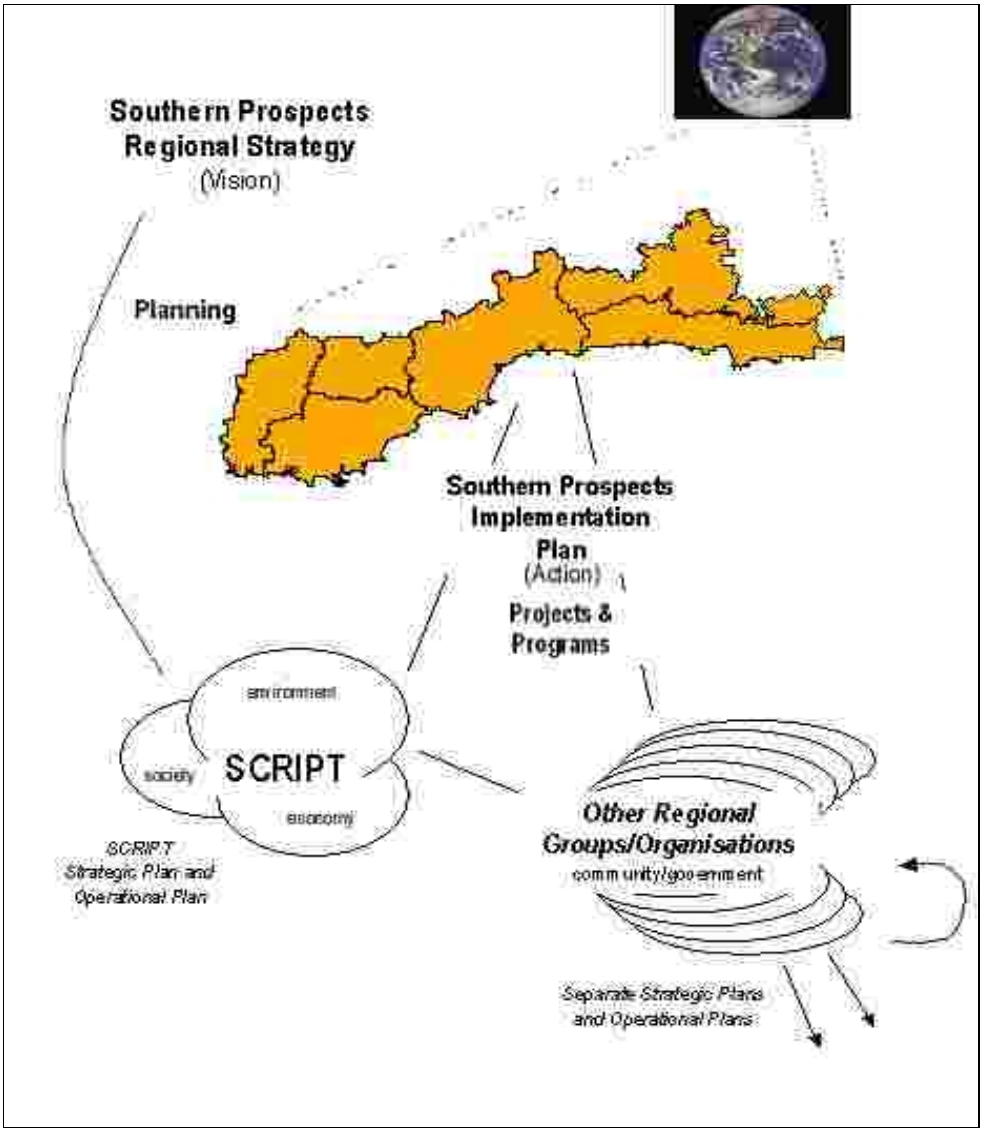
South Coast Region for the next 5 years. It was first published in 1996 and is currently being updated. It will be formally endorsed by the State NRM agencies and the Cabinet Standing Committee for Salinity, prior to its release. SCRIPT has two key roles in relation to *Southern Prospects*. One is to provide the planning mechanisms for and coordinate the development of the Regional Strategy. The other relates to the implementation of 'certain parts' of the strategy; specifically, the provision of a regional communications network, provision of regionally significant NRM data and improved access to funding for NRM and related socio-economic activities (Figure 2).

Typically, all sectors of the community are identified as having a role to play in implementing regional strategies. Land Conservation District Committees (LCDCs), school groups, labour market programs, indigenous groups, local catchment and subregional groups, local government, industry groups and state agencies are all involved in implementation.

