NATIONAL RIPARIAN LANDS R&D PROGRAM

Assessing community capacity for riparian restoration

Don Thomson and Sharon Pepperdine

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Abbreviations

BBG	Blackwood Basin Group (WA)
CD	capacity development
CMA	Catchment Management Authority
ECDPM	European Centre for Development Policy Management
ICM	Integrated Catchment Management
JRCMA	Johnstone River Catchment Management Association
LCDC	Land Conservation District Committee
LWA	Land & Water Australia
LWRRDC	Land & Water Resources Research & Development Corporation
MRCCC	Mary River Catchment Coordinating Committee
NAP	National Action Plan for Salinity and Water Quality
NLWRA	National Land & Water Resources Audit
NRLPD&EP	National Riparian Lands Program Demonstration and Evaluation Project(s) (a LWRRDC program)
NRM	natural resource management
SCRAM	social/human capital rapid appraisal model
ToT	transfer of technologies (an extension model)
WAFF	Western Australian Farmers Federation

1 Introduction

1.1 Project objectives and background

This project was instigated to assess whether the National Riparian Lands R&D Program 'Demonstration and Evaluation' Projects (NRLPD&EP) of Land & Water Australia[1] (LWA) have built 'capacity' for long-term change in approaches to river and riparian management within the communities that have undertaken them.

'Capacity' was defined, for the purposes of framing this study, as an individual or group's ability to learn, understand and act so that they can continue to build on the work that the original project funding was designed to achieve.

The project brief sets out the following objectives for the project (LWA 2002):

1. Understand the opportunities and constraints to implementation of best-practice riparian-management practices, identify and rank in importance key influencing factors, and provide advice on how to develop policies and programs that address these factors.
2. Assess the extent to which community-based projects have built capacity in the individuals, groups and organisations involved, and develop practical measures so that this capacity can be quantified.
3. Evaluate the extent to which Land & Water Australia's National Riparian Lands R&D Program's Demonstration and Evaluation projects have influenced management practices at a catchment scale, and develop ways in which Land & Water Australia and other organisations can improve program and project design to maximise community capacity building.

Key outputs of this project include a series of guidelines to inform other programs, such as the National Action Plan for Salinity and Water Quality (NAP), about the role of demonstration sites and other government and non-government support, in building community capacity. The project will also inform LWA policies and programs, particularly in relation to capacity building.

A key product of this project is a 'capacity assessment tool', a spreadsheet designed to help project managers, policy and program developers, and others, understand the 'dimensions' of capacity and assess the current condition of their region of interest.

Figure 1. Location of National Riparian Lands R&D Program demonstration and evaluation sites (Source: Lovett 2001)

1.2 Methodology

This study comprised three main phases. The first was to identify the critical success and failure points in relation to riparian capacity, drawing on the National Riparian Lands R&D Program Demonstration and Evaluation Project case studies. The second was to develop an assessment tool to enable project managers, policy developers and groups to assess their regions and programs on a range of dimensions of capacity, and to guide them in ways to enhance capacity. The third was to workshop the findings from the first two phases with a range of people with experience in community

[1] Land & Water Australia (LWA) is a brand name for the Land & Water Resources Research & Development Corporation (LWRRDC). The latter remains the formal legal name of the Corporation. The Board of the Corporation adopted the brand name in September 2000. While the demonstration and evaluation projects included in this review were all funded and completed before the brand name change, we have referred to LWRRDC as LWA throughout this report for consistency and to avoid confusion.

participation in natural-resource management (NRM) at local, State and national levels. The methods employed for each phase are discussed below.

Regional case studies

The purpose of this stage was to identify the enabling and constraining factors for riparian restoration activities at the individual, community and institutional levels. Information collection during this phase focused on two key areas:

- identifying the enabling and constraining factors that applied at individual, community and institutional levels
- gaining an understanding of the biophysical, economic, political and social context within which the projects were situated, so that we could understand the degree to which constraining and enabling factors varied in different contexts.

While all 11 catchments that hosted National Riparian Lands R&D Program Demonstration and Evaluation projects (Figure 1) were reviewed, five were selected for detailed investigation. This selection process was undertaken after reading the final reports of the projects and discussing the projects with the Steering Committee. The LWA-funded projects had been completed by 2000, so none of the projects were funded by LWA's National Riparian Lands R&D Program at the time of this study.

Initial data collection involved reading the project reports (including milestone reports), reviews of the projects, and any research reports commissioned as part of the projects themselves. LWA staff associated with the demonstration and evaluation projects were also interviewed early in this phase.

During 2002, we visited each of the five case-study sites for a period of 2 to 4 days, and it was during these visits that the majority of the data collection for this phase of the project was undertaken. The regional visits provided an opportunity to use the project sites as a catalyst for discussions with a range of people involved in the projects about the issues behind their positive and negative experiences. Discussions were held with landholders (demonstration site hosts and other landholders), State agency officers, catchment management committee members and staff, Landcare coordinators, local government officers, field staff of revegetation schemes etc., all of whom had varying degrees of direct or indirect association with the demonstration and evaluation projects.

Visits to the sites were pre-arranged so that the landholder could, in most cases, be present. Catchment authority and/or State agency officers usually accompanied us on the inspections. During most site visits, we were usually able to have some discussions with the landholders alone, so as to allow at least the opportunity for sensitive issues to be raised without the agency/catchment authority staff being present.

The other key method of data collection during the regional visits was to run focus group sessions with catchment committee members or agency staff, or sometimes a combination of the two. These were largely unstructured because the format of the visits varied from region to region. However, we had various objectives for the visits and, depending upon the circumstances presented to us, we tailored the sessions to suit the audience. For three regions we were able to use a 'context plotting' exercise as a focus for group discussion. In other regions we focused more on the opportunities and constraints to riparian restoration.

From the site inspections and discussions, we were able to compile a list of dimensions of capacity in relation to riparian restoration. We were also able to gain an appreciation of how important each dimension was for each region. These dimensions were then used as the framework for a 'capacity assessment tool', which was developed and pilot-tested in the second phase of the project.

Pilot testing the assessment tool

The purpose of this stage was to elicit feedback on the usefulness of the assessment tool developed as an outcome of phase one of the project. The electronic version of the assessment tool (or a paper copy where necessary) was sent to 20 of the 32 participants in the regional investigations.

Participants were asked to complete the assessment tool and send back their comments, either using a structured response sheet provided, or to comment directly by telephone or e-mail. Four questions were asked to prompt discussion, covering the following issues:

1. the suitability and applicability of the themes and dimensions of community capacity within the assessment tool and the need for additional dimensions
2. the meaningfulness and applicability of the statements for different project/program scales and contexts
3. the value and suitability of the weighting system
4. the utility of the recommendations regarding ways of overcoming 'capacity' limitations.

The response rate to our request for comments was low — eight people provided formal feedback. This was due mainly to poor timing. The pilot-testing took place over Christmas and just before a particularly busy time for agency staff with many deadlines for funding applications occurring at the same time. However, the

tool was refined in response to the comments that were made.

Workshop

A workshop involving more than 30 people from the case-study regions, State and Federal agencies, local government, Greening Australia, private-sector consultants and LWA, was convened to present the outcomes of the project to date, and to present and workshop the 'capacity assessment tool' (see Appendix 1 for a list of participants).

A discussion paper was distributed to workshop registrants two weeks prior to the event, enabling participants to familiarise themselves with the project, its findings to date, and the need for, and possible uses of, a 'capacity assessment tool'. Another aim of the workshop was to gain feedback on the applicability of the process-oriented approach to capacity developed as part of the project.

Other researchers gave presentations about the work they had undertaken relevant to understanding or assessing capacity.

An overview of the assessment tool was presented, and the potential uses for and users of the tool were discussed in detail. The results of these discussions, and general feedback from the workshop, have been incorporated into this report and the assessment tool.

2 Theory and practice of 'community capacity building'

As recognised in LWA's Strategic R&D Plan 2001–2006 (LWA 2001), tackling land and water-resource management issues in Australia requires strategic and targeted knowledge, cooperation, volunteerism and innovation. Achieving productive and sustainable landscapes is therefore largely a social problem. This, as well as an increasing interest in 'triple bottom line' accounting, has resulted in recent interest in the concepts of 'social capital', 'social capacity', and 'capacity building'. But what do these terms mean, and why are they important? This section of the report critically examines the current thinking on capacity and capacity building, and then suggests a way forward.

Although a literature review was not a formal requirement of this project, it was deemed necessary because of the need to identify a theoretical framework upon which to understand what capacity means in practical terms for landholders, groups and institutions. Much of the social capacity/capital literature focuses on only social issues, often ignoring the economic, political, biophysical and historical influences that are so important in providing a contextual setting for NRM, and for shaping everything from institutional arrangements through to individual motives and attitudes. Because this project is looking more broadly at the issues of 'community capacity for riparian restoration', we have not limited our inquiries to 'social' issues (not that the 'social' can be separated anyway). Our response to much of the literature is therefore quite different to what it might be if we were strictly concerned with 'social' and 'human' capacity/capital.

2.1 Some definitions

Definitions of 'capacity', 'capital' and 'capacity building' are all rather confusing, partly because one is often defined with reference to the other. It is not our intention here to repeat these definitions; rather, we want to highlight some of their inadequacies and good points.

'Capacity' encompasses social and human capital, but it is concerned not only with the resources available — the capital — but also with the *ability* to *act*. There are many descriptions of the 'elements' of capacity in the literature (see Table 1).

'Capital' is often thought of as a stock of assets or resources that can be enhanced only with investment and have an assessable value. Five types of capital are often cited in the 'social capacity for NRM' literature: natural, social, human, physical and financial capital. While all five forms of capital are relevant to NRM, it is the two social forms of capital that are of immediate interest here: *social capital* (community-level), and *human capital* (individual-level). The 'elements' within definitions of social and human capital also vary, but tend to encompass many of the types of elements listed in Table 1.

Table 1. Elements of social capacity identified in the literature (source: Cocklin *et al.* 2001, p.106)

Norms and values	• Shared values, norms, attitudes • Shared vision that takes account of history of collective members • Inclusiveness • Trust • Reciprocity • Identification with a social collective or 'group'
Knowledge	• Knowledge and skills acquired from education and training or experience • Knowledge of where and how to access resources
Skills in working together and with others	• Leadership • Self-efficacy for participation • Decision-making and problem-solving • Conflict resolution, negotiation
Interactional infrastructure	• Relational networks (external and internal) • Social brokers • Events, meetings and communication sites • Procedures, rules, precedents and organisational structures

'Capacity building' relates broadly to some form of external or internal intervention aimed at enhancing the ability of individuals and communities to act. The National and Victorian Capacity Building frameworks for NRM (Anon. 2002; Anon. n.d.) define capacity building

as the range of activities by which individuals, groups and organisations improve their capacity to achieve sustainable NRM. Capacity development (CD) is a more recent derivation of 'capacity building'. CD emphasises a process-oriented approach that recognises existing capacities rather than focusing on building new capacities. CD is a general term, encompassing many approaches and methodologies.

2.2 Some conceptual issues

The definitions cited above, which have been derived from a broad literature,[2] are comprehensive in that they encompass many issues and dimensions. They are therefore quite useful in understanding *what* capacity and capital might be, but not very useful in understanding *why* capacity and capital are important and *how* they can be 'enhanced'. This makes it very difficult for individuals and organisations involved in NRM policies and programs to develop an understanding of what capacity and capital mean in practice.

Part of the difficulty inherent in the concepts of capital and capacity relates to the problem of defining an end-point or goal to which individuals or institutions might aspire. This approach is largely a result of a traditional 'extension' or 'transfer of technology' (ToT) perspective on 'capacity', whereby scientists, governments and industry (or technocrats, in broad terms) claim to have the knowledge of what needs to be achieved, and are interested in assisting communities (often especially landholders) to achieve these objectives. Under this perspective, a common first question when considering how to put the notion of 'capacity' into practice has traditionally been to ask: Capacity to do what?. Once the problem is defined and you know what you want people to do, you can assess the capacity of the community to reach that goal, and put into place some strategies to enhance capacity where it is perceived to be lacking. On the surface, this seems logical and practical. However, there are three key problems with this approach:

- Firstly, it assumes that there is knowledge either within institutions or the community as to what needs to be done, and that this knowledge is not contested.[3]
- Secondly, it conveys a rather one-dimensional perspective of change. The social, economic and physical landscapes are always in a state of flux, so the 'goal posts' keep moving. Therefore, people and institutions need to be able to cope with these changing conditions and to continue to achieve milestones along the way to maintain interest and motivation, and to be able to adapt management to these new circumstances in a positive manner.
- Thirdly, it conveys a 'top-down' approach to tackling environmental management issues.

The 'old' ToT models of extension are gradually making way for more participatory and process-oriented models of 'extension' (Petheram 2000), but it is important that the tendency for the technocratic perspective is kept in check, especially when considering 'capacity building' initiatives. 'Capacity' certainly implies an 'ability to act' towards some goal or intent, but it is more than that — it is a robustness, a resilience and a strength to not only cope, but also to prosper in a changing world. Importantly, capacity also encompasses an ability to set ones own agenda — an ability "to set and implement development objectives…" (Land 2000, p.2). At some specific scales (spatial and temporal), it may still be warranted to approach capacity enhancement by asking: Capacity to do what? But we argue that it should not be the starting point because of the potential to undermine some of the key dimensions of capacity, such as 'trust, reciprocity, empowerment and shared visions'.

We believe that the key to unlocking what capacity really means in practical terms for individuals and organisations involved in NRM is to look at capital, capacity and capacity building from a **dialectical perspective**. Dialectics is the study of flows and fluxes, and sees 'things' (resource condition, attitudes, behaviours etc.) as outcomes of underlying processes. Riparian land management is the outcome of many underlying processes that wax and wane in space and time. Furthermore, whether or not riparian management in one place and time is defined as 'good' or 'bad' depends upon the values, perceptions and knowledge of individuals, governments and the broader community. These values and perceptions also change over time because they are the outcomes of underlying social and cultural processes.

Taking this kind of approach to the issue of social capacity for NRM, some of the more useful and comprehensive definitions come from the 'capacity development' (CD) arena.

The European Centre for Development Policy Management (ECDPM), for example, defines capacity as a dynamic entity. They view capacity as a continuous process by which individuals, groups, institutions, organisations and societies enhance their abilities and meet development challenges. This view of 'capacity as a process' places an emphasis on the roles and responsibilities of all actors, the relationships between them and their attitudes. It is this interest in the role of organisations, and the interrelationships between

[2] For a broad review of the literature see Putnam *et al.* (1993), Cocklin *et al.* (2001), Andrew and Aslin (2002), and others listed in the References.

[3] If knowledge about what needs to be done is contested, the likely next step in 'capacity building' is to 'increase' the knowledge of the community, often without acknowledging that the community is knowledgeable, but that perhaps that knowledge is not in the same form as that of the technocrats.

individuals, organisations and the broader community, that is of particular interest. We will return to this later.

The ECDPM definition of capacity also acknowledges different **levels of capacity: individual** capacities are the 'skills and aptitudes' considered necessary to partake in the process; **organisational** capacity, it is recognised, is influenced not only by internal structures, systems and procedures, but also by the collective capabilities of staff as well as by external institutional and cultural factors. All of these factors may constrain or support organisational performance.

From a dialectical perspective then, we can start conceptualising 'capital' as more than a commodity — a stock of assets. Marx (1887) described capital as a dialectic process, starting with the idea of capital as a tangible, material entity, but envisioning it as having use-value and exchange value; built on the premise that nothing can have value if it is not useful. So too, we can appreciate that the stock of assets within a community (the skills, knowledge, social networks etc.) are of little use unless they have value, are recognised, and can be put into action.

This approach puts 'capacity' in the same ilk as the concept of 'agency', as characterised within recent sociological theories (eg. Hays 1994; Giddens 1984). Under these more recent theories, agency is recognised as "embracing social choices that occur within structurally defined limits among structurally provided alternatives" (Hays 1994, p.65), where 'structures' are social networks and institutions. These social structures are more or less open to intentional or unintentional transformation, because different members of society, at different times, will see them as more or less powerful.