The Regional NRM groups have a role in helping to *coordinate* the implementation of the regional strategies. For example the SWCC identifies specific roles for the Committee its role in implementing their regional Strategy as follows:

- Provide leadership on NRM matters of interest to the region and advice to the State and Commonwealth regarding the resolution of issues;
- Coordinate the involvement of regional partners to improve NRM through implementation of the strategy as described in a business plan. In particular, to identify regional priorities and opportunities;
- Ensure the Commonwealth and State NRM framework provides adequate resources for regional implementation;
- Broker additional support for regional partners (particularly subregional groups) to implement the strategy;
- Bring the regional community together in a dynamic forum to improve coordinated NRM. In particular, to engage the community to determine trade-offs between competing values and resources;
- Support communication and information sharing to improve coordinated NRM;
- Coordinate regional implementation of State and Commonwealth policies and programs and provide feedback to influence these plans;
- Coordinate regional involvement to develop agreed regional targets that contribute to State and National outcomes; and
- Coordinate activities of regional partners to achieve these targets and outcomes and to monitor progress.

Figure 2 Relationship between SCRIPT, Southern Prospects and regional groups and organisations



6.2.7 Linkages with other planning processes

In addition to the NRM plans (being) developed by regional NRM groups, the Western Australian Planning Commission is involved in land use planning, including natural resource management, through the State Planning Strategy, regional planning strategies and regional schemes. Regional planning strategies can ensure that salinity management is taken into account at a formative stage in the planning process. They can, for example, identify existing and potential areas affected by salinity and recommend planning measures (State Salinity Council 2000).

The WA Planning Commission has also a policy committee dealing with environment and NRM issues. The Environment and Natural Resources Management Committee was

established to advise the Commission on ways in which land use planning can assist in achieving sustainable management of the environment and natural resources. The Committee first met in November 1999 (Western Australian Planning Commission 2000).

Local government are responsible for the preparation and administration of local planning schemes that regulate land use and development and address land use conflicts. Local government planning schemes can also provide mechanisms to address salinity management through special control area provisions (State Salinity Council 2000).

6.3 Knowledge context

6.3.1 Monitoring and review of NRM condition

The *Land Monitor* project systematically monitors and predicts salt-affected land, and monitors the condition of both remnant and revegetated areas, over the south-west agricultural areas of WA.[25] It is intended to distribute the derived information to the end users and the community and to establish a baseline for continued monitoring. The project involves state and federal agencies.

Another project is *Agbores* which is a groundwater database for the south-west region, which monitors groundwater change. In the Rangelands, *WARMS* (WA Rangeland Monitoring System) uses employs satellite data and data from specific monitoring sites to report on vegetation condition (Nulsen, pers.comm..).

The WRC monitors stream flow and water quality in the State's rivers. It also explores and measure groundwater which, in many areas, presents the only potential source for water needs.[26]

6.3.2 Integration approaches/mechanisms

Knowledge building and the role of knowledge networks is acknowledged in WA's (State Salinity Council 2000: 62-63). In particular it identifies the need:

- to support and expand access to alternative forms of training delivery, such as use of the Internet and other telecommunications opportunities;
- for increased involvement of landholders in research and development;
- to support regional knowledge networks;
- for training opportunities to help build community capacity;
- for technical courses for community landcare technicians; and
- for leadership development.

Community-based knowledge networks provide easily-accessible information. In the long term, it is anticipated that landholders will use these knowledge networks, for example the South Coast Regional Information Centre (RIC), Avon Catchment Network and the Swan Catchment Centre, to rebuild their own management plans. They will also store and update through these types of facilities at the regional level. Salinity management knowledge networks will be supported at the regional level (State Salinity Council 2000).

It is anticipated that over time, all landholders will gain access to up-to-date, regionally specific information on best management practices and new land management systems.

[25] http://www.landmonitor.wa.gov.au/info/index.html

[26] http://www.wrc.wa.gov.au/under/index.html

Some information is already available through established networks such as AgFax, a dial up fax-back service), REX (a revegetation expert system) and the Internet (eg.. AgWEB site). [27]

The Department of Agriculture is intending to develop a project later in 2001, which serve to integrate data, derived for WA, from the National Land and Water Resources Audit (Nulsen, pers. comm.).

6.4 Outcomes

6.5 Appendix A – Salinity Council membership

State Salinity Council Membership [28]

Community Chairperson
Business representative
Environmental representative
Chairman, Farm Forestry Development Group
President, Pastoralists and Graziers' Association
President, Western Australian Farmers' Federation
President, Western Australian Municipal Association
Chairperson, Environmental Protection Authority
Chairperson, Lands and Forest Commission
Chairperson, National Parks and Nature Conservation Authority
Chairperson, Rural Adjustment and Finance Corporation
Chairperson, Soil and Land Conservation Council
Chairperson, Water and Rivers Commission

Observers/advisers:

Chief Executive Officer, Department of Agriculture
Chief Executive Officer, CALM
Chief Executive Officer, Department of Environmental Protection
Chief Executive Officer, Water and Rivers Commission
Manager, Western Division Indigenous Land Corporation

Salinity Council Reference Group Membership [29]

Chairperson, State Salinity Council
Greening Australia (WA) representative
Chairperson, Regional Assessment Panel – Central
Chairperson, Regional Assessment Panel – Metropolitan
Chairperson, Regional Assessment Panel – Northern
Chairperson Regional Assessment Panel – Rangelands
Chairperson, Regional Assessment Panel – South West
Chairperson, Regional Assessment Panel – South Coats
Chairperson, Swan-Avon Integrated Catchment Management Coordinating Group
Chairperson, Blackwood Basin Group
Chairperson, South Coast Regional Initiative Planning Team
Chairperson, Northern Agricultural Integrated Management Strategy Group

[27] http://www.wrc.wa.gov.au/protect/Salinity/index.htm

[28] http://www.wrc.wa.gov.au/protect/Salinity/index.htm

[29] http://www.wrc.wa.gov.au/protect/Salinity/index.htm

Member with Indigenous interests

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APPENDIX 7 - STATE REVIEW - TASMANIA

TABLE OF CONTENTS

7.1 Resource use context

7.1.1 Nature and tractability of resource use issues and tensions at the catchment level

Tasmania has a diverse range of terrestrial and marine environments within a relatively small area. There are 366 islands that are larger than one hectare with a further 600 islands smaller in size surround the main Island itself. The marine ecosystems are rich, with the southeastern region containing the highest levels of marine floral endemism in Australia. The range of climatic conditions and varied topographies in addition to considerable 'geodiversity' has resulted in a rich species diversity. Soil types have been extensively influenced by such impacts as glaciation, which have contributed to landforms such as extensive peatlands, leached sandy coastal soils, various clayey and sandy-loam duplex, both gradational and uniform soils and soils derived from granitic substrates. These landforms have largely determined the biotic diversity as well as land management, production and harvest in Tasmania.

The floral assemblages have a Gondwanan legacy and are categorised into eleven vegetation types with 20% of the flowering plants endemic to Tasmania. Extensive forests sustain a significant income to the state, while diverse vegetation communities extend across the varied geology in a diversity that attracts 69% of annual visitors to nature based tourism. About 40% of the Tasmanian landmass is privately owned, while almost 33% is vested in reservation for conservation. State forest and the hydroelectricity industry retain vesting of almost 25%, with the remainder managed by the Commonwealth, municipalities and the military.

Water has been seen as a key issue in Tasmania with a dependence on hydroelectricity as a major source of power in the state. Other sectors also reliant on water are aquaculture, tourism and manufacturing. In-stream consumers of water amount to a total of 38% of surface water use. Of this agriculture consumes 37%, industry and commercial use (mining, mineral processing, timber and paper processing, textile production and food and Beveridge processing) consuming 14%, and domestic use and power consuming 11% (figures for 1996-7) [Department of Primary Industry, 2001 p. 5].

Major issues facing Tasmania are considered to be connected with global issues of climate change, population growth, economic development, over-use of natural resources, with particular concern for local issues of salinity and potential over-commitment of water resources [Department of Primary Industries, 2001 p. 6]. Industry audits have identified limited access to water as a constraint to growth, particular for agriculture [Department of Primary Industries, 2001 p. 6]. Major challenges facing future water management include an uneven distribution of water resources across the state, meeting the requirements of the Council of Australian Governments (COAG) for the integration of infrastructure that is ecologically and economically viable, in addition to an improvement to integration of water supply and monitoring [Department of Primary Industries, 2001 p. 6].

While approaches to catchment management appear in all natural resources management strategies and discussion, it is only a subset of broader agendas in natural resources management and generally appears at a regional and local scale.

7.1.2 Previous history of resource use issues and environmental management

Contemporary implications for water and catchment management in Tasmania are derived from the older acts that defined water use. The *Water Act* (1957) was the means by which catchments were managed with water allocation and quantity as the primary issues until the new *Water Management Act* was passed in 1999. Responsibility for implementing the old *Water Act 1957* was vested with the Department of Primary Industry and Fisheries who are responsible for water supply, natural resources development, primary production and landcare in Tasmania (AACM Annex A).