Another value of seeing capital as a process is that it allows us to consider the interrelationships between the different forms of capital (social, human, natural, physical and financial) and to understand how these processes wax and wane over time and place to produce different outcomes, including changes in the 'level' of capital. This is another area in which the approach we have taken in this research has yielded additional insights into the problem of 'capacity' than if we had approached the problem from a single perspective or discipline. By considering all the issues that have enabled and constrained participants in riparian restoration activities, be they economic, political, social, cultural, biophysical etc. we have been able to understand the relationships between these issues, as well as their relative importance in achieving riparian restoration outcomes.

2.3 Defining capacity as a process — the 'good oil'

So, if we envisage capital as an ongoing process, then that process implies 'action'. This 'action' is largely a function of the process of change, which, as Harvey (1996) argues, is the only constant.[4] So where does capacity fit in this process?

As we discussed earlier, social capacity is often defined as an ability to *act*. We envisage capacity, then, as what *enables* this process of capital accumulation and decline — like a lubricating, or enabling, 'oil'. In other words, capacity could be described as:

> **…the ability to understand and deal with the enabling and constraining elements, dimensions and issues that drive the process of capital accumulation and decline (in all its forms).**

This concept of capacity also acknowledges the other forms of capital that constrain or enable action: financial, physical and natural capital. This is important because it acknowledges that we may be able to overcome a lack of capital in one area by enhancing capital in another area. An example of this is the common practice of providing additional financial resources to landholders to overcome a lack of physical capital that affects their capacity to carry out works.

When this approach to defining capacity was presented to participants from various local, regional, State and national institutions at a workshop in Canberra on 2 April 2003, there was general support. There was some informative debate around the appropriate wording of a definition of 'capacity as process', but in the end it was agreed that the general approach was worthwhile, and that the word crafting was less important. Nevertheless, it is worth documenting at least the outcome of that discussion because, over time, there will undoubtedly be refinements to the concept and the definition as it is more widely applied and tested. An important point arising from the discussion about a definition of capacity was that 'ability' is probably not quite the right word because people and institutions may be *able* to act, but are constrained by other issues. 'Capability' is, therefore, perhaps a better word.

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[4] Harvey's thoughts on change are very useful here. He argues that change is constant and cannot be 'managed'. At best, we can only seek to understand the underlying processes that influence the direction and speed of change. When considered from this perspective, the idea that we can 'manage change', as suggested in some definitions of capacity building, is illogical. A more useful approach is to seek to understand how people can cope and prosper in changing circumstances, and to seek to understand the 'what', 'why' and 'where' of change so that the outcomes of change might be more palatable.

The working definition that emerged from this part of the discussion was: "Capacity is the capability to participate, learn, understand and deal with underlying processes, influencing desired outcomes".

It was agreed that this needed more refinement, but participants supported the important elements of 'participating', 'learning', 'understanding' and 'dealing' within this working definition.

It was also agreed that this kind of approach opened the way for a more adaptive, holistic, integrated and flexible approach to proactively understanding and enhancing 'capacity'. After due consideration of the discussions at the workshop, the following is suggested as a working definition of capacity in the context of riparian restoration:

> **…the capability of individuals, groups and institutions to understand and deal with the enabling and constraining elements, dimensions and issues that drive the process of capital accumulation and decline (in all its forms) to produce desirable outcomes.**

2.4 Reconsidering capacity building

Taking this multi-disciplinary and dialectical perspective, the task of learning about and assessing capacity shifts towards analysing the outcomes of many underlying processes to see where things might be done differently to achieve a different (better) outcome in the future.

So, if capacity is envisaged as the 'good oil', then capacity building is all about enhancing the ability of groups and individuals to apply the oil to the right cogs to achieve the best outcomes from the underlying processes.

Traditional extension models advocate the transfer of technology and technical capability and, to a degree recent 'capacity building' strategies follow the same tradition. However, there is now more emphasis on building relationships and participatory processes so as to facilitate ownership. The National Natural Resource Management Capacity Building Framework takes this approach (see Anon. n.d.).

A more comprehensive approach, which recognises capacity and capital as processes, is the 'capacity development' approach advocated in some of the international literature. The capacity development approach is more sensitive to existing capacities of communities and focuses on building ownership (Bolger 2000), recognising that capacity programs are more likely to be successful if they respond to an internal initiative (Land 2000).

Most importantly, the capacity development approach is more sensitive to broader contextual issues and the interrelationships between the different dimensions and levels of capacity. For example, a capacity development perspective suggests that

> **…organisational performance may be shaped as much by forces in the enabling environment (e.g. laws, regulations, attitudes, values) as by factors internal to the organisation (skills, systems, leadership, relationships, etc). Capacity problems … need to be considered … with an appreciation of the dynamics and interrelationships among various issues and actors in different dimensions. (Bolger 2000:3)**

These ideas provide a useful framework for considering the processes by which community capacity for riparian restoration is constrained or enabled.

2.5 Measuring capacity

Although many authors have suggested that 'capacity' is *measurable* (eg. Cocklin *et al.* 2002), what this actually means is far from straightforward. Nonetheless, an understanding of the 'level' (ie. a measure) of capacity would be helpful to inform the social dimensions of NRM programs, at both the development and delivery stages, in order to enhance their effectiveness. Capacity could be monitored over time to establish trends. Understanding these social conditions could also assist in the development of effective strategies to enhance capacity. If communities could be provided with an 'assessment tool' that was relatively simple to use, they could more readily assess the status of 'capacity' and 'capital' within their regions and identify strengths and weaknesses. With this knowledge, communities would be better equipped to bid for resources and to fine-tune the allocation of these resources to critical areas of need.

From our previous discussion it seems reasonable to assume that 'measuring' capacity would entail some form of assessment of the stock of assets available, or capital, as well as the ability to act, or utilise these assets (ie. capacity). It appears that the latter task is the more difficult of the two.

Some forms of capital appear relatively easy to quantify. For example, the amount of 'financial capital' within a community might include statistics on personal savings, personal debt, and so on. However, this 'amount' does not necessarily tell us much about the value of that capital unless we understand its use value (the degree to which this stock of assets will meet the needs and desires of people in that community) and its exchange value, which is its value in relation to other stocks of assets. So, when we apply the idea of 'capital as a process', we can see the shortcomings of a static definition of capital. It is relatively straightforward to measure capital as a commodity, but measuring the status of capital as a process is a more complex proposition.

The ECDPM has also recognised this problem by distinguishing two types of elements of capacity. 'Hard' elements include personal skills, functions, structures, systems, and factors such as equipment, infrastructure and financial resources. The 'soft' elements of capacity are often related to "incentive', motivational and demand factors of a material, cultural or social nature" (Land 2000, p.3). Different 'soft' elements are important at different scales. For instance, for personnel, issues of financial, career and professional incentive are important, while at the organisational level, aspects of policy, legitimacy, norms and values, and wider issues of governance are key incentives. The 'soft' elements of capacity are less easily definable and quantifiable than the 'hard' elements.

The Australian National and Victorian NRM Capacity Building Frameworks also acknowledge these 'soft', motivational elements of capacity and both take the view that is necessary to enhance both the *ability to act* through provision of knowledge and skills, as well as fostering the *motivation to act*. However, the strategies do not offer any suggestions as to how capacity can be measured. Similarly, the Cooperative Venture for Capacity Building and Innovation in Rural Industries project (Andrew and Aslin 2002; Coutts *et al.* 2002; Roberts 2002) identifies the many dimensions of 'capacity', building on existing definitions from the NRM literature, but to date has not suggested a means to assess capacity.[5]

In the examples from the Australian literature where attempts have been made to quantify social capital and capacity, this differentiation between hard and soft elements seems to have been realised. It is often the 'capital' components of capacity that are more readily measured than the motivational or enabling forces (the soft elements).

Bullen and Onyx (1998) and Stone and Hughes (2002) have attempted to measure dimensions of social capital. Bullen and Onyx suggest that social capital is an empirical entity and can be measured. They identified and attempted to measure eight key elements that appear to define social capital: participation in local community; proactivity in a social context; feelings of trust and safety; neighbourhood connections; family and friends connections; tolerance of diversity; value of life; and work connections. Because their approach was based on communities in regional NSW, it is likely that, at the broader community-level of social capital, these results have some application to the current study.

Of particular significance to an understanding of the complexity inherent in capacity, is the recognition by Stone and Hughes that social capital is a multidimensional concept with conceptually distinct elements,[6] and in order to capture this, there is value in constructing different types of measures of social capital. The three approaches suggested are: as social-networks; as a single indicator; and as a cluster-based typology.

Macgregor and Cary (2002) address the dimensions of human as well as social capital. They propose a "Social/ Human Capital Rapid Appraisal Model" (SCRAM) that is based on secondary data sources. The social capital component of this model builds on the three contexts of social capital identified by Black and Hughes (2001, cited by Macgregor and Cary 2002): patterns of processes; qualities of processes; and structures that govern or enhance social processes. It is the third context, 'structures that enhance social processes', that suggests a link between capital and capacity. The types of indicators desired for each context are set out in Table 2.

Macgregor and Cary (2002) identify a range of indicators that could be applied using secondary data for each of these contexts. They acknowledge that, because of the reliance on secondary data, the SCRAM model is more likely to produce an assessment of social capital that is more 'distal' in nature, measuring outcomes rather than processes. Because the indicators produced from this model are associated with the broader outcomes of social processes, they do not elicit an understanding of the core components of social capital — such as networks, trust and reciprocity. There are also gaps in the indicators currently available to measure these constructs.

Table 2. Indicators for social capital contexts (after Macgregor and Cary 2002)

Patterns of processes:	Social participation; services and non-profit organisations; volunteering; civic participation; and relationships between individuals and organisations.
Qualities of processes:	Trustworthiness; altruism and reciprocity; shared norms and ideals; equal opportunity and ethnic tolerance; sense of community; and community self-help.
Structures that enhance social processes:	Conflict resolution mechanisms.

The techniques described above, tend to apply more at the community and regional level. Because capacity also encompasses human capital, we also need to focus on the scale of the individual. At the farm scale, the adoption and implementation of recommended farming practices

[5] The outcomes of this co-operative venture were not publicly available at the time of writing the final report.

[6] For example, norms of trust and reciprocity may account for some outcomes, whereas the density of social networks may account for other types of outcomes.

is influenced by many factors. Many of these influences are individualistic and are largely the outcome of decision-making at the farm scale. However, since farming does not occur in a social vacuum, there are social and cultural influences that cannot be ignored. Both the individual (or enterprise level) and the community level were proposed by Cocklin *et al.* (2001) and by the 'capacity for farmers to change' component of the National Land and Water Resources Audit (NLWRA) (Fenton *et al.* 2000) as the appropriate scales to target.

The NLWRA work attempted to measure the capacity of farmers to implement recommended farming practices. Taylor *et al.* (2000) proposed indicators that could be drawn on to measure social capacity at both the individual and community level. The dimensions considered at the individual level extended on human capital, and included education and training, farm experience, farm financial characteristics, farm family characteristics, values content and structure, and farming styles,[7] while those at the community level included community viability, sense of community, place attachment, social support/network, voluntary participation, historical response to change, and social capital. Structural, demographic and social indicators to measure up to100 variables were proposed. However, indicators with pre-existing secondary data sources tended to be selected, which restricted the final number to 25 key indicators (Taylor *et al.* 2000).

While the selection criteria applied under the NLWRA research are likely to produce indicators that are cost-effective and manageable, these potential benefits are outweighed by the bias towards conventional objective indicators at the expense of meaningful indicators that capture farmers' attitudes, experience and behaviour at either the farm or community scale — that is, the 'soft' elements of capacity. The sole reliance on objective indicators to provide insight into the social system is inadequate since they reflect different factors from subjective, or perceptual, indicators (Pepperdine 2001).

[7] The approach used to measure 'farming styles' within the NLWRA is not well developed: it tended to rely on structural factors, while omitting the attitudes, motives and beliefs of farmers which have been found to provide greater explanation of farming practice (Thomson 2001).

As a result of these shortcomings, the final indicators proposed from the NLWRA study are limited, because many of the types of indicators required to measure social capacity at the community and individual (farming) level are perceptual and do not have pre-exiting data. Added to these concerns is the finding that many of the proposed indicators were not significantly related to the practices they were supposed to predict (Lockie *et al.* 2000b).

Thomson and Pepperdine (2002) developed and applied a methodological tool to measure social capacity at the farm and community level, and the adoption of current recommended farming practices. In their quantitative assessment of the dimensions of 'capacity' that appear to influence the adoption of practices, they found that individual-level attitudinal indices were more likely to be correlated with particular behavioural characteristics than community-level attitudinal indices, but the latter were particularly important in information-seeking behaviours (see Table 3). Only individual-level attitudinal indices were significantly correlated with behaviours relating to riparian restoration.

In the same study, Thomson and Pepperdine found some significant relationships between demographic and structural characteristics of farmers and their behaviours. However, none were significantly linked with behaviours relating to riparian restoration. Nevertheless, behaviours involving the protection of remnant vegetation and tree planting were significantly related with the level of education of the respondent, although the relationship was not necessarily linear. Age was not significantly related to a range of behavioural characteristics, nor was the perceived adequacy of respondent's income. Equity in the farm was an insignificant factor, but farm profit was significantly linked to the use of advisers and contractors.

A problem common to most of the research discussed above is the static conception of capital and capacity, and the inability to simultaneously address issues of social, spatial and temporal scale. Significantly, these studies tend to ignore the importance of organisational capacity and the role of institutions in the process of capital accumulation and decline. There is also a tendency to ignore the other non-social forms of capital.

Table 3. Correlations between attitudinal indices and various behaviours at individual and community levels (Thomson and Pepperdine 2002)

Indices	Behaviours (significantly correlated with indices)
Individual level:	
Business orientation	Important determinant of use of advisers, tree planting, participation in community activities, use of contractors, protection and enhancement of remnant vegetation.
Lifestyle or 'tradition' orientation	Riparian restoration
Financing the farm	Community participation
Labour	Participation in agricultural training
Land (environment)	Participation in agricultural training, protection and enhancement of remnant vegetation, use of advisers, expansion of areas of native vegetation, riparian restoration, tree planting.
Planning and risk management	Participation in agricultural training, community participation, use of advisers, protection and enhancement of remnant vegetation, tree planting.
Innovation and technology	Participation in agricultural training, community participation, use of advisers, protection and enhancement of remnant vegetation, tree planting.
Community level:	
Leadership	None
Participation in community life	None
Opportunity to participate	Community participation, use of advisers
Efficacy	None
Neighbourliness	Community participation, use of advisers, participation in agricultural training
Community-mindedness	Community participation, use of advisers, use of contractors, participation in agricultural training
Open-mindedness	Community participation, use of advisers
Attachment	Community participation, use of advisers
Stress	Use of advisers, tree planting

3 Observations from regional investigations

3.1 Johnstone River catchment, Queensland, 1995–1999

The Johnstone River Catchment Management Association (JRCMA) was formed in 1991. The Johnstone was one of the first catchments in Queensland to implement the Integrated Catchment Management (ICM) concept, instigated in 1990 by the then State Minister for Primary Industries, Ed Casey. The catchment covers 2300 km^2 with dairy and beef cattle, horticulture (bananas & pawpaws) and sugarcane the dominant land uses. Stakeholder representation on the JRCMA broadly aligns with these industry groups with the as well as recreational and commercial fishing, conservation group, tourism, industry and local government stakeholders.

Challenges to riparian restoration

A key challenge facing the JRCMA, and other agencies and groups in the Johnstone over the last decade, has been an entrenched mistrust in government agencies and the advice they provide. This has been exacerbated by policy back-flips and a history of mixed messages within and between different agencies over the years. For example, the listing of part of the region as a World Heritage Area was supported by some agencies and not by others, with this division being mirrored in the community.

Given the history of mistrust, finding landholders willing to participate in the LWA-funded project was difficult, producing lengthy delays in establishing the project. These delays were exacerbated by a turnover of staff in the Project Officer position, which, when combined with the poor economic climate, and the high cost of works, was a further barrier to riparian restoration being undertaken.

Another problem was that whilst the funding cycles for riparian works remained short-term, the scale of the problems to be dealt with required longer-term rehabilitation methods based on ecological principles. The climate of the Wet Tropics promotes fast plant growth rates (including weeds), but without detailed planning one flood can undo restoration work in a few hours. For those in the community interested in riparian rehabilitation, the tension between short term funding availability and doing the job properly has led to frustration with the processes that govern ICM in the catchment.

Community and agency responses

One of the ways of dealing with the challenges faced by the JRCMA in promoting riparian rehabilitation was to have representation from a wide range of interest groups on the Catchment group. This was an important step in overcoming the entrenched suspicion about the motives and values of various stakeholders in the region. By working together on the JRCMA, trust and respect was built between representatives of different stakeholder groups, some of which had long histories of being at loggerheads with each other. There is now a great deal of respect between JRCMA members and, even though they might not always agree entirely with each other, they are able to move ahead constructively.

In an attempt to overcome the scepticism in the community towards the LWA-funded projects, agency staff set up projects with people who were cooperative and with whom trust had already been established. The aim was to establish a series of small successful projects to build community trust and interest in high quality demonstration sites. Another catalyst for involvement in the LWA projects was the ‘blame’ placed on agricultural industries in the catchment for the sedimentation (as well as high nutrient loads) of waterways and the impact of these issues on the Great Barrier Reef. This has instigated greater cooperation between stakeholders in the catchment, particularly through the JRCMA, to demonstrate environmental credentials by instigating for example, research into nutrient run-off from dairy pastures.

Over time, experience combined with science has led to more ecologically based approaches being used for riparian restoration. Pioneer species are now used to mimic the process of forest succession by establishing a canopy as quickly as possible to reduce weed competition. Works are now prioritised based on their location in the catchment, with upper reaches targeted first to eradicate weed-seed banks, minimise weed

infestations downstream and stabilise sources of sediment.

As biophysical technical capacity has increased within the agencies involved, so has capacity within the community to undertake restoration works. Good communications, encompassing a range of initiatives such as information sheets, community forums, extension visits and field days at the demonstration sites have helped to increase awareness amongst the community of the importance of riparian zones. This has been further supported by close linkages between ICM, Landcare, the Wet Tropics Planting Scheme and local government revegetation schemes. The LWA-funded projects slotted well into these initiatives and added value to activities already being undertaken in the region. Several publications have been produced based on the science and experience gained in undertaking the LWA demonstration projects. More details about these publications and the work of the JRCMA can be found on the <www.rivers.gov.au> website. Figure 2 summarises events in the catchment over the past 10 years.

3.2 Mary River catchment, Queensland, 1996–1999

The Mary River Catchment Coordinating Committee (MRCCC) was established in 1993 as a State government initiative to trial the implementation of ICM policies. The MRCCC is comprised of different industry and government stakeholders with dairy and beef cattle, forestry, horticulture, sugarcane, fishing, mining and tourism the main industries in the region. The Mary River catchment covers an area of some 9700 km^2.

Challenges to riparian restoration

The economic downturn across various farming sectors in the catchment meant that landholders were reluctant to spend time and money on activities perceived as 'green'. Demographic changes in the upper catchment since the 1970s have caused factions in the community, particularly by traditional farmers who were antagonistic towards newcomers seeking an alternative lifestyle. Traditional landholders considered newcomers to be 'greenies', and believed this would threaten the traditional farming base of the community. Even though there was little cooperation between the two factions, the dominance of 'greenies' in environmental groups such as Landcare, motivated some traditional farmers to join in an attempt to counterbalance what they saw as the 'greenies' agenda. The tension within the Landcare group did, however, lead to its eventual demise as people from different backgrounds and viewpoints found it impossible to work together. Dealing with this type of group dynamic required skilled facilitators who were not available at the time.

The split between 'greenies' and others was also fuelled by legislative changes, with a proposal put forward by some of the local Shires in the 1990s to regulate for the establishment of riparian buffers between 50 and 400 metres in width along all waterways. This proposal acted as a catalyst for some groups to promote the voluntary adoption of recommended riparian management practices to negate the need for legislation. In contrast, some landholders refused to fence off their riparian areas for fear that once they did so 'the government' would introduce legislation removing their rights and access to water and grazing in riparian areas.

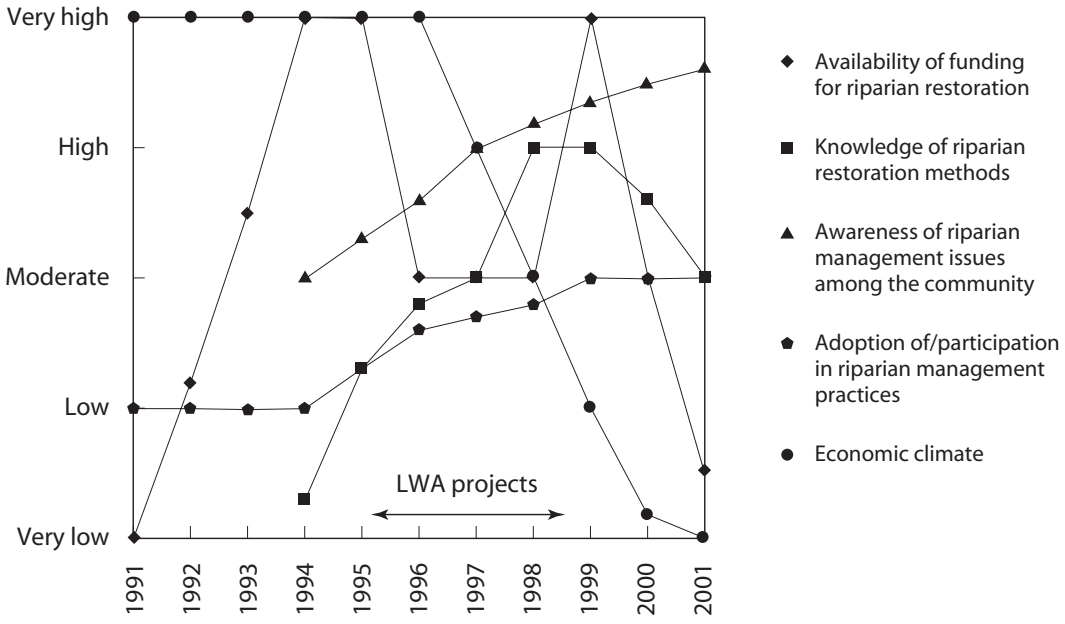

Figure 2. Schematic socio-economic context plot for the Johnstone River catchment

As with the Johnstone catchment, mixed messages by different agencies was a problem in the Mary. For example, sand and gravel extraction in the catchment was supported by the State Government as it raised revenue, however, as an activity it threatened riparian works and contradicted the information and advice being provided by the local Department of Natural Resources and Mines (DNRM) and the Environment Protection Authority. A shift in the attitudes of State agencies is still perceived by people living in the catchment as being necessary, so that more consistent, cooperative and integrated government approaches to NRM can be achieved.

Community and agency responses

The MRCCC actively sought to separate themselves from government agencies (eg. DNRM, Department of Primary Industries) in an attempt to overcome the 'government' label. A significant shift in community perception occurred when the MRCCC was able to employ staff in its own right, instead of having State agency employees seconded to the group. In addition, the establishment of separate premises at the 'catchment centre' in Gympie further strengthened community perception that the MRCCC was catchment rather than government based.

The employment of keen, innovative staff; securing external funding (such as the LWA funding); and conducting key community meetings and workshops with scientific experts (eg. Bob Newbury and Ian Rutherfurd) have all raised awareness about the need to address NRM issues in the catchment. The use of external experts, who were considered credible because they were not aligned with any stakeholder group, was instrumental in gaining the support of landholders for the work of the MRCCC. The other key strategy used by the MRCCC was to develop close linkages with local government. Local governments in the region have focused on river and riparian management issues for many years, with the MRCCC convening an annual 'Mayors forum' (involving the 12 Shires of the region) to discuss NRM issues. Recently, Shires in the region have been discussing the possibility of introducing an environmental levy across the catchment. The Maroochy Shire has already done so and allocates around $250,000 annually to catchment management projects within the Shire. This funding source is important to regional groups like the MRCCC who would otherwise have to rely solely on contributions from State and Federal funding, such as the NHT.

Another important strategy used by the MRCCC was to invest in staff skilled in extension techniques and able to establish rapport and approaches to NRM that were sensitive to the local context. The MRCCC also used indigenous riverine species that people identified with, such as the Mary River cod (which is the MRCCC logo) and Mary River turtle, to publicise river and riparian health and build pride in the environmental attributes of the catchment.

The LWA projects were sited on properties whose landholders were well respected and happy to act as champions for the work being undertaken. This approach has been formalised by the MRCCC through the use of a 'prioritisation matrix' that bases decisions on the allocation of riparian restoration expenditure on three components covering 'biophysical', 'social' and 'project design' elements. The 'social' component of the matrix incorporates issues of community support; links with

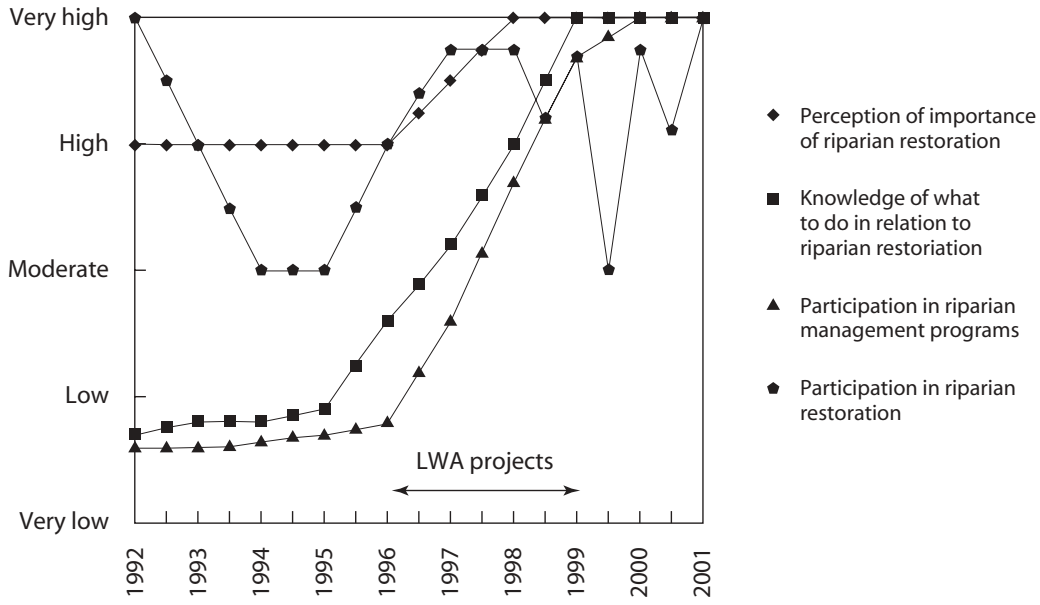

Figure 3. Schematic socio-economic context plot for the Mary River catchment

existing or proposed restoration efforts within the catchment; accessibility and visibility of the site; recreational and tourism values of the site; motivation and initiative of the landholder; and, protection of private and public infrastructure/other values.

As scientific knowledge and experience has grown, areas for riparian rehabilitation are now moving to upland regions where greater environmental gains can be made, and problems such as sedimentation and weed infestation controlled. The Mary River Catchment has been a leader in instigating NRM initiatives such as the Riverbank Restoration Scheme and other incentive programs. This was recognised in 2001 when the MRCCC won the Queensland Natural Heritage Trust Rivercare Award. More information about the MRCCC can be found on the <www.rivers.gov.au> website. Figure 3 summarises the changes in the catchment over the past 10 years.

3.3 Goulburn–Broken catchment, Victoria, 1998–2000

The Goulburn–Broken Catchment covers almost 24,000 km^2 and has a variety of land uses including cattle and sheep grazing, dryland and irrigated cropping and intensive horticulture (irrigated). The State government established the Goulburn–Broken Catchment Management Authority (GBCMA) in 1997. Board members are appointed on a skills basis so are not necessarily representative of all stakeholder groups within the region.

Challenges to riparian restoration

Institutional arrangements have been a key challenge facing the LWA project, delaying its commencement by 2–3 years. This was initially a result of delays at the State agency level, and then because of the changes in catchment management arrangements at the regional scale. The change in institutional structure and the turnover in staff meant that the project was in limbo until it found new champions within the CMA. A lack of a focus for the project was also an issue in the early stages of the project, as there was difficulty deciding on outcomes that could be achieved within the time frame.

Numerous factors combined to limit the acceptance of riparian restoration works in the community. These included: loss of stock access to off-stream watering; loss of land; cost; flood damage to fences; weeds; a perceived increase in fire risk associated with revegetated sites; and, climatic conditions. Climatic conditions were a significant constraint to riparian restoration as a severe drought lasted throughout the project time frame of three years. This can reduce motivation for undertaking riparian restoration works as planting vegetation that dies as a result of drought conditions is demoralising for those involved and creates opportunities for weeds to become established.

As in the Mary River Catchment, demographic changes in the region have been significant. There has been a shift from traditional farming to 'lifestyle farmers', with the majority sourcing income independent of farming. This has resulted in the subdivision of farms, often with a concentration of blocks on and adjacent to river flats and riparian lands due to their aesthetic qualities. This has changed land use patterns and also community values towards riparian zones, as they are now seen as economically valuable in a property market context. There is now more of an emphasis on aesthetic, recreational and real estate values, rather than the economic values placed by farmers on accessing the river for stock watering and other associated agricultural productivity gains.

The reduced reliance on the land for agricultural production, the likelihood of higher incomes, and different attitudes towards riparian lands could be positive in terms of riparian restoration. However, the shift towards 'lifestyle' farming presents some challenges, including a loss of skills in pest plant and animal control, a higher turnover in land ownership, and a more heterogeneous community.

Community and agency responses

The allocation of LWA funds in the GBCMA was slightly different to many of the other regions. Three major projects were supported, including a major literature review on the impacts of grazing on riparian lands; an evaluation of grazing management trials in the Goulburn–Broken catchment; and, a social review into landholder perspectives on the management of riparian zones. These projects have enabled other riparian restoration works being undertaken by the GBCMA to be drawn together and lessons learnt about how to include the biophysical and social in NRM initiatives. For example, the GBCMA has developed a very flexible approach to cost-sharing arrangements for restoration activities that enables them to respond to the needs of different landholders. The scheme is managed through the GBCMA and is designed to be equitable, transparent, and able to be consistently applied regardless of who administers it. There is flexibility in the cost-sharing arrangements, allowing landholders to vary fence type and location, with associated variation in the incentive offered. This was in response to findings in the social review that landholders needed solutions that met their individual circumstances, rather than a 'one size fits all' approach.

The GBCMA has also been conscious of promoting consistent and coordinated messages about riparian restoration through its Regional Catchment Strategy, Waterway Management Plan and Riverine Health

Strategy. Priorities for works are established at regional, catchment and local scales. In high priority areas the GBCMA is proactive in gaining the support of landholders for on-ground works. Resources and time are allocated to targeting landholders (including time-intensive methods such doorknocking) in these areas.

Recognition of the benefit of the riparian zone and knowledge about better management techniques has been incorporated into catchment management approaches in several ways. Recommendations for planting/seeding of riparian zones have been refined down to the scale of ecological vegetation classes (EVCs) and for different parts of the riparian zone. Some rivers have been re-snagged following increased understanding and scientific evidence about the benefits of snags in rivers for habitat. Recommendations regarding the width of fencing of riparian zones have been increased to include all the river bank and, in some situations, the floodplain. These minimum width requirements now form part of the conditions of funding. Provisions for off-stream watering are now built into the grant structure.

In response to the need for long-term commitment and changes in ownership, landholders and the GBCMA jointly agree on management guidelines for the sites. The GBCMA are actively investigating means of ensuring the ongoing maintenance of riparian works funded from the public purse, perhaps through conservation covenants. A GIS database of landholders with river frontages is also in place. All works are documented using this system, facilitating monitoring, reporting and catchment planning processes. The system will also facilitate the targeting of communications to landholders who manage river frontages. The GBCMA won the Theiss National Riverprize in 2000 in recognition of the achievements it has accomplished over the past few years.

More information about the GBCMA can be found on the <www.rivers.gov.au> website.

3.4 Blackwood River catchment, Western Australia, 1995–1999

The Blackwood Basin Group (BBG) is responsible for catchment management in the 22500 km2 Blackwood River catchment. The main industries in the catchment are broadacre cropping, sheep (meat and wool production), dairy and beef cattle, forestry, mining, horticulture, viticulture, and tourism. The BBG is community-driven and was established in 1992, in response to public concern about the deteriorating natural resources of the basin. There was a name change in 1998, from the 'Blackwood Catchment Coordinating Group' to the BBG. Groups involved in catchment management in the basin are represented on the BBG and include farmers (including the WA Farmers Federation), catchment groups, Land Conservation District Committees (LCDCs), State government agencies, local government and conservation groups.