The existence of 90 decentralised water supply schemes indicates limited planning for regionally based infrastructure. Decision making on this incremental basis has resulted in a linear system rather than integrated regional infrastructure [Department of Primary Industries, 2001 #6].

Restructuring since 1995, driven by COAG, has involved institutional separation of management and service provision, with some privatisation or corporatisation of water provision services [Department of Primary Industries, 2001 #6]. Changes in emphasis and direction for natural resources management has led to a decline in the part played by the Tasmanian Land and Water Management Council, and associated Catchment Management Working Group, which represented the State's soil and water management agencies, local government and other user groups (AACM Annex A, Pinkard 2001 pers comm). In addition, *The Water Management Act 1999* replaced the *Groundwater Act 1985* with a provision for the issuing of water licences [Department of Primary Industries, 2001 p. 6].

Local government has played a part at both regional and local levels in water management issues, relating primarily to pollutants and supply. The regional perspective held by local government has provided the basis for much catchment management planning in Tasmania (Banks, 1999 #4). Local government in Tasmania was also a signatory to COAG in 1994. COAG resolved to implement a strategic framework for a more efficient and sustainable water industry in part to stop widespread degradation of natural resources and to minimise the unsustainable use of the country's water resources. In addition to the *Local Government Act* (1993), this has laid the way for substantial involvement of local government in regional planning for natural resources management which includes integrated catchment management in Tasmania.

7.1.3 Existence and attitude to cross-border or cross-jurisdictional issues

As Tasmania is an island state, the jurisdictional issues are related to regional boundaries and relationships with the Federal Government rather than with other states. Tasmania has a range of regional organizations for decentralised issues identification and management, these include: Area Consultative Committee (funded by and play an advisory role to Commonwealth); ATSIC Regional Council (funded by and play advisory role to Commonwealth); Regional Development Boards (State Development and local governments); Regional NRM groups (NHT Unit and local governments); Regional Organisations of Councils (local governments); Regional Plantation Committees (under the wing of Private Forests Tasmania); Regional Projects Groups (funded by Commonwealth). While there are significant regional groupings these tend to be special interest/issue focused. There appears to be still limited capacity, among regional institutional arrangements, to consider issues in a cross-jurisdictional way that enables communities to relate in a comprehensive manner to the natural resources on which their economies depend.

7.1.4 Identification with the Murray-Darling Basin

The Murray Darling Basin does not fall anywhere within the state of Tasmania, thus any identification is related to incidental identification through broader issues such as water quality decline, and impact of salinity. The most significant impact of rising salinity is considered to be the regional effect on diversification, from marginal enterprises into intensive irrigated cropping (especially high value salt sensitive crops) NL&WRA (2001). The Murray-Darling Basin serves as a precautionary tale in relation to demand management as can be seen through the following quote from Tasmania's Water Development Plan released in August 2001: "Overuse of water can have significant environmental and economic impacts, as can be seen in areas such as the Murray Darling Basin" [Department of Primary Industries, 2001 #6].

7.2 Governance arrangements

Tasmania recently passed *The Water Management Act 1999* which was expected to significantly modify existing approaches to catchment management (Banks, 1999 p. 4). Despite the establishment of the Resource Management and Planning System of Tasmania (RMPS), which involves much legislation, policy and planning, the recent implications for regional resource management strategies generated by the Federal government have played a defining role in redirecting initiatives. Discussion papers such as "Managing Natural Resources in Rural Australia for a Sustainable Future" (1999) and the "National Action Plan for Salinity and Water Quality" have resulted in a reconsideration of Integrated Catchment Management (ICM) as a frame for resource management. While catchments are recognised as boundaries suitable for managing resource systems, and sometimes reflect other boundaries, such as those of local government, the issues they are required to deal with, such as problem vegetation, water quality and salinity straddle jurisdictions and therefore require institutional support at a more regional and state based level for management. Thus, while *The Water Management Act* passed in 1999 had the potential to provide a legislative basis for the development of formal ICM structures in Tasmania, it seems the influences of other priority setting agendas will play a part in the direction integrated natural resource management takes in Tasmania.

Tasmania has a complex array of sectors with interests in the legislation and management of water resources. All these sectors have some sort of impact on the integrity and sustainability of catchments. Banks (1999) outlines this complexity in her report: "Regional Natural Resource Management in Tasmania. A Framework for Developing Strategies and Setting Priorities". Allocation and administrative conflict over protection and use of water in conjunction with complex water management mechanisms is cited as an obstacle to integrated natural resource management in the state. Though she assumes this would be simplified with the implementation of *The Water Management Act* in 1999, it appears the situation has not been clarified, but awaits further integration and influence from other sources.