Challenges to riparian restoration

The LWA-funded projects initially suffered from a lack of information on recommended management practices for riparian restoration for the region. Links were forged with various State agencies to build up this knowledge, and over time, new institutional arrangements were instigated to facilitate action planning. Interviewees reported that in the early life of the catchment group there were many issues associated with poorly defined roles and responsibilities between agencies, often with the result of real and perceived duplication of activities. For example, the collection and storage of data on catchment condition was poorly coordinated, limiting opportunities for sharing of these resources between agencies. Another complicating issue in the early days of the Blackwood group was the difficulty of setting priorities for such a physically diverse catchment

There have been some very uncertain times over the last decade for the BBG because of a lack of continuity of funding. Poor security in funding for projects has limited ongoing monitoring and there has been much discontinuity in staffing. This insecurity and discontinuity has contributed to community confusion about the role of the BBG.

Even though awareness and interest in river and riparian management issues was high in the catchment, it has not always translated into the adoption of recommended practices on the ground. The lack of available finances and the perceived time commitment was seen as a major barrier to action. Drought, particularly in the upper catchment, is likely to have further limited the availability of money and time. Another issue that has acted as a deterrent to landholders fencing off streams is their dependence on access to streams for stock watering. In contrast, issues such as algal blooms, poor water quality, and visibly salt-damaged buildings have raised awareness in the community and prompted action.

The attitudes of landholders, on the whole, also provided a challenge to riparian restoration. Staff found the independence of farmers causing resistance, as they prefer to do their own thing rather than participate in programs. Many also expressed that they don't want government 'handouts'. Some landholders that were approached as possible demonstration site hosts said they didn't want to be bothered by people coming for field days and monitoring activities. Waning interest in Landcare since the mid to late 1990s and population decline in rural communities is a further challenge to riparian restoration, as there are fewer people to participate in riparian restoration activities and the reach

of networks through the community and Landcare groups is reduced.

Community and agency responses

The LWA-funded projects in the Blackwood have greatly enhanced awareness of, and knowledge about, riparian restoration. There is now a greater knowledge about effective restoration and management techniques for the catchment. In the early stages of developing the LWA-funded demonstration projects there was a focus on designing riparian rehabilitation methods that would provide an economic return to off-set the costs of the works and the perceived loss of production from riparian lands. This resulted in a focus on selecting species and designing plantings for the production of timber and other products such as seed, foliage, etc. However, landholders who had taken this approach told us that they probably wouldn't do that again, and would instead plant indigenous species for the environmental benefits such as biodiversity. The works that these landholders have gone on to do since their involvement in the LWA-funded demonstration sites reflects this maturation. There are some timber species in some plantings, but overall, a more balanced approach to riparian rehabilitation. This developing knowledge is also reflected by landholders who had alternative water supply systems, such as solar pumps, installed as part of the LWA-funded projects. Landholders reported that if they had known how successful these systems were, they would have fenced off their rivers sooner.

Information on the effectiveness of the riparian restoration methods, and the costs and benefits of the works, that was gained through the LWA-funded projects has been used by the BBG in a number of different publications, workshops and training days, and strategies. More recently, the BBG has refined its sub-catchment planning, works and consultation initiatives dividing the catchment into zones. Zone Action Plans are now being developed, enabling zones to address locally specific priorities.

The BBG has developed communication strategies, making extensive use of the local media to promote riparian management issues and raise awareness in the community. During the LWA-funded project, information was disseminated through local newspapers, television, posters, information sheets and radio. Other communication initiatives included tours, workshops and presentations, as well as developing relations with local Landcare and catchment groups. Good signage is provided for all works sites, and demonstration sites in particular.

A publication by Alice Karafilis (the original coordinator of the LWA-funded projects) called 'Repairing Farm Waterways' and jointly supported by Agriculture WA, the Blackwood Basin Group and LWA, is a widely distributed and used resource within the region for landholders considering riparian restoration works.

The BBG actively engages a wide range of people from local, regional and State groups and agencies to maximise knowledge generation and sharing. Local landholders, Landcare Coordinators, LCDCs, university researchers and State agencies (eg. AgWA) were all actively engaged in establishing the LWA-funded demonstration sites, and in monitoring and site maintenance. These groups also provided mechanisms for distributing information on the projects and their

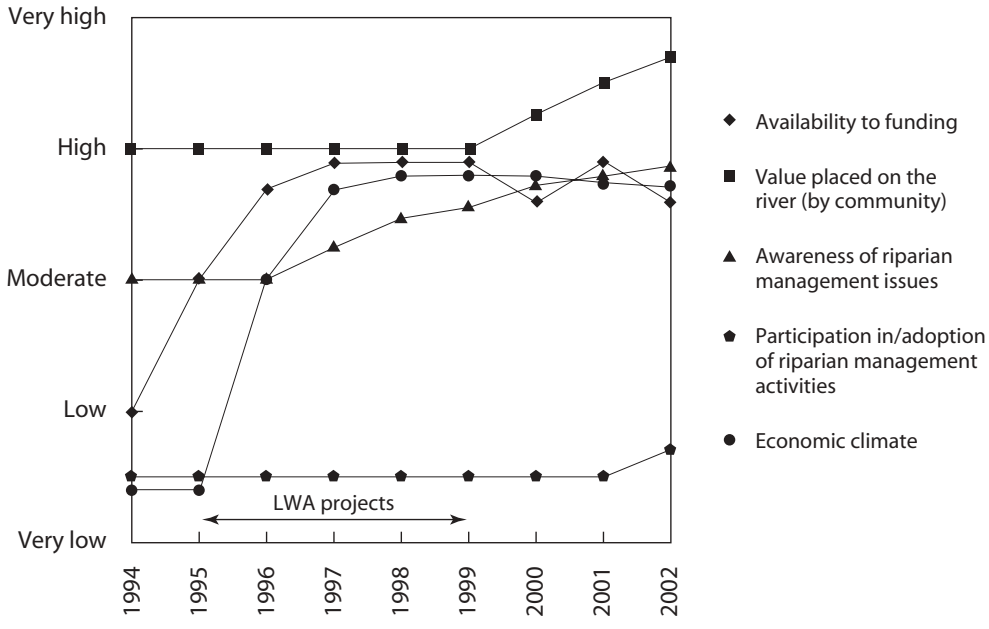

Figure 4. Schematic socio-economic context plot for the Blackwood River catchment

outcomes, promoting community involvement and ownership and enhancing the credibility of the outcomes.

The BBG has sought to differentiate themselves from government agencies by raising their profile and maintaining their own identity, so as to build the trust of the community. However, the BBG also recognises the need to coordinate policies and share resources with external agencies. The BBG has successfully developed partnerships with State and local government agencies, for example, capitalising on water quality problems such as algal blooms to achieve local government planning policies to address nutrient run-off into the river system.

Through the activities of the BBG over the years, awareness of the need for riparian restoration has increased in the community to the extent that there is an emerging frustration among some landholders that they 'cannot' get funding for fencing off riparian lands. This is because the community has got the message that government priorities have now shifted towards biodiversity conservation and landholders do not always understand that issues of riparian management and biodiversity conservation can be tackled simultaneously. This change in focus of government programs has meant the BBG has had to redesign incentive packages and adjust catchment priorities to reflect the availability of funding. In 2000 the BBG won the Theiss International Riverprize in recognition of the tremendous achievements it had made. More information about the BBG can be found on the <www.rivers.gov.au> website. Figure 4 summarises changes in the Blackwood Basin over the past eight years.

3.5 Far South Coast catchments, NSW, 1996–1999

The LWA demonstration and evaluation projects in the Far South Coast region comprised five sites within the Bega Valley Shire. Officers of the Department of Land and Water Conservation (Bega office) managed the projects. Catchment management arrangements have evolved over the last few years, with the Far South Coast Catchment Management Committee (FSCCMC) formed in 1994, comprising representatives from the community and government agencies. The region is now within the South East Catchment Management Board Region (formed in 1999), but these arrangements are currently under review.

The dominant industries in the region include beef cattle and dairy farming, forestry and tourism. The main river and catchment management issue in the region is rapid and extensive erosion (and the resultant sedimentation problem), due to highly erosive soils, high rainfall, and the significantly modified catchments. An interesting aspect of the Far South Coast projects is that 'late adopters' were targeted as demonstration site hosts. This provides a useful comparison to the other regions, where it was predominantly early adopters who hosted the projects.

Challenges to riparian restoration

Interviewees reported that a lack of trust in government is a key issue impeding riparian restoration in the region. Landholders are cynical of advice given by State agencies due to a legacy of 'bad' advice in the past and a fear of a hidden agenda, especially a regulatory position. These concerns were exacerbated by a lack of integration between government agencies, top-down processes and an ever-changing program focus. These issues, combined with a high staff turnover, contributed to a lack of trust in the State agencies. The FSCCMC also perceived a lack of trust on behalf of the Sate government, which some believe was demonstrated by not giving the FSCCMC autonomy.

In the Far South Coast catchments, economics are a major constraint on landholders' capacity to adopt riparian rehabilitation. This is because of the biophysical characteristics of the catchment and the high value of production from the land. Off-stream watering, structural works and on-going weed control are essential for good riparian management in this catchment, and all are expensive.

Droughts caused delays to the implementation of the LWA-funded projects, and disheartened participants as the revegetation success rate was initially poor. A break in the 1998 drought and better than expected success rate of seedlings (around 75%) renewed interest in and commitment to riparian management.

The aging farming population and the lack of opportunities for alternative industries have exacerbated the shift towards lifestyle subdivisions because there is a demand for lifestyle properties close to the coast. Changes in land use from primary production to lifestyle subdivisions are problematic because the new residents/ hobby farmers do not tend to have skills/equipment (eg. for fencing), or are not aware of information/resources available or the agency to contact (eg. for rabbit control). Catchment management and agency staff expressed a need for more demographic and socio-economic forecasting so that they might be able to plan for changes in demands for information and assistance with a range of natural resource management issues.

Farmers in the region typically have a very conservative approach to change and to adopting different practices that have unknown risk. Farmers also widely perceive that the natural landscape is cleared farmland, preferring a European concept of beauty with an emphasis on 'neatness' and 'tidiness' and native vegetation considered pejoratively as 'scrub'. Some farmers in the region have a

dependency mentality, expecting 'government' to fund works and ongoing maintenance for issues like weed control.

Community and agency responses

Through their involvement in the LWA-funded projects, agency staff learnt several things. They developed a greater understanding about river structure and processes, such as the important role of small wetlands in the catchments of the region. They also shifted their focus towards addressing the causes not the symptoms of river and riparian problems. This extended to effective vegetation management and establishment techniques such as site preparation before planting and strategic grazing for weed control.

Much was also learnt about how to design and site fences that were suitable for stock management but also able to handle the problems associated with fencing in flood-prone areas. Some of the fences erected as part of the LWA-funded projects were probably too good (ie. expensive), but other cheaper alternatives have not withstood the test of time and the condition of the vegetation established under the projects is suffering as a result.

The project also reinforced the importance of extension and the consistency of advice. There are two aspects of the extension effort in this region that stand out. The first is the use of photo elicitation methods to understand the values and perceptions of landholders in relation to rivers and streams, wetlands and riparian lands. This was invaluable to agency officers in helping them approach the issues surrounding riparian restoration with a diverse range of landholders.

In order to overcome the negative impacts of things like the drought, the crash in the beef cattle industry, the history of failed riparian management, a lack of trust of government advice, and conservative attitudes towards riparian management, officers undertook a one-on-one, time-consuming consultative approach with landholders. There was a concerted effort to get the so called 'late adopters' involved in the LWA demonstration sites because it was believed that if this was successful it would have a greater influence on widespread adoption than targeting the 'early adopters'. This was founded on a desire to have farmers learning from farmers about riparian management (an action research approach to learning); the participants developed the options and discovered the impacts. This approach was also valuable in overcoming the lack of trust in technical advice landholders had at the time.

As a result of droughts and other issues, the value of the effort expended in getting 'late adopters' on board for these projects will probably never be truly appreciated. Nevertheless, the projects have had a very positive influence in raising awareness among the community of riparian management issues, and demonstrated the off-site impacts of such works. The extension efforts were supported by innovative approaches such as the development of a series of information sheets called 'Myth Busters' (which cover the 'why' issues of riparian restoration rather than the 'how' issues). These were designed to influence changes in local beliefs about stream bank management by promoting the facts from local findings. These information sheets were also used to promote a consistent message, and have been widely embraced and used in other regions.

There is now a concerted effort within the region to integrate other programs, such as willow control, with riparian restoration projects. This provides opportunities for coming into contact with a large number of landholders and enables staff to introduce other works programs that might be applicable to these landholders. Partnerships were formed throughout the LWA-funded projects, and beyond, with different groups and activities such as Rivercare, Landcare, Remnant Vegetation Recovery and local Council. More information about the Far South Coast catchment projects can be found on the <www.rivers.gov.au> website.

3.6 Towards a synthesis of 'critical success and failure points' or 'dimensions of capacity'

'Issues and events' that contribute to 'success' and those that cause 'failure' are not necessarily mutually exclusive. Rather, the same issue or event, in different places and times, can contribute to success and/or failure, depending upon the regional context and the ability of the individual/group/agency to understand and manage that issue or factor.

A good example of the duality of 'issues and events' is flooding. Floods can, and often do, have a large impact on riparian lands and the public and private assets on them. This damage could potentially have devastating impacts on community values in relation to riparian lands and, therefore, people's motivation to undertake riparian restoration. If the works they have laboured over are destroyed, individuals, and the community as a whole, may become disheartened and think twice before commencing other works of this kind. Some flooding in the Johnstone catchment has had this effect. On the other hand, floods can raise awareness among the community of the need to undertake riparian restoration to protect natural and cultural heritage, and public and private infrastructure. In the Goulburn–Broken catchment, for example, the floods of 1993 raised awareness of, and interest in, riparian restoration. The GBCMA had, at this time, structures in place and funds available to undertake

riparian restoration works and this meant that this interest could be converted to on-ground works.

Due to the dialectic nature of 'success' and 'failure', the following discussion focuses on the issues or dimensions that appear to be important, and then discusses the manner in which positive and negative outcomes arise because of the different capacities of individuals, agencies and groups.

Figure 5 summarises the critical 'success and failure dimensions' in relation to riparian restoration, identified from the regional investigations. The mind map, and the subsequent discussion, are structured around LWA's four 'integrating themes', which cut across and integrate LWA's five R&D arenas.

3.7 Critical success and failure dimensions

As highlighted in Chapter 2 of this report, the various dimensions of capacity have diverse influences at different times and places. This section discusses how the various dimensions of capacity might result in 'success' and/or 'failure' at different times and in different places, and illustrates this with examples from the regions. Each dimension is discussed under LWA's four 'Integrating Themes'.

Perceptions and values (Theme 1)

Perceptions of riparian 'problems'

In all regions there is a diversity of perceptions of 'good' riparian management and issues, reflecting the diverse values and attitudes of people within any social group. While these values may be different, they are not always conflicting. In other words, people who have different values and attitudes towards a river and its environs may share a similar belief about what constitutes 'good' management. For example, retaining and enhancing riparian vegetation may be a goal shared by those people who value the aesthetic qualities of a river, as well as those fishers who appreciate the value of riparian vegetation in enhancing fish habitat.

However, there are cases where different values and beliefs (eg. between a government/catchment group officer and a landholder) result in conflicting beliefs and perceptions of 'good' riparian management. This can result in a sense of 'fear' (see discussion in the later section headed 'Conflicting values leading to fear'), but also in apparent apathy towards riparian restoration works.

Although financial and physical (time) limitations are often cited by landholders as the reasons for non-adoption of riparian restoration works, differences in values regarding riparian environments and beliefs about 'good' riparian management are significant contributors to non-adoption. For example, in the Mary catchment one of the landholders who hosted a LWA NRLPD&EP remains unconvinced that the methods applied in the demonstration project are beneficial to the health of the river. He perceives sedimentation to be the principal cause of the decline in the river that he has observed since the 1950s, when he used to fish in deep holes that are now virtually non-existent. Consequently, the landholder has undertaken his own earthworks within the riverbed to prevent sedimentation and to keep the river course where he believes it should be. For this landholder, who unquestionably values the river and its habitat values, his actions are reasonable and in the best interests of the river. However, for some agency staff, the actions of the landholder are inappropriate because they do not conform to their perceptions of 'good' river management.

It has been highlighted through our interviews and workshops around the case-study catchments that by appreciating and acknowledging divergent values, motives and attitudes, catchment management and State agency staff can achieve their goals for riparian works even where there is a mismatch of values, perceptions and beliefs. For example, one State agency officer in Queensland was able to positively influence the actions of at least one landholder we interviewed because the officer applied exemplary extension techniques. He listened and acknowledged the landholder's values and motives, marketed a solution to mesh with the landholder's values, and sourced information and funding to assist in the implementation of the works. In the same catchment, however, another agency officer was perceived by the same landholder as having inflexible and unproductive values and to be pushing his own personal agenda. The landholder was not prepared to work with that individual.

These observations about inter-personal relationships highlight the importance of the skills and attitudes, of individuals employed by agencies and catchment management authorities (see 'Key people' for further discussion).

An important lesson from these investigations is that perceptions are powerful influences on behaviour. However, instead of attempting to change people's (ie. landholders') values and therefore perceptions, more attention should be paid to understanding and acknowledging these differences, and then working with people to develop appropriate solutions at the local (and farm) scale. There is no such thing as a single, 'silver bullet' solution. Flexibility is critical, at both the broad policy level and the on-property implementation phase. This is because of the heterogeneity within communities in terms of attitudes, motives, perceptions, abilities, time, finances etc., as well as the hydrological and biophysical characteristics of the region and site.

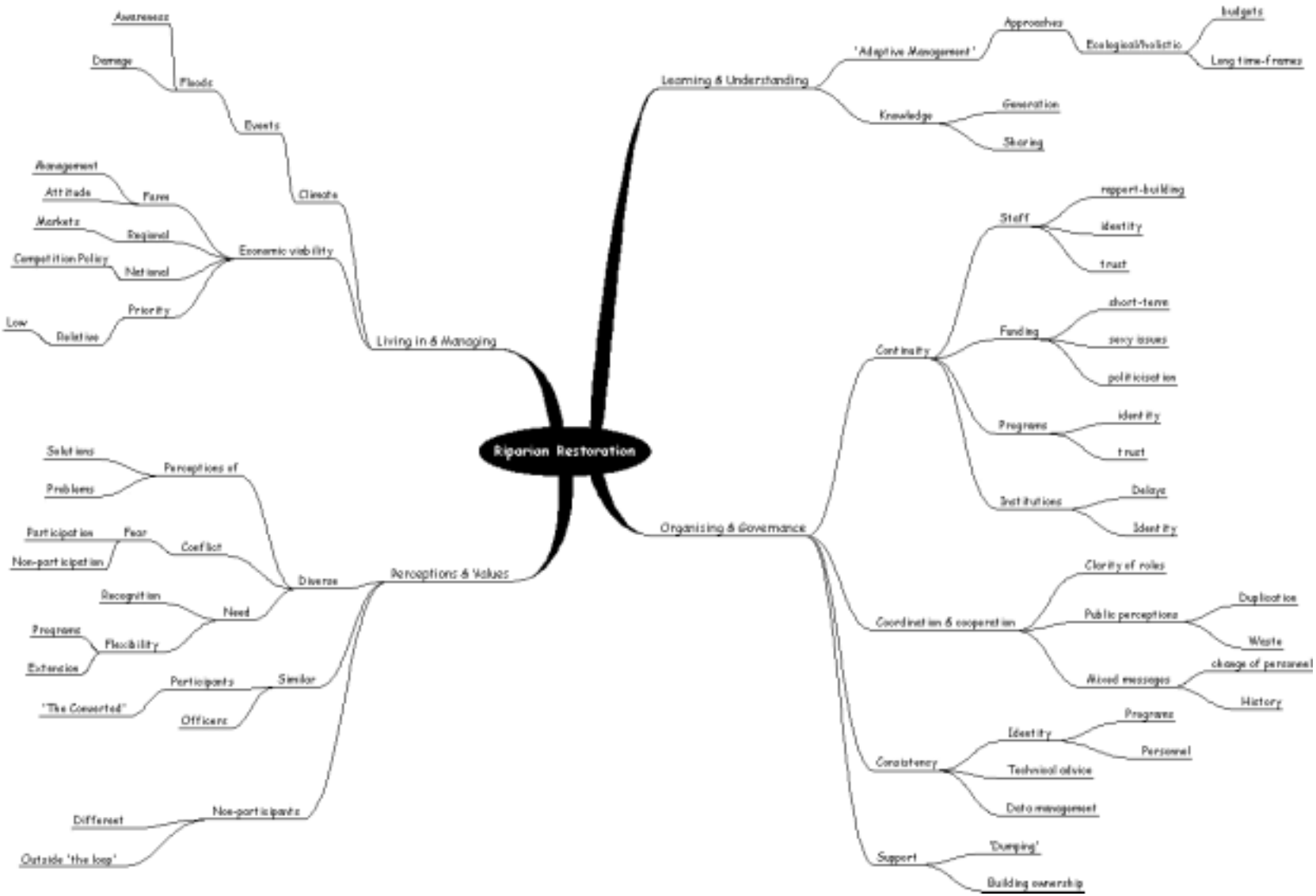

Figure 5. Critical success and failure dimensions for riparian restoration, identified from phase 1 investigations.

Another issue that arose from our regional visits was the temporal complexities associated with changes in land tenure. A change in land ownership usually brings a change in values and perceptions because the new owners will have a different biography and outlook on life. This problem was highlighted to us in two slightly different ways. One landholder in the Blackwood catchment was considering selling his land, on which a LWA-funded demonstration site was sited. He met a prospective buyer, but was concerned that the first thing this person would do if he did purchase the property would be to remove the riparian fence and undo the work that had been achieved. During our discussions we mentioned the option of placing a covenant on part of his land to protect his works into the future. The landholders was unaware of this option, but was very keen to investigate the possibility further.

The other perspective on change of land tenure is well illustrated by discussions during our visit to the Goulburn–Broken catchment. This perspective is very much an institutional perspective and relates to the protection of works funded from the public purse to ensure continued public benefits. In the Goulburn–Broken catchment there is a very high turnover of land because of the closeness of the region to Melbourne, and hence the attractiveness of the region to hobby/lifestyle farmers. The GBCMA is concerned that new landholders, with different values and perspectives, and no 'ownership' of riparian works undertaken under devolved grants programs, may intentionally or unintentionally destroy the works.

Conflicting values (leading to fear)

In many case-study catchments, the fear associated with new or different values has been the catalyst for catchment group formation and for people becoming involved in Landcare and catchment groups. For example, establishment of the JRCMA was partly driven by the community out of a fear of the unknown in light of the declaration of the wet tropics as a World Heritage Area. In the Mary catchment, where there was an influx of 'greenies' in the early 1990s, many involved in the catchment group said that they had joined the group because they perceived a threat to their traditional agricultural and forestry industries from the values of the new arrivals to the region.

In the Johnstone, differences in perceptions about the cause of problems associated with the sedimentation of the Great Barrier Reef Marine Park have also contributed to positive steps being taken by various industry groups to demonstrate their environmental credentials. The dairy and sugarcane industries have instigated major research and extension programs to equip them with knowledge about the impact of their industries on sedimentation.

Fear of legislative change (which, ultimately, is the result of a change in community values) has also resulted in increased awareness of, and action in relation to, riparian management. For example, in the Mary catchment, fear of legislation to change landholders access to and rights in relation to riparian lands (for example, a blanket 30 metre riparian reserve) acted as a catalyst for people to join the MRCCC and/or implement works to protect riparian zones so that they could defend any such legislative change.

Learning and understanding (Theme 2)

Adaptive management

Regional communities and agencies have learnt considerably from their experiences in riparian restoration and have formed new ideas about how riparian restoration should proceed in the future.[8] There is a trend, especially noticeable in the Johnstone catchment (but also in other regions), towards a more ecological approach to riparian restoration. In the Johnstone catchment, experience with direct seeding and seedling planting on riparian lands, and trials of weed-control methods, have resulted in the desire to take a slower approach (at least in some areas) using pioneer (indigenous) species and even leaving some exotic species in erosion-prone areas until indigenous pioneer species are sufficiently established to protect river banks and toes. However, in the Johnstone catchment it was reported to us that some organisations involved in riparian restoration are reluctant to try alternative revegetation methods because they are in a 'planting' mindset, and have an interest in maintaining the works crews required for the more labour-intensive techniques. There were even claims of trials into more cost-effective methods being set up to fail. Some participants told us that they believed there is a degree of professional jealousy among revegetation professionals, and a tendency for 'experts' to push their preferred techniques.

In all case-study catchments, there is a clear trend towards focusing on treating causes of environmental degradation rather than symptoms. In some areas, this may result in a re-focus away from the riparian zone and into broader land use issues. This is particularly the case where salinity and flooding are priority problems for catchments.

The key observation from these shifts towards ecological and holistic approaches to riparian restoration is that current institutional and funding arrangements are clearly lacking in terms of their ability to handle this type of

[8] This knowledge has been built through participants' involvement in a range of programs, not just the LWA Riparian Lands R&D Program Demonstration and Evaluation Projects. The extent to which the LWA-funded projects have contributed to this knowledge building in comparison to other programs is very difficult to assess.

approach. Also, it is evident that the capacity of State agencies, and to a lesser degree catchment groups, to support these approaches is in some cases severely limiting action (see discussion below).

Living in and managing (Theme 3)

Climate

Climatic variation (flood, drought) has had significant effects on the management of riparian lands in all of the case-study regions. Climatic influences can be positive and negative. In the Johnstone River catchment, for example, high rainfall was identified by workshop participants and landholders as positive because it resulted in very fast growth rates for the indigenous trees they plant in their riparian zones. However, the high rainfall is also a problem in that it promotes very rapid weed growth, resulting in more maintenance (time and cost) for riparian revegetation projects.

Of course, climate also affects the agricultural economy of regions. Drought was commonly cited in the Blackwood, Mary and Goulburn–Broken catchments as having a detrimental effect on riparian restoration because of its impact on farm cash flow and profitability. Drought can also have a severe influence on community morale with respect to revegetation activities. In the Far South Coast catchments of NSW, a drought during the LWA-funded projects was reported to have contributed to very low survival rates of seedlings, and people had lost some of their enthusiasm for the works as a result.

Economic sustainability at farm, catchment, regional and national scales

The economic climate within regions was observed to have a significant impact on the rate of adoption of recommended riparian-management practices. For example, the trend towards new, intensive-grazing practices such as cell grazing provides opportunities for riparian restoration. The intensification of grazing on productive land (ie. less perceived need to graze marginal land) and extensive re-fencing of properties (largely through electric fencing) provides an opportunity to plan the strategic fencing of riparian zones as part of a whole farm plan.

The most important influence of prevailing economic conditions at the farm and regional scale is its effect on the **relative** importance of riparian restoration. When times are tough, riparian restoration (and other NRM activities) have a lower priority, even if people have a positive attitude towards such works. Project participants often stated that the real benefit of the funding and other assistance they received by participating in the LWA-funded projects was that it helped them shift their riparian works up their list of priority jobs.

Organising and governance (Theme 4)

Fear of legislation

Informants in most regions thought that fear of legislative change, in terms of riparian tenure or management (and associated native vegetation), was a key motivating factor among participants in riparian restoration. This has functioned at individual and community levels. At the community level, fear of legislative change has been a catalyst for bringing people together to form groups. For example, in the Mary catchment there was very high attendance, in the early days, at community forums discussing various aspects of river and riparian management. This led many people to become involved in the MRCCC. At an individual level, fear of legislative change has influenced many to participate in voluntary schemes to fence and revegetate riparian zones.

However, fear of legislative change can have negative impacts, such as the experience in Queensland (and other States in the past) with uncertainties regarding the introduction of native vegetation retention legislation and the increase in clearing of native vegetation as a result.

Funding

The provision of economic incentives for landholders to encourage them to undertake riparian restoration works is perceived by governments and landholders as a key to overcoming ‘barriers’ to adoption. Broadly, three issues in relation to ‘funding’ were identified during our regional inspections and interviews. Firstly, the issue of the amount of funding provided, and the relative effectiveness of this in terms of influencing adoption; secondly, the time frames associated with the funding; and thirdly, the consistency of cost-sharing policies over time. The latter two points are discussed in ‘Consistency’ below.

To what extent does the provision of funding overcome ‘barriers’ to adoption?

The key challenge facing NRM managers in relation to cost-sharing arrangements is to establish a fair, efficient and effective system that provides sufficient incentive for landholders to undertake the works, while maximising the amount of on-ground works for often limited budgets. One of the key problems associated with striking this balance is the diversity of works required and landholder’s attitudes and motives. The tendency in establishing cost-sharing arrangements has been to set standard rates for works, such as a per kilometre rate for fencing. This approach is based on a prescriptive approach to riparian restoration, where ‘one size fits all’.

Despite an increasing awareness of, and understanding about, the issue of social diversity in relation to the adoption of recommended practices, critical assessments

of cost-sharing arrangements, from a sociological perspective, are few and far between. Cost-sharing arrangements are principally a response to the 'old' linear extension theory, in which 'barriers to adoption' are conceived, simplistically, as being freely overcome through the provision of economic incentive or compensation.

In some cases, we have observed that the provision of funding towards the cost of fencing works has enabled riparian restoration works to proceed. However, in these cases the provision of assistance in the form of labour was equally, if not more, important. For example, a landholder on Seven Mile Creek within the GBCMA told us that he would not have done the work without the financial and labour assistance. However, he also stated that he would not do any more of his riparian zones (because "they've already taken enough"), suggesting that the provision of financial and labour incentives is not always enough to overcome an attitudinal resistance to the works recommended.

On the other hand, the majority of landholders who hosted LWA NRLPD&EP stated that they probably would have undertaken the works anyway and that the funding merely shifted the works up the order of priority among competing demands for their time and financial resources. Nevertheless, some landholders, like one we visited at Dumbleyung within the Blackwood catchment, have done considerably more than the usual cost-sharing requirements of most grants and the outside funding has had only a small impact. The landholder at Dumbleyung has undertaken some $18,000 worth of work (representing the cost of materials only, not including his time), with just $2600 from grants (LWA). He has also undertaken other works in different parts of his property.

A key implication of these contrasting perspectives is that the level of incentive necessary to encourage adoption of recommended works is clearly variable. The level at which an individual is likely to adopt riparian restoration works is likely to be a function of their attitudes towards the river/riparian zone, the complexity of the works (which is associated with the 'physiology' of the river and riparian zone), and their own land-management practices and preferences.

There are at least two examples of flexible cost-sharing arrangements that go a considerable way towards overcoming the challenges of social and biophysical diversity in relation to cost-sharing arrangements for riparian restoration. One is the GBCMA's flexible incentive scheme for riparian restoration, and the other is the 'Bush Tender Trial' of the Department of Natural Resources and Environment in central Victoria. The former is, we consider, a good example of workable adjustments to current policies and frameworks to take into account people's different values and situations. The criteria used by GBCMA are also very transparent: regional differences in priorities are clearly stated; the system is equitable; the process is open and robust in that different officers can administer it without reliance on their own perceptions and values, which is important when changes in personnel occur within an institution.

The Bush Tender Trial approach challenges current cost-sharing assumptions and requires a more considerable change to process, but has the potential to achieve a broader acceptance among the community because individuals can exercise their own knowledge and experiences to overcoming problems from their own perspective.

Reporting

The demands placed on communities under devolved grants programs in relation to reporting, monitoring and evaluation are causing some concerns to the people we consulted. This is also reflected in the experience of LWA program coordinators, as documented in the project files and from our discussions with these people, in that milestone reports were often late and, in some cases, not completed to a suitable standard.

The main concern of coordinators is that reporting obligations take them away from their day-to-day roles of communicating, building rapport and organising on-ground works. The demands associated with continuously having to apply for new funding is an exacerbating factor (see also 'Consistency'). Landholders and other members of Landcare groups highlighted this as a serious concern. In the Johnstone River catchment, and some other regions we visited, we were told that many Landcare groups have folded because of the high demands associated with applying for funding and then reporting on its expenditure and outcomes. It was commonly stated that, without paid coordinators, many more Landcare groups would fold.