Dore (1999) indicates that a significant issue defining direction in Tasmania hinges on the differences between catchment approaches and regional or local government approaches. Both these approaches are subject to State legislative and policy frameworks that prioritise issues for action in Tasmania and frame catchment management (whether integrated as an entity or enacted within local government boundaries) as a sub-set of other broader goals. As he goes on to indicate, the challenges are a willingness to implement a regulatory framework that might provide a "comprehensive, consistent and logical" perspective in a whole of government (and community) approach for managing Tasmania's premier resource, water. The challenges are thus more likely to be faced by State government commitment to implementation rather than local government or catchment groups.

In an earlier review, AACM International (1995) characterised one challenge faced by Tasmania as the dominance of one agency in leading catchment management. Subsequently exemptions from *The Water Management Act* (1999) by mineral, forest and fisheries legislation, indicates that fragmentation by sector offers a further aspect for potential conflict in ICM. Other limitations to catchment management, identified by the review, such as the inter- and intra-agency nature of the voluntary processes, remain valid while no formal structures for ICM are in place. Though this review also recommended changes to partnership structures for ICM, these structures are unlikely to be formed until broader integrating and facilitating structures are put in place through legislation or preferably overarching commitment to integrated NRM. Intractable debates around the integration of catchment management either with water issues in general, or within a broader frame of integrated resource management in particular, remain stumbling blocks to ICM in Tasmania.

While earlier reviews of ICM in Tasmania may appear dated, the progress from issues raised in those reviews may not be evaluated until further progress is made in implementing national strategies such as The National Action Plan for Salinity and Water Quality Management, COAG's Strategic Framework for the efficient and sustainable reform of the Australian Water Industry, The National Competition Policy and The Water Quality Management Strategy. Other state based strategies such as the Water Development Plan for Tasmania, Tasmania Together, the Resource Management and Planning System of Tasmania, the Tasmanian Natural Resource Management Strategy and Tasmania's Nature Conservation Strategy will also have an influence. How these strategies and plans are integrated will provide a clearer insight into how Tasmania will adjust national, state and regionally-based approaches to integrate the goals of ICM with NRM.

7.2.1 Policy frameworks and other institutional arrangements for ICM

7.2.1.1 History and political drivers

Most of the practical ICM type of activity in Tasmania has been occurring at the local government level. This activity has been facilitated by local government reform through the adoption of the *Local Government Act 1994* which reduced the number of local councils from 46 to 29. Ratification to further reduce this number of local councils was proposed by The State Minister for Local Government but was deemed invalid by the Supreme Court in 1998.

The merger of Primary Industries and Fisheries with Environment and Land Management into the mega Department of Primary Industry Water and Environment in 1998 was done with the intention of more closely relating agricultural production to the natural resource issues on which they depend.

In recognising the institutional difficulties arising from a lack of commitment from agencies to explore greater levels of collaboration required for ICM and NRM the Department of Premier and Cabinet created the Natural Heritage Trust Unit. The efforts to create this unit, while a commendable integrative step, were driven by the Commonwealth's insistence that funds for NHT strategies be delivered within the context of 'regional NRM strategies'. While the Tasmanian has once again widened its scope to encompass new institutional structures to deal with integration it has focused little effort on process to influence organisational cultures to facilitate the intentions of these structures into ICM outcomes.

7.2.1.2 Legislative basis

Tasmania has a fiver-tiered statutory planning system, which is called the Resource Management and Planning System (RPMS). This encompasses legislation, state policies, regional planning, local council strategic plans and planning schemes and interim orders. The

scheme is regulated by legislation that directly impacts on local government. Some of these laws include, *State Policies and Projects Act 1993, Land Use Planning and Approvals Act 1993, Environmental Management and Pollution Control Act 1994, Public Land Act 1991, Resource Management and Planning Appeal Tribunal Act 1993.* Coordination activities, relating to these acts, is done by the Resource Planning and Development Commission. This is a statutory body established by the *Resource Planning and Development Commission Act 1997.* There are in addition many acts relating to resource management, which do not fall within the RPMS process of integration.

The *Department of Primary Industries Water and Environment* is the central agency responsible for the sustainable development and conservation of water resources in Tasmania, through *The Water Management Act 1999*, the *State Policies and Projects Act 1993* and the *Environmental Management and Pollution Control Act 1994*. In addition, a number of organisations have an interest and influence in the management of water resources in Tasmania. These include, *Rivers and Water Supply Commission* , which is a government based business enterprise that has interests in the commercial operation of state government water schemes; *Hydro Tasmania* generates 50% of Australia's renewable electricity from water resources across Tasmania; *The Department of Health and Human Services* is responsible for drinking water supplies and works in conjunction with three *Regional Water Authorities* (Esk, Hobart and Cradle Coast Water Authorities) across Tasmania. Water Management Plans are implemented by various water entities that allow stakeholders to look after local water and local government plays a role both at regional and local levels in water supply, quality and management.