Coordination and cooperation

With the widespread adoption of ICM philosophies across the case-study regions, there is increasing evidence of cooperation and coordination between government and non-government groups and agencies. This is a positive policy shift because informants regularly cited issues relating to coordination and cooperation as having negative impacts on achieving more widespread adoption of improved riparian-management practices.

One of the key problems associated with roles and responsibilities is that the public is often confused about 'who does what, where' and this contributes to perceptions of duplication, and therefore a perceived waste of resources. Related to this is the perception of

mixed messages being espoused by agencies with different roles and responsibilities.

Catchment coordinators regularly identified the need for better coordination of NRM data across catchments by ensuring all agencies/groups, for example, use the same, or at least compatible, GIS systems and other data management systems and software.

Consistency

Consistency of funding is a key challenge for all the regions visited. Short-span funding cycles, and especially the uncertainty of what happens when the particular program finishes, are a significant barrier to implementing longer-term, more ecologically based restoration and restoration techniques.

Consistency is also important in maintaining the identity of programs, groups and personnel. Under short-term funding cycles, programs often change their names to meet political requirements (eg. change of government). When names change, recognition of funding sources and the types of works undertaken and/or support available is lost from a landholder perspective. This contributes to landholder confusion about where to go for assistance and advice, reinforces community perceptions of waste, and exacerbates the problem of perceptions of 'mixed messages'.

Similarly, changes in the names of agencies and groups, and changes of personnel, can severely disrupt programs because of the lack of recognition among the broader community about roles and responsibilities. The Goulburn–Broken projects, as well as those in South Australia, were delayed by institutional reshuffles (at catchment and State-government agency levels, respectively) and changes in staff associated with these changes. In the Johnstone and Mary catchments, the rise and fall of political support for ICM resulted in many changes to programs and, in the Johnstone, it was only through the support of local State government agency managers that the Catchment Centre was able to remain open during the uncertain times in the mid 1990s.

Interviewees identified that consistency in the messages being espoused by scientists and governments was critical in building trust and confidence in technical advice among the community. This is further exacerbated by different government agencies having responsibility for different, but interrelated, aspects of catchment management. In many States, there are different agencies responsible for water allocation, river regulation, riparian land management etc., and there may be inconsistency in the messages being espoused by these agencies. In all regions, there have been changes over time in the messages being espoused by a range of agencies in relation to river and riparian land management, including changes in recommended management practice. Landholders have long memories, so being told one message at one time, and a conflicting message at another, contributes to the perception that the scientists, and government, don't know what they're talking about.

Participants in this review process thought that the politicisation of NRM has contributed to much of the inconsistency at all levels. They feel that politicians are concerned about the issues that are 'trendy' at the time — they called these "sexy issues". As new "sexy issues" come along, the names and focuses of programs change, despite the fact that the original problem has rarely been completely resolved.

Support

While it was widely recognised in all the case-study regions that devolved grants and participative learning are excellent ways to build community ownership of problems and their solutions, there is the perception that communities are having the problems, and solutions, 'dumped on them' by government. In other words, there is a fine line between building ownership and devolving responsibility. Informants felt that there needed to be more support, mainly in the form of labour (for on-ground works, monitoring, reporting, coordination etc.) but also in financial and moral support for regional communities.

There are observable differences from State to State in the impact of the LWA NRLPD&EP. These appear to be influenced, to some degree, by the enthusiasm and support of the State representatives on the Riparian Lands R&D Program Management Committee.

Picking winners

Whether at the scale of the landholder or that of the catchment group, and even in State and Federal agencies, there is a tendency to 'back the favourites'. This is understandable given that demonstration projects are primarily about displaying 'recommended practice'. In other words, it is considered good insurance to select landholders/groups/agencies with a proven track record and the 'right' attitudes and values to host demonstrations so that the works are performed to a high standard and have a good chance of being well maintained. This principle also tends to be applied in selecting Principal Investigators, catchment coordinators, catchment committees (as managers) etc.

We contend that the assumptions surrounding this practice need critical review, due to the diversity of catchment residents in terms of their values and perceptions of riparian lands. In the Mary catchment, LWA-funded demonstration projects were selected on biophysical criteria, but the importance of the communication skills of demonstration hosts was later

recognised as having an influence on the diffusion of riparian management options and practices throughout the broader community. We argue that it is not just the communication skills of the demonstration hosts, but also their sociological 'type' that can influence the acceptance of the 'demonstrations'. In several catchments we heard of the hosts of NRLPD&EP being labelled as 'millionaires' — in other words they could afford to do the works with or without funding assistance, and they could afford to 'lock up' that land. It is likely that, in these cases, demonstration sites are viewed with suspicion by a majority of landholders in the surrounding region because of the differences in values and perceptions within the community. Siting more demonstrations on the properties of people with values less consistent with those of catchment coordinators may be more beneficial in terms of influencing more-widespread adoption.

Key people

Catchment committee members often reported that "without a coordinator you may as well pack up and go home". This is based on the recognition that one of the most important roles of catchment coordinators is building rapport with landholders and other stakeholders. Rapport building is dependent upon sensitivity to different values and beliefs, so the interpersonal skills of coordinators and other staff are critical. In some catchments, it was expressed by many participants that people who have been brought up in the region, and often those from a farming background, make excellent coordinators because they quickly establish rapport with farmers.

Of course, 'key people' will influence outcomes at all scales, from landholder to State agency officers, through to politicians. Identifying the important skills and attributes of 'key' people is an area for more-detailed investigation.

3.8 Conclusions from the regional investigations

Our visits to the five case-study regions provided an opportunity to use the project sites as a catalyst for discussions with a range of people involved in the projects about the issues behind their positive and negative experiences. From these site inspections and a number of focus group meetings also in the regions, we were able to compile a list of dimensions of capacity in relation to riparian restoration. We were also able to gain an appreciation of how important each dimension was.

We looked at capacity at both individual and community levels. From an individual perspective, we explored the issues that helped or hindered individual landholders in their riparian restoration activities. We also looked at the critical issues that affected the ability of government-agency and catchment-group staff to perform their duties.

We observed, and were informed about, a very broad range of riparian-management issues during the field inspections, many of which were common across the regions. Our general observations are summarised in the points below.

- On the whole, the participants involved with the NRLPD&E projects, both landholders and agency/catchment management group staff, remain positive and enthusiastic about the projects and their outcomes.
- Participants have extended the works and learnt much from their experiences with the projects. This has occurred at both individual and community levels. Many of the landholders who had demonstration sites on their land have gone on to do more works. The catchment-management groups have also learnt much from the projects and used this knowledge to inform future monitoring methods, riparian restoration techniques, program management systems (eg. incentive management processes) etc.
- The use of the sites as 'demonstration sites' has been very mixed. Some sites have been visited extensively, while others have rarely been used. All tend to have been used by an 'inner circle' of people — either other project participants and/or catchment management group staff, visitors and researchers.
- The very existence of the sites, regardless of their 'success' or 'failure', has acted as stimuli for local discussions, which influences the perceptions and values of local communities.
- The use of the sites as evaluations of the application of research has been mixed. This is not to say that evaluations were not undertaken, but that the quality and extent of evaluation (methods used, regularity of monitoring etc.), and the extension/communication of these, were variable.
- There is a broad diversity, both intra- and interregional, in the extent of adoption of riparian works. This is not always directly related to the location of the LWA-funded sites, so making assumptions about causality is difficult. These differences are more likely to reflect biophysical and social differences within and between regions.
- As reflected in the attitudinal surveys undertaken as part of the original LWA projects, and observed during our field investigations, there is a high degree of value placed in local rivers and riparian zones by local communities. This is manifested in a high degree of awareness of riparian and river-management issues.
- Participants (landholders) appear to be motivated to undertake riparian restoration for environmental, aesthetic and farm-succession reasons, not purely economics. This means that the cost–benefit analyses

undertaken as part of the original LWA projects have not been as valuable as they might be if economic motives were a key driver of decision-making about riparian management.
- Many of the landholders who hosted the NRLPD&E projects told us that they would have undertaken the works anyway, and were already in the Landcare and/or catchment management 'loop'. LWA resources may not, therefore, have directly influenced individual farmer's behaviour. However, this is not to say these resources have neither increased the priority of undertaking the works nor been of influence in the broader community.
- There is increasing recognition by agency staff of the need to coordinate the activities of groups, State agencies and local government at the farm, landscape and catchment scales. This recognition has exposed many issues relating to ineffectual institutional and funding arrangements.

One of the important observations from the regional investigations is the intra- and interregional differences between the case-study catchments in economic, biophysical and social terms. This diversity confirmed our suspicions that there would be no universal approach to defining or measuring capacity for riparian restoration. However, the degree to which regional communities have 'succeeded' in maximising both the effectiveness of the on-ground works in restoring and enhancing riparian lands, and effecting broader landscape change, is dependent upon their ability, at individual, institutional and community levels, to positively respond to and overcome their own particular problems. Importantly, these key dimensions of capacity did not vary considerably between regions, and it is these dimensions that have been used to develop a 'capacity assessment tool', which is described in the next chapter of this report.

In summary, our regional investigations have confirmed that 'capacity' is very much about the skills and knowledge of individuals and their perceptions and values, the social networks and relations, including feelings of trust and reciprocity, and support and cooperation within and between institutions and between individuals. However, issues of governance, administration, consistency, continuity, and the availability and accessibility of financial and other resources, are also important. In addition, the physical and natural capital of the region can play a large role in determining the level of capital of other forms required to successfully manage riparian lands.

4 Capacity assessment tool

4.1 Introduction

The process of thinking about what capacity means in practice, and how it could be 'quantified', was challenging, but has culminated in a tool that has a wide application in understanding key social and institutional issues relating to achieving riparian restoration. The tool also has wider application across all aspects of NRM, with some modification such as refashioning references to riparian lands.

This section of the report describes the 'capacity assessment tool' itself (section 4.3) and makes recommendations about who could use it, and how, when and why (section 4.2). The tool is freely available via the <www.rivers.gov.au> website. The content of the tool was refined following a 'capacity for riparian restoration workshop' in Canberra in April 2003. The recommendations contained in this report have also been informed by the workshop.

4.2 Recommendations for use of the tool

While there are advantages in being able to quantify 'things', there are also some dangers. When the subject matter is related to often-sensitive issues such as the values, beliefs and perceptions of people within local and regional communities, these dangers are significantly increased. When this information has the potential to be used to make decisions about the allocation of resources, there are justifiable reasons why communities might be apprehensive about their capacity being assessed. We therefore start these recommendations for use of the 'capacity assessment tool' with a note of caution.

As outlined in Section 4.3, there is a scoring system embedded within the assessment tool. This is primarily to facilitate the assessment of the different dimensions of capacity within the region. That is, it facilitates the process of understanding strengths and weaknesses of the project/program/institution. While these 'scores' could also be used to compare one region and/or project with another, this is not reliable, nor is it the intent that the tool be used in this way. Comparing two or more regions or projects could be reliably undertaken only if the same person(s) undertook the assessment, and did so at the same point in time and with a similar degree of knowledge about the socio-economic context of each region. This is because the assessment is largely a subjective exercise. This is not to say that this 'subjective' assessment cannot be informed by objective data, and as methods of measuring different dimensions of capacity and capital become available the assessment process could become increasingly objective.

We contend that this subjectivity is not detrimental to the value of the tool. The tool is designed primarily as a guide to help program managers, policy developers, project managers and community groups think about, and work through, the issues associated with their 'capacity' to engage in riparian restoration works. It is the process of working through the tool that is important — the results or outputs of the tool should really be seen only as a record of that process.

The following principles should be followed to safeguard against misuse of the assessment tool:

1) That the users of the tool (as an *assessment* tool) be those people directly involved in the design and delivery of programs/projects within their own regions. Policy and program developers may use the tool as a checklist of issues, or as a tool to guide the development of more comprehensive policies and programs in relation to social issues in NRM.
2) That the tool not be used to make judgments about others, or for comparing regions and projects.
3) That the limitations of the tool be clearly outlined to users.
4) That, where the tool is used by a group of people, the purpose of the assessment is clearly stated.

There are many potential uses for, and therefore users of, the assessment tool. The following discussions are based on our ideas of who might use the tool and how, and the ideas of participants at the workshop in Canberra in April 2003.

Why the tool might be used

As a 'checklist' of issues in relation to 'capacity'

As a 'checklist', the assessment tool can help users to identify key issues in relation to capacity and capacity building, and to start thinking about the features of programs and projects that might respond to or address these issues. Using the tool in this way may be particularly useful if a group of people was involved. The tool would then become a catalyst for discussion about the dimensions of capacity within the region, enabling a range of perspectives on different issues to be collected.

As a reporting tool

By completing the assessment, a 'snapshot' of conditions and trends in relation to 'capacity' can be recorded for a single point in time. This might be used to inform reports on regional targets, or simply to record current conditions so that comparisons can be made in the future.

As a diagnostic tool (as a 'SWOT' analysis)

The assessment tool can be used to identify strengths and weaknesses within the local community, institutions, programs/projects and therefore be used to inform decisions about, for example, resource allocation for 'capacity enhancement'. The tool could be used to identify reasons for successes or shortcomings of projects and programs.

As a participatory research tool

The tool provides a useful framework from which to structure participatory research. A range of perceptions of local conditions could be gained by using the assessment components of the tool. If used as the focus of a group discussion, each of the dimensions could be used as a catalyst for discussion about condition, trend and importance of issues affecting the ability of people to be involved in riparian restoration.

A participatory approach to setting the weighting of importance of each dimension within the region would be a very interesting and informative exercise. Data on the variation of perceptions about how important each dimension is in influencing behaviour at an individual, community or institutional scale would be valuable for informing policy options.

Who might use the tool

Policy developers

Commonwealth, State and local governments could use the tool to assist in the development of policies in relation to capacity building, institutional arrangements, funding mechanisms, cost-sharing arrangements etc. Because the tool gathers data on a wide range of issues that impact on the ability of people to act, and suggests the relative importance of these issues in different times and places, policy developers may be able to explore the relative impact of policy options that influence one or many dimensions. At a minimum, the tool provides policy developers with a broader appreciation of the range of issues that affect the ability of groups and individuals to act.

Project managers

Project managers, within a wide range of government and non-government agencies, community groups, catchment authorities etc. could use the tool in a variety of ways (see 'why' section above). They could use the tool to consider a range of dimensions of capacity and help analyse current conditions and trends, set priorities etc. Alternatively, project managers could use the tool to facilitate the participation of others in the process of improving programs/projects and/or involving a range of people in developing 'capacity enhancement' policies and programs.

Groups/agencies

If used in a group setting, the tool provides a useful framework for discussions about a range of issues. This might be useful in increasing the awareness of the whole group about the range of issues impacting upon capacity. It might also be useful for helping people within groups to gain an understanding of the perspectives and beliefs of others in the group in relation to specific issues. In this way, the tool could be used to help gauge the degree to which there is consistent or conflicting beliefs within a group on a subject or range of subjects. This could be particularly useful in the early stages of a group's development (ie. the brainstorming phase).

Table 4. Summary of potential uses for and users of the 'capacity assessment tool'

	Policy developers	Project managers	Groups
Checklist tool	✓	✓	✓
Reporting too		✓	
Diagnostic tool		✓	✓
Participatory research tool	✓	✓	✓

4.3 Description of 'capacity assessment tool'

The assessment tool is in the form of a Microsoft® Excel spreadsheet or as a printed version. The spreadsheet version is described here, as this is the most practical and easy-to-use version of the two, and has additional features such as the ability to make suggestions regarding priorities for capacity enhancement programs. Navigation through the tool is facilitated by buttons[9] that enable users to go forward and back through the various screens.

Most data entry is undertaken by clicking on a button/checkbox next to the statement that best describes the program/program/region. Some fields require a written response, but these are mainly in the third screen (user and project background). The 'importance weighting' and 'project life-stage weighting' 'look-up tables' can be changed by overwriting the figures in the non-shaded cells.

Table 5. Outline of the steps to complete the 'capacity assessment tool'

Step	Description
1	Background Information: details of the user, the region and the project
2	Assessment phase — responding to statements relating to 5 themes: Socio-economic context Values and Perceptions Communications and empowerment Program design Program delivery
3	Weighting of importance of issues in the region (editable)
4	Weighting of importance of issues in the life-stage of the project (editable)
5	Priority-setting (optional, editable)
6	Results (on-screen review or print, option of summary or full numerical results)
7	Implications (on-screen review or print a report)

[9] The buttons drive scripts or 'macros' within Excel, so users must have 'macros enabled' when opening the assessment tool.