7.2.1.3 State-wide structures for ICM/NRM

ICM has been defined in Tasmania by the Tasmanian Land and Water Management Council, through the now disbanded Catchment Working Group as "the coordinated and sustainable use and management of land, water, vegetation and other natural resources on a regional water catchment basis so as to balance resource utilisation and conservation" (DPIWE website accessed 14 August 2001). The emphasis is on voluntary action, cooperation and consultation. Water objectives for stream and water bodies within the state must be consistent with the Resource Management and Planning System of Tasmania (RMPS) which was established through the *State Policies and Projects Act 1993*. In addition, *Tasmania Together*, a social, environmental and economic plan for Tasmania, drives the vision and targets set by the Tasmania people for the government and broader community. The *Resource Planning and Development Commission Act 1997* was the means by which the statutory body of the same name was established to oversee the State's Planning system, environmental reporting and land use assessment. The proposed *Tasmanian Natural Resource Management Strategy* is currently under discussion in relation to providing an overall framework for the management of natural resources across the State. Proposed roles for the strategy include setting priorities for NRM in the state, identification of gaps and overlaps in the management of natural resources, advice for implementation of the strategy, information on appropriate institutional arrangements for partnerships in managing natural resources at the regional level [Department of Primary Industries, 2001 #2].

7.2.1.4 Functions, roles and responsibilities of catchment bodies

At this stage Tasmania does not have an explicit catchment body. To date a range of plans have been developed through a variety of partnerships. In general, these plans provide frameworks for sustainable management of water resources through advice and recommendations.

The DPIWE is currently developing water management plans for the Meander and the Greater Forester water management areas. These plans will be in addition to the recommendations that have already been made by the Meander Catchment land-capability assessment and the Meander Dam irrigation plan currently being developed for the same area (Department of Primary Industries, 2001 #6).

Water management plans are aimed at providing better knowledge of the nature and reliability of water resources in a catchment with the intent of assisting landholders to assess risk. The process operates through focus groups and consultation with a broad range of interested groups and individuals who provide comment on a draft proposal and assistance in the development of water values and management goals for the catchment. Water management regions, and the Water Management Planning Advisory Group underpin the operations of this approach. These plans may be developed for part or all of a watercourse or several joined water courses. Lakes, aquifers and other types of water bodies may be included in plans. Plans must include environmental water provisions, assessment of drawing water on any relevant ecosystems, and an assessment of impact on water quality. Three levels of plans may be developed each with an increasing attention to the integration of issues and statutory implementation that may impact on sustainability of the resource (DPIWE website accessed August 2001).

Irrigation development and planning is currently underway in 8 regions. Assessment of these proposals is made by an expert panel which includes expertise in soils, agronomy, economics and finance, industry development, water and irrigation engineering and irrigation farming. Six of these regions have been identified as high risk salinity areas.

7.2.1.5 Role of and level of involvement of local government

Include: how provided (eg. catchment, local government)

Catchment or river management plans have been developed for a range of water bodies in a range of scales in all 29 local government areas of the state. As ICM is primarily based at a regional and local scale, local government appears to take primary responsibility for the management and consultation for catchment management. At present there is some collaboration across local government bodies through five regional council groupings, paving the way for broader regional consultation and management of particular issues. Statutory responsibility for planning and management of waterways is provided by the *Land Use Planning and Approvals Act 1993*, but scarce resources and sectoral interests limit the extent of involvement (Banks, 1999).

Several local governments in Tasmania have taken a lead role in trying to grapple with the lack of cross-agency coordination by championing integrative strategies with a regional focus. These initiatives are intended to consider the dimensions of ecologically sustainable development, which encompass ICM considerations. There is difficulty with promoting ICM by as a stand alone initiative at 'the coal face' in Tasmania because of the widespread depressed nature of regional economies. The economically depressed environment has promoted an orientation toward focusing on short-term economic outcomes rather than systems considerations which involve the collective consideration of the economic, social and environmental aspects of problems. Recognising these over-riding local imperatives the Dorset Council and a coalition of interests from the Launceston Tamar 'region' are seriously grappling with how to improve links with local council, state agencies, natural resource management, economic development proponents and the associated statutory planning scheme (Dore and Woodhill 1999). In 1998 the Tamar region was selected to be an NHT funded case study region for Tasmania for NRM. These are commendable efforts in pursuing

ESD that recognise local cultural and economic imperatives. There are lessons to be learned from these strategies for ICM in Tasmania.