The tool is straightforward and largely self-explanatory. While no specific training is required to use it, there may be advantages in guiding users through the tool to clarify its aims and limitations. This would be especially useful if a group of people was attempting to use the tool to make an assessment of a region at a point in time.

Perhaps the most difficult aspect of the tool is that decisions need to be made about which of three statements within each 'dimension' best applies to the selected region and project (Step 2 in the assessment process). If users do not have a good appreciation of the range of issues covered in the tool, this process may be frustrating. For programming reasons, the current version of the tool does not allow a user to select a mid-point between two statements. Therefore, if the user agrees with parts of a statement, but not the statement in its entirety, there may be some confusion or frustration. As a guide, think about the region as a whole, including the sectors of the community that you, as a user, may not be familiar with, and select the statement that 'best' fits the region 'on average'. If parts of the statement don't fit, or seem not to apply, then disregard those aspects of the statements and focus on the sentiments that do apply. The intent of the statements is to portray 'very good', 'OK' and 'not so good' scenarios. If all else fails, consider the issues in your region relating to the title of the dimension, and the kinds of issues raised in the statements, and make an assessment as to whether your region would rate 'very good'. 'OK' or 'not so good'. (Refer to the 'Summary of themes and dimensions' section below to gain an appreciation of the intent of each dimension.)

Description of the assessment tool (in electronic form)

You can download the tool from the <www.rivers.gov.au> website.

The spreadsheet consists of a series of screens, each being a separate 'sheet', one for each different area of data input. Each screen is described below. It is important that when opening the Microsoft® Excel spreadsheet that the 'enable macros' option is selected. If the buttons do not work, macros have been turned off (close and restart Excel and click on the 'enable macros' option during opening).

Screen 1 Introduction and credits. This screen (Figure 6) provides a very brief introduction to the tool and suggests users set their monitor resolution to 1024 × 768 pixels and use 'full screen' view.

Screen 2 Introduction to the steps involved in completing the assessment. The seven steps

to assessing the capacity of the selected region and project to meet its objectives in relation to riparian restoration are briefly outlined.

Screen 3 (STEP 1) Background information about the project: name, description of region, project/ program life-stage etc. (Figure 7). The purpose of this information is two-fold. Firstly, it identifies the region and project for which the assessment is being completed and establishes some important information about the project, such as whether it is a 'new', 'existing' or 'established' initiative. Secondly, it identifies the user of the tool, and documents the perspective from which they are completing the assessment. For example, the user's role and length of experience in the

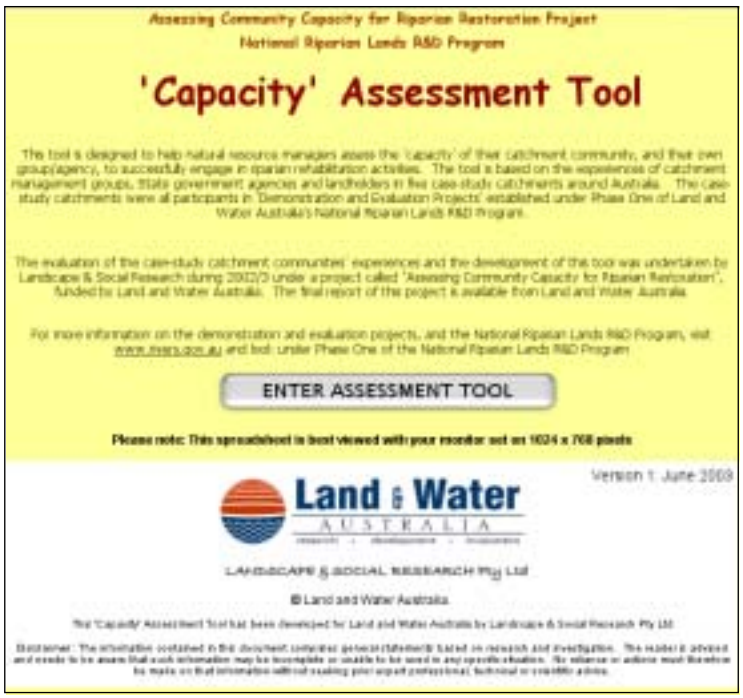

Figure 6. Screen 1 of the assessment tool

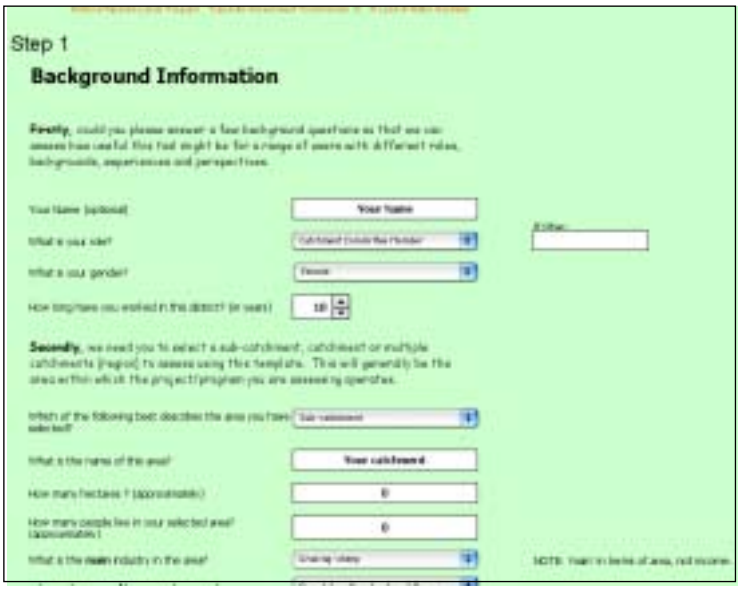

Figure 7. Screen 3 of the assessment tool

The screens shown here will be modified and updated as we receive feedback. This means the 'look' of the tool may change as it become more refined.

region are documented. The data collected in this screen are of use for the individuals and groups using the tool, particularly when doing so at different times, but also of use for evaluating the tool itself. The last three questions on this screen are critical as they directly influence the results of the assessment and the form of the tool outputs.

The first of these questions asks the user to select the life-phase of the project ('new', 'existing' or 'established'), where: **new** are projects/programs that are proposed or just getting off the ground; **existing** projects/programs are those that have been in place for one to two years; and, **established** projects/programs are those that have been around for more than three years and may or may not continue.

The second key question on this sheet (the second last one) asks whether users would like the assessment tool to report on possible priorities for 'capacity enhancement' (usually called 'capacity building') programs. The method by which the tool assigns priorities is based on the 'condition' and 'trend' data entered by users on Screens 4 to 8. The 'priority' look-up table (condition × trend), which the tool uses to look-up priorities for each dimension, is provided (Screen 11) and can be changed by the user.

The third key question on this screen is the date (last question) of the assessment. It is important to record the date of the assessment here so that results can be compared over time.

Screen 4 (STEP 2) Assessment sheet one: Context. This sheet (Figure 8) contains the dimensions of capacity relating to the social, economic and biophysical context within which the project/program is situated. Three statements are provided for each dimension and the user(s) select the statement that 'best' fits their region, from their perspective (one statement must be selected for each dimension). The seven dimensions covered in this 'context' theme are: Economic conditions; community cohesion and support; awareness (of water quality and supply issues); setbacks; community networks; community negotiation structures; and complexity and cost of works.

Screen 5 (STEP 2) Assessment sheet two: Values and Perceptions. Dimensions of capacity relating to the values and perceptions of the regional community are contained within this screen. User(s) select one of three statements for each of seven dimensions in this area, based on their understanding of the values and perceptions of the regional community (one statement must be selected for each dimension). This understanding of

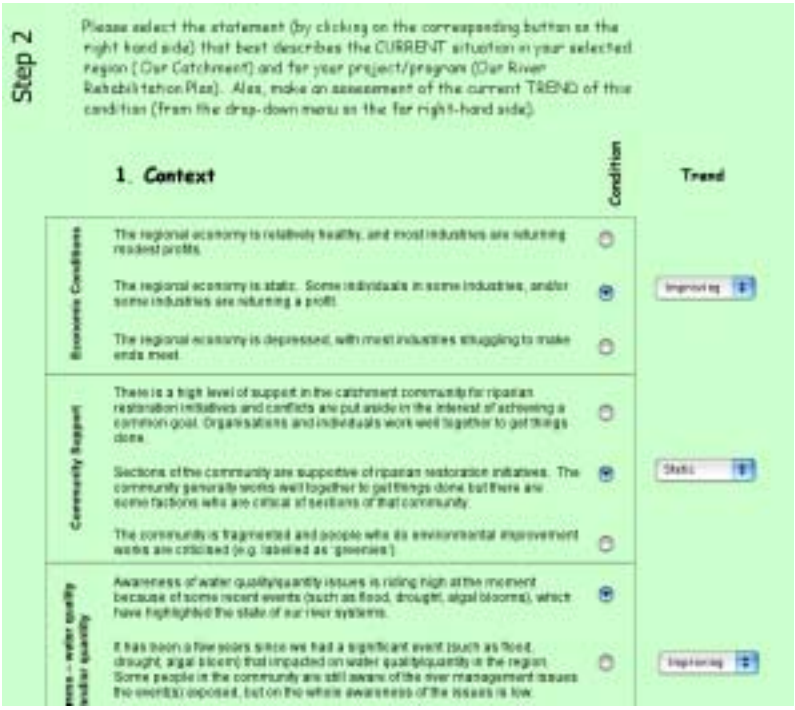

Figure 8. Screen 4 of the assessment tool

the regional community might be informed by surveys, experiences in working with regional groups, focus groups etc. The seven dimensions included in this theme are: values; shared vision; skills in working with diverse values and perceptions; awareness; open-mindedness and learning; perceptions of solutions; and ownership of problems and solutions.

Screen 6 (STEP 2) Assessment sheet three: Communications and Empowerment. This sheet contains the dimensions of capacity relating to the manner in which the broader community is included in NRM programs generally, and riparian lands restoration strategies in particular, and how these structures and processes facilitate community empowerment. Three statements are provided for each dimension and the user(s) selects the statement that 'best' fits their region, from their perspective (one statement must be selected for each dimension). The seven dimensions covered in this theme are: data availability; targeting of communications; communication mechanisms; consistency of communications; cooperation between agencies; empowerment; and, inclusiveness.

Screen 7 (STEP 2) Assessment sheet four: Program Design. This theme relates to the design of the project/program and the likelihood that it will facilitate participatory approaches to riparian restoration. As for each assessment sheet, three statements are provided for each dimension, from which user(s) select the 'best' fit for their region/project (one statement must be selected for each dimension). The dimensions included in this 'Program Design' theme are: roles and responsibilities; financial security; program consistency; institutional consistency; flexibility; forward planning; and transparency.

Screen 8 (STEP 2) Assessment sheet five: Program Delivery. This is the last of the assessment sheets, and deals with dimensions relating to the delivery of the program and the likelihood that the proposed delivery mechanisms will facilitate broad participation of a wide cross-section of the community, and build the capacity of all involved. One of three statements within each of the following seven dimensions is selected by the user (one statement must be selected for each dimension), based on a 'best fit'. The dimensions include: decision-making; consistency of key people within agencies; personality of key people within agencies; skills and experience of key people within agencies; community 'champions'; monitoring and evaluation; and institutional capacity.

Screen 9 (STEP 3) Weighting tables (Figure 9). Because different dimensions of capacity have more or less influence at different times and in different places, the 'capacity

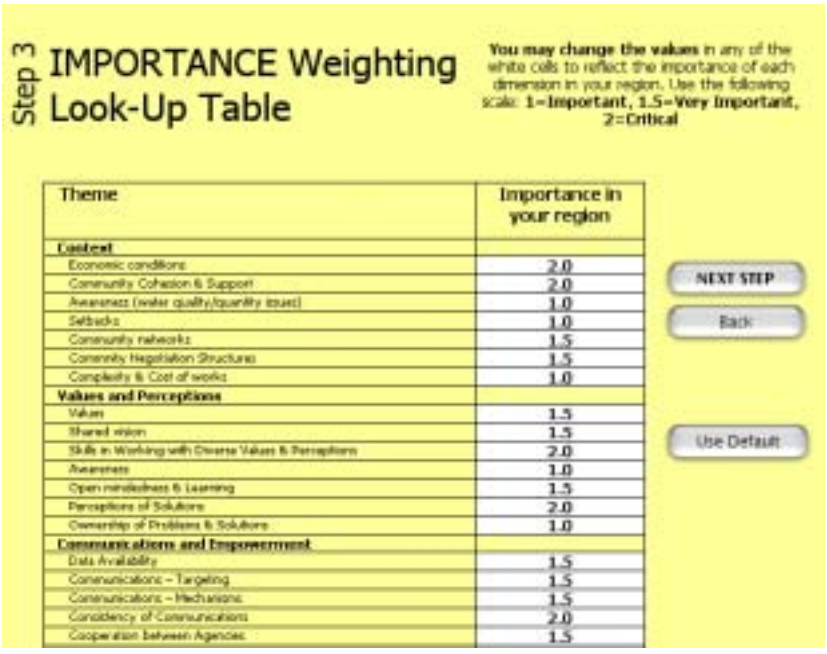

Figure 9. Screen 9 of the assessment tool

assessment tool' uses a 'weighting' system to enable different dimensions to be given a higher or lower importance. The default values within this 'look-up' table reflect the relative importance of the various dimensions of capacity from a national perspective at the time of the investigations that supported the development of this tool. Users can change the weighting values to reflect conditions in their own region, at the time of their assessment. A numerical coding system is used, where 2 = 'critical', 1.5 = 'very important', and 1 = 'important'.

Screen 10 (STEP 4) Project life-stage weighting tables. As observed in the discussion above, different dimensions of capacity are more or less important at different times and places. During our research for this tool, we also observed that different issues are more or less important at different stages in the 'life-cycle' of a project. The purpose of this weighting table is to adjust the scores on each dimension to reflect the different relative importance of issues as projects mature. The same numerical coding system applied for the first weighting is used, where 2 = 'critical', 1.5 = 'very important', and 1 = 'important'.

Screen 11 (STEP 5) Priority setting. This screen (Figure 10) contains a 'priority look-up table' that allows the user to decide how priorities might be set under different condition and trend scenarios. For example, if the condition of a dimension is poor and the trend is declining, the issue might be tagged as having a high priority. If the condition of a dimension is very good, and the trend is improving, then the priority would probably be low. The default values can be left in place, or replaced later if the user modifies the table at all. However, the priorities are reported on the results sheets (Step 6) and implications report (Step 7) only if the 'show priorities' option is selected on the 'background' screen (Step 1).

Screen 12 (STEP 6) This is a navigation screen that allows users to select either a thematic version of the results (ie. as 'traffic lights') or a full, detailed numeric version, which also shows 'traffic light' indicators of condition and trend.

Screen 13 (STEP 6) Results (Numeric version). This screen (Figure 11) shows the 'raw score' (the value corresponding to the selected statement on the data entry sheets [Step 2]), the weighting values (as looked-up from the importance weighting and life-stage weighting tables) used, and the adjusted score on each dimension. Each cell is shaded with red, yellow or green to alert the user as to whether the condition on each

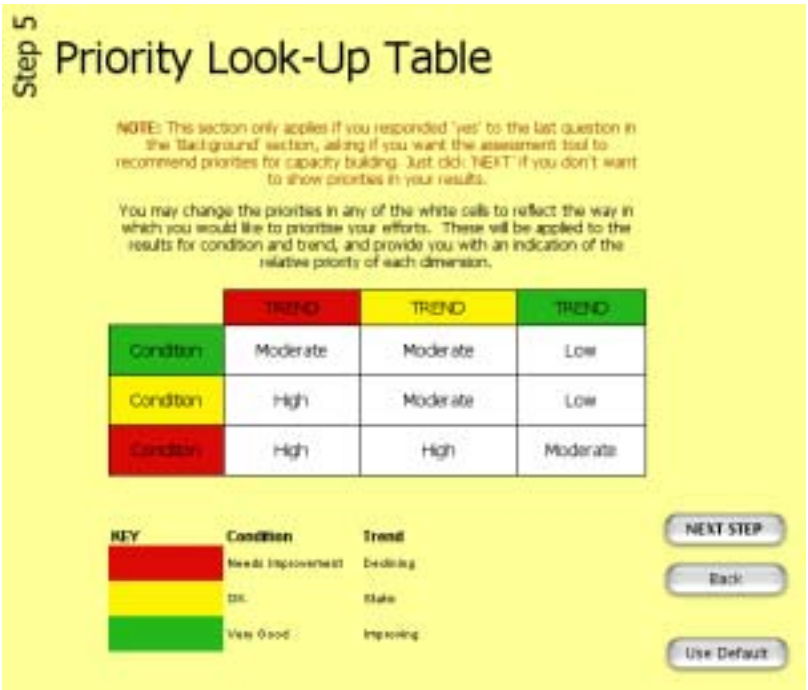

Figure 10. Screen 11 of the assessment tool

dimension 'needs improving', is 'OK' or is 'very good'. The trend for each dimension, as reported on the data entry screens, is also displayed as 'traffic lights' to the right-hand side of the condition results. The results for 'trend' are not weighted in any way; they are simply a record of the assessment made. This sheet can be printed (on one A4 page), and is best printed in colour.

Other key results on this screen are the 'theme' averages and the overall condition of the region (ie. the total score across all five themes).

Recommendations for the possible priority that each dimension might have in the context of a 'capacity enhancement' program are provided on the right-hand side of the results page, if the 'show priorities' option is selected on the 'background' screen (Step 1). The sheet is designed to fit on one A4 page when printed.

Screen 14: (STEP 6) Results (thematic version). This screen (Figure 12) shows only the 'traffic lights' results from Screen 13. All numerical values are omitted for users who do not want to use the tool as a 'measurement' tool.

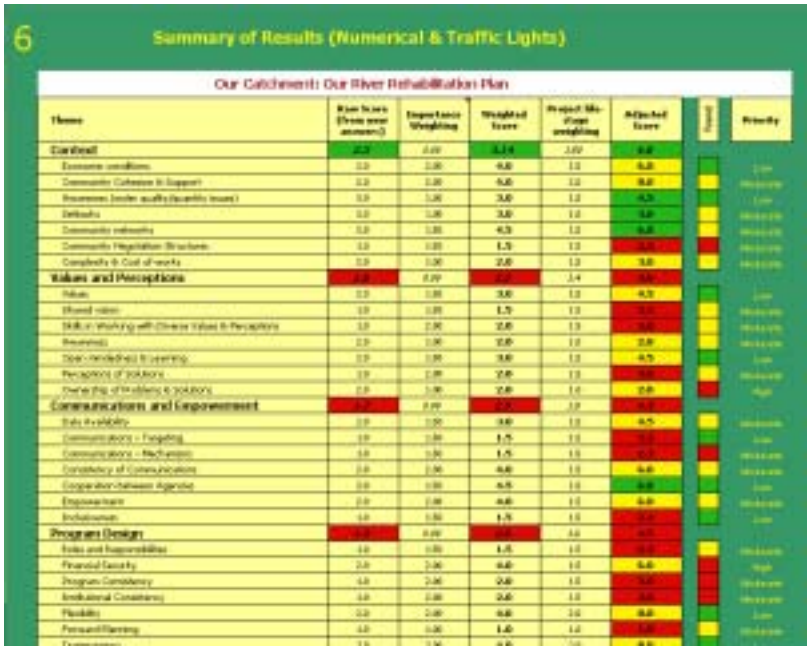

Figure 11. Screen 13 of the assessment tool

Figure 12. Screen 14 of the assessment tool

The results for 'trend' are not weighted in any way; they are simply a record of the assessment made

The sheet is designed to fit on one A4 page when printed.

Screen 15 (STEP 7) 'Implications' report. This is the final step in the assessment process and is a key output of the tool (Figure 13). This screen presents some implications of the results for the delivery of riparian restoration programs/projects within the region. Recommendations are made about what might be able to be done in terms of 'capacity enhancement' and/or re-designing program/projects and their delivery in order to respond positively to the current condition. Suggestions are also made in relation to what can be done to maintain the status on dimensions that are currently rated 'very good'. However, there is no modification of the 'implications paragraphs' under different trend and priority results. The report can be printed (about 8 pages), and is best printed in colour.

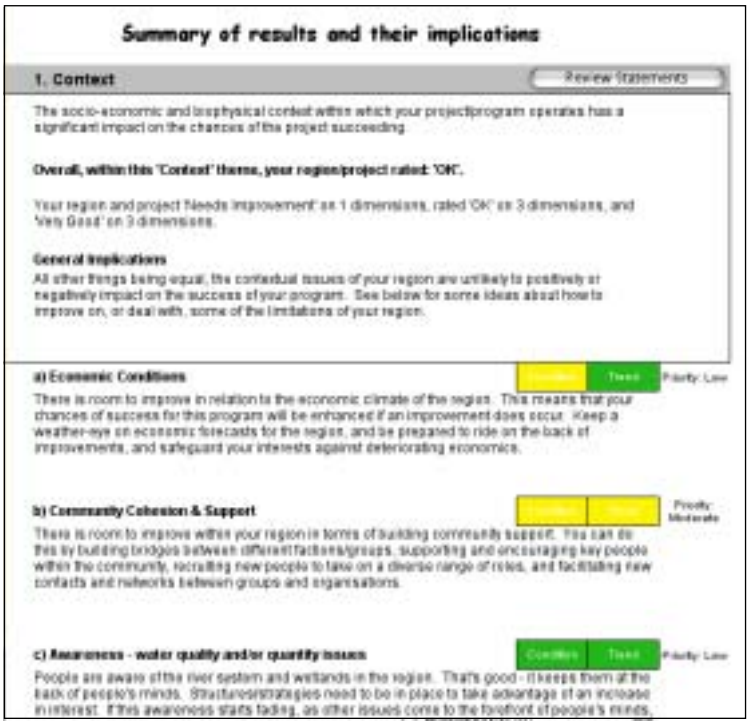

Figure 13. Screen 15 of the assessment tool

Table 6. Dimensions of capacity assessed using the 'capacity assessment tool'

Theme	Dimension
1. Context	Economic conditions, community cohesion and support, awareness of water quality/quantity issues, setbacks, community networks, community negotiation structures, complexity and cost of works.
2. Values and perceptions	Values, shared vision, skills in working with diverse values and perceptions, awareness, open-mindedness and learning, perceptions of solutions, ownership of problems and solutions.
3. Communication and empowerment	Data availability, communication — targeting, communication — mechanisms, consistency of communication, cooperation between agencies, empowerment, inclusiveness.
4. Program design	Roles and responsibilities, financial security, program consistency, institutional consistency, flexibility, forward planning, transparency.
5. Program delivery	Decision-making, consistency of key people within agencies, personality of key people within agencies, skills and experience of key people within agencies, community 'champions', monitoring and evaluation, institutional capacity.

Summary of themes and dimensions

As indicated in the description above, there are 35 'dimensions' of capacity within the assessment tool, grouped into five themes (see Table 6, at foot of facing page). This section of the report describes the nature and intent of these dimensions, highlighting their interrelationships and how they fit within the theory of 'capital' (in all its forms) and 'capacity' as discussed in Chapter 2. Users of the assessment who have trouble deciding which statement best fits their region, may need to to revisit that chapter to gain an appreciation of the intent of the dimensions.

Theme 1: Context

E*conomic conditions*	The prevailing economic conditions of the region, in particular the major primary industries of the region, can affect the adoption of riparian restoration and management practices in two ways. The first is by limiting the amount of funds available in landholders' hip pockets. While the availability of financial resources may not be a key driver of adoption of recommended practices in relation to riparian management, some financial resources are, nevertheless, required to enable people to carry out most works. The second, and probably the main impact, is that in difficult economic times, the relative priority of riparian restoration is lower than other demands on landholders' time and financial resources.
Community support	This dimension relates to issues of community cohesion and the degree to which riparian-restoration initiatives are likely to be supported. In a cohesive community, people are likely to be more accepting of other values and perspectives, and to put aside their conflicts and differences in order to achieve a common goal. At the other end of the spectrum, there might be considerable conflict within the community about what should be done, sometimes with a good deal of criticism of different groups within the community.
Awareness — water quality and/or quantity	Events such as floods, droughts, algal blooms, debates over water-resource allocation etc. can have a big impact on community awareness of river and riparian management issues, simply by bringing these issues into public discourse. It may be harder to raise awareness of riparian-management issues, particularly issues relating to off-site impacts, if these issues are not in the forefront of people's minds.
Setbacks	People from all walks of life can become disheartened if they have put significant effort into achieving something like revegetating a riverbank, only to have the works washed away by a flood. Conversely, if they see that their works have contributed, for example, to the stability of the riverbank, they are likely to be motivated to continue with the works. Statements within this dimension provide three different scenarios, each conveying different degrees to which the community might be disheartened in relation to attempting riparian restoration works.
Community networks	The degree to which communities are interconnected — ie. the number of groups, the strength of the connections between these groups, and the enthusiasm and skills of the people involved in the groups — is an indicator of community resilience and cohesion. The three statements for this dimension attempt to convey different possible scenarios, from a community with a few isolated and/or struggling groups, to a community with many strong groups who communicate with each other and cooperate for the common good. In the riparian restoration context, a program/project designed to tap into strong Landcare-type groups (and other community groups) in a region is far more likely to gather a momentum of its own, than the same program/project in an area with a few, struggling groups. However, it is important that programs/projects do not contribute to the decline of community capacity by overburdening existing strong groups and the key individuals within them by placing more and more work onto such groups and individuals without providing extra support for their participation.

Community negotiation structures

Even if there are differences of opinion within a community, there is a significantly higher chance of negotiating some common ground (and therefore achieving on-ground works), if there are mechanisms in place to facilitate the identification of different values and perspectives, and to negotiate a shared vision. If some in the community believe they have been excluded from the process of negotiation and decision-making, there is less chance of achieving wide ownership of riparian-lands-management problems and solutions. The statements developed for this dimension present three scenarios with different degrees of opportunity for participation in the process of identifying and hearing different perspectives, and then negotiating a way forward.

Complexity and cost of works

The biophysical and climatic conditions of catchments have a significant influence on the cost and complexity of riparian restoration works. Each catchment is variable in terms of climate, soils, hydrological characteristics, and history of landscape modification due to agricultural or mining pursuits.

The cost and complexity of riparian restoration works has a significant effect on the likelihood of gaining community support and participation in such works, particularly in relation to cost-sharing and the provision of labour for establishing and maintaining works. The statements for this dimension portray varying degrees of cost and complexity of works, such as the requirement for expensive engineering works, the presence of highly invasive weeds etc. and the degree to which landholders are likely to be committed to on-going maintenance of the works.

Theme 2: Values and perceptions

Values

The way in which the community values rivers and riparian lands plays a significant role in determining their motivation to act. If people value the river, riparian lands and the catchment as a whole, they are more likely to take an interest in events and processes that affect the river and its surroundings. Moreover, if they also understand the implications of those events and processes, they are more likely to take an active interest in minimising negative influences. On the other hand, people who do not value the river are unlikely to take an interest in events and processes affecting it, and even less inclined to take action in relation to them. People who hold no value in river environs are more likely to consciously or subconsciously act in a manner that may be detrimental to the environment.
The values people hold in rivers and riparian lands are variable, and might encompass aesthetic, cultural, recreational, or utilitarian perspectives (or all of these).

Shared vision

If there is little variance within a community in relation to the values held in river environments, there is a greater chance that the community may share a relatively consistent idea about how the river and its environs should look and how they should be managed. If this vision is also consistent with the perspectives of government agencies and catchment authorities from an ecosystem health or ecosystem services perspective, then the chance of achieving this vision is high. If, on the other hand, there are widely divergent ideas about how the river and environs should look and how they should be managed, as a result of widely different values in respect to these resources, agreeing on a shared vision and a way forward is going to be more difficult.

Skills in working with diverse values and perceptions

In situations where there is a high degree of variance within a community in relation to people's values and perceptions of the river, achieving a shared vision, and implementing that vision, will be difficult unless there are people within agencies and communities that are skilled in working with people who hold different values and perspectives. This is largely a human-capital issue. Having people within lead agencies who are skilled in understanding and relating to people with diverse views and values is important to enable a wider cross-section of the community to participate in riparian restoration initiatives, from planning through to implementation phases. Having this broad participation will enhance community ownership of the problems and solutions, and lead to a longer-term effort in riparian rehabilitation. The types of skills and qualities that are important in this context encompass interpersonal skills (attentive listening, respect, flexibility, rapport and trust building), participatory and experiential learning, handling conflict etc.

Awareness

Awareness is important in shaping values and beliefs. However, awareness is not always shaped only by direct experience, but sometimes also by complex cultural and social influences. This means that the 'awareness' is essentially subjective. For example, some people may believe that trees on riparian lands are a 'bad thing' because they are aware (either through direct experience or from stories) that when trees on riverbanks fall they contribute to bank erosion. They may not be aware that trees (whether fallen or not) provide habitat, protect banks, and that rivers change their course slowly over time anyway.

The intent of this dimension is to assess the depth and sophistication of awareness or understanding of river systems among the catchment community. It is based on the assumption that if, as a community, there is a greater depth of awareness of the range of physical, hydrological, biophysical and cultural issues within a catchment, the more sophisticated will be the value systems of that community and the greater the chance of a more holistic response to riparian restoration.

Open mindedness and learning

Riparian restoration initiatives may present some difficult issues for the catchment community, such as challenging current use or management of riparian lands. The extent to which the catchment community is open to new ideas and alternative approaches to riparian management will have a very big influence on the ease with which visions for riparian restoration are achieved. This issue is closely related to people's willingness to learn.

Perceptions of solutions

If people perceive proposed riparian restoration measures as inappropriate, complex, costly, disruptive or ineffective, they will be unlikely to support them, let alone implement them on their own land or participate in other ways. The degree of support for solutions to river and riparian-management issues is largely a function of the diversity within a community in relation to values and perceptions of the river and riparian lands.

Ownership of problems and solutions

In this context, 'ownership' of problems and solutions encompasses an acknowledgment that riparian restoration works are warranted (ie the problem is acknowledged) and that the solutions proposed are practical and beneficial. If landholders and other members of the community are supportive of the proposed riparian-restoration works, and acknowledge and understand the problems and the solutions, they are far more likely to be willing to invest their time and resources to implementing the works than if they did not have a sense of ownership of the problems and solutions. 'Ownership' of problems and solutions is more likely to be achieved if the community has been involved in the process of identifying issues and developing solutions.

Theme 3: Communication and empowerment

Data availability

This dimension relates to cooperation and reciprocity between agencies and groups, and the availability and sharing of knowledge. This has a practical dimension, in terms of saving costs and time, but also enhances key elements of social capital such as trust, reciprocity, leadership, decision-making and problem solving, relational networks etc.

Communications — targeting

Reflecting the issues raised in Theme 2 in relation to the diverse values and perceptions of people within a community, this dimension explores the degree to which communication is designed to reach these diverse audiences. Without relating to people on their own terms, there is little likelihood of engaging them in the process of identifying riparian-management issues and agreeing on a vision for riparian restoration. Market research principles of identifying key audiences for the 'products' being 'sold' can be used here. However, instead of looking only at demographic characteristics of key audiences, it is also important to consider socio-psychological dimensions so that the diverse values and perceptions of people in relation to rivers and riparian lands can be considered.

Communication — mechanisms

A comprehensive communication strategy should identify the preferred media for specific audiences within the community, so that key messages can be efficiently targeted to key people. Communication is central to participatory NRM processes: there is little chance of achieving a shared vision and consensus on how to get there if key audiences are left out of the process.

Consistency of communication

A key observation of the regional investigations that supported the development of this tool was that consistency in the messages espoused by scientists and governments was critical to building trust within communities with respect to technical advice and plans and strategies for riparian restoration. Landholders are unlikely to adopt riparian restoration and management practices that are contested, or are likely to be changed in time. Landholders have long memories, so the advice given by government agencies in the past that conflicts with or contradicts current advice is problematic. However, if members of the community are well informed and knowledgeable about catchment and riverine processes they are likely to understand that, from time to time, recommendations about management and restoration techniques will change as new knowledge becomes available. If there is already a sense of trust within the community, changes in advice are also likely to be more widely accepted.

Cooperation between agencies

If communities perceive that government agencies are cooperating on natural resource management issues, particularly in riverine environments where there may be more than one responsible authority, there