7.2.1.6 Degree of whole of government coordination

In 1994 the Tasmanian Land and Water Management Council was established as a coordinating body for natural resource management. This was a twelve-member body with equal government and non-government representation. This body had an oversight function for ICM in Tasmania but was not effective and was disbanded in mid 1997. There is now no peak or representative group overseeing ICM in Tasmania.

State agencies and local governments have various responsibilities for natural resource management under the Resource Management Planning System (RMPS). However, significant areas of public land and water are outside the jurisdiction of this scheme and hence many state agency managers are excluded from the RMPS process. Local governments such as Launceston and Dorset are exploring avenues for a 'whole of government' response to the challenge of coordination. However in Tasmania at the moment there is not a widespread effective coordination of effort between state agencies, local governments, industry and community groups. This would suggest that despite various legislative reform measures the issues of parochialism, uncoordinated bureaucracy and narrow interest agendas highlighted in the Nixon Inquiry (1997) persist in Tasmania.

7.2.1.7 Funding and resourcing capacity

The Tasmanian Land and Water Management Council (1994-97) made proposals for a State land and river improvement fund and the associated River and Soil Conservation Boards were not adopted, primarily because of lack of agreement on a catchment levy and the State's tight budgetary situation (Giblin 1997).

ICM type activities have sought funding through National competitive grants schemes such as NHT, which have been mostly auspiced through local government eg. Tamar region.

7.2.1.8 Monitoring and review mechanisms

The 1996 Review of the Tasmanian State Resource Management and Planning System (RMPS) highlighted the significance and importance of ICM in developing a more integrated approach to natural resource management in the state. As this package of legislation mainly refers to local government planning jurisdiction the balance of responsibility has fallen on local government to seek monitoring and review mechanisms. This has resulted in a focus of activities to enforce the *Environmental Management and Pollution Control Act 1994*, rather than a broader interpretation and monitoring arrangements for ICM. For example a successful State-wide program has been Tasmania's Dairy Shed Effluent Management Program, which has encompassed widespread involvement from State, local, community and industry stakeholders.

7.2.2 Participatory and partnership processes

ICM has taken many non-specific forms in Tasmania, within an evolutionary process that is ongoing. While previous reviews have indicated that a bottom-up approach in terms of implementation through catchment communities may provide solutions (AACM Annex B 1995), there is strong evidence from the extent of catchment oriented plans and strategies generated within local government regions, that community participation and ownership of issues is not poor. Rather, the overarching direction that can be provided through the state to identify and prioritise issues and implementation may be lacking or obscured at this point.

Recommendations that have been made in the past to establish regional catchment management boards have not been forthcoming, nor has an alternate NRM based body been established. Overarching visions and strategies are explicit and well researched, and community participation at a regional level with a local government basis is not lacking. State agency participation and provision of direction appears to be the vital component necessary to provide broad, visionary, participatory based approaches that integrate Federal and State policy and legislation with commitment from regional Tasmania.

7.2.2.1 Representational approach/processes/mechanisms

There is widespread recognition within state based environmental legislation (*Environmental Management and Pollution Control Act 1994, Marine Farming Planning Act 1995, Living Marine Resources Act 1996, Tasmanian State Coastal Policy 1996)* of the importance of maintenance of water resources and their environments. This recognition occurs also in the suite of *Acts* encompassed in the Resource Management and Planning System, which are mainly targeted at local government resource management. Their orientation for implementation would appear to remain relatively reductionist or regulatory and therefore have not captured well the underlying orientations of ICM practices. This can most readily be attributed to weak representational linkages between agencies with legislative responsibilities for environmental care and community issues and activities. Without specific policy relating to ICM implementation it is difficult to determine the lines of accountability for ICM in Tasmania.

7.2.2.2 Capacity building mechanisms/approaches

While there are some good examples of community capacity building approaches being championed at the local government level (see Tamar Region NRM case study in Dore 1999) this does not seem to be an approach that is supported broadly at the state government level in Tasmania. Mixed perceptions of what is constitutive of ICM and organisational cultures that are strongly regulatory act as impediments to effective ICM. Greater ownership in the development of processes and mechanisms by a broader range of community stakeholders, while not a prescriptive procedure, continues to remain problematic in Tasmania.

7.2.2.3 Communication and interaction mechanisms

There would appear to be widespread consensus that the communication and interaction mechanisms for ICM have not been effective in Tasmania. The exception being a couple of notable sustainable regional development activities that are being championed at the local government level. The state level reform processes have concentrated on structure without enough emphasis on processes of communication and interaction to facilitate implementation. This is unquestionably a strategic priority and consequent resourcing issue.

One of the major challenges in developing an ICM framework in Tasmania has been the issue of ‘regions’ (Giblin 1997). State Government has focused much attention on identifying appropriate regional boundaries and establishing resource priorities on the basis of analysis of economic, social and environmental costs and benefits. This attention to structure and quantification has come at the expense of effective communication and network building activities identified by House of Representatives Standing Committee on Environment and Heritage (2000) as integral to effective ICM.

7.2.3 Catchment planning and implementation arrangements

7.2.3.1 Powers and resources to implement catchment plans

There is no one specific catchment management act, nor an over-riding catchment management policy related to all agencies in Tasmania. Different agencies have developed different responses in line with their corporate goals. This has resulted in significant divergences in how catchment management is interpreted and this is a limiting factor in attempts at ICM implementation in Tasmania. More participatory development of integrated natural resource management is being championed by a number of local governments with support from state agency personnel in some cases. This is occurring in a relatively opportunistic way based on individual commitment and interest rather than in a coordinated and supportive 'whole of government' way. This significantly limits the powers and resources available to implement catchment management plans in Tasmania.

7.2.3.2 Linkages with other planning processes

Tasmania's statutory planning system as it relates to ICM is largely encompassed within the Resource Management and Planning System (RMPS), which applies mostly to local government.

'Reservoir catchment management', with the overall goal of maintaining water quality and quantity for hydro-power or urban water supplies, historically appears to have been the most common form of state based catchment management in Tasmania (AACM 1995). This has been the responsibility of a single agency depending on use.
There is recognition of the economic importance of marine and estuarine resources in Tasmania for commercial fishing and tourism. The health of these systems is directly influenced by catchment management strategies. Coastal development activities are managed under the *Marine Farming Planning Act 1995,* and the *Tasmanian State Coastal Policy 1996.* With no specific legislation for ICM it is difficult to determine the linkages among these planning structures.

7.3 Knowledge context

7.3.1 Monitoring and Review of NRM condition

Recent assessment of the increased incidence of salinity, in addition to a perceived deterioration in water quality has prompted Tasmania to seek to integrate policies on natural resource management with those generated by the Commonwealth (Department of Primary Industries, 2001 p. 2). The three main drivers of salinity in Tasmania are considered to be land clearing, irrigation and. Recent audits of dryland salinity have detected a rate of increase of 1.5% per annum with around 3% of land impacted currently along with 132 out of 800 wetlands and almost 30 vegetation communities. In fifty years the cost to agriculture is expected to almost double to approximately $9.3 m (House of Representatives, 2000). Rates of clearing of native vegetation continue to climb, with current rates at almost 16 000 hectares per annum (more than double that of Western Australia) and are expected to make a substantial contribution to degradation in the state (Department of Primary Industries, 2001 p. 3).

It is not a unique feature of ICM in Tasmania that the poor inclusion of scientific understandings in resource management processes have led to a limited role for monitoring and review in assessments of NRM condition. However this situation has been compounded

in Tasmania due to the more dislocated nature of the state regulatory structure and societal participation, especially in developing mechanisms for the implementation of NRM strategies.

7.3.2 Integration Approaches/Mechanisms

The Department of Primary Industries, Water and Environment (DPIWE) has designated 48 catchments for the state. There are currently Natural Resource Management processes underway in 27 of these catchments (House of Representatives 2000). ICM approaches and mechanisms have the potential to be influenced by many of the 96 Acts of Parliament currently administered by the DPIWIE.

7.4 Outcomes

7.4.1 What are the outcomes

The Tamar region case study formally initiated in 1998 with NHT funding is the most widely known application of integrated NRM/ICM in Tasmania. The most significant outcomes to be derived from this initiative have the development of participatory processes that has representation from state and local government as well industry and community. Through this process priority natural resource management issues have been identified. These included declining water quality; lack of knowledge, research and education about biodiversity; nuisance fauna and flora; loss of native vegetation; adverse sedimentation impacts on the Tamar estuary and North Esk River; unsustainable land use; conflicting demands for water and seasonal variations in water availability; habitat loss, modification and isolation and its impacts on biodiversity; particulate and gaseous emissions; and solid waste management, Dore (1999 p41).

A clear outcome from the Tamar region is that representative process is an effective way of collectively identifying priority issues.

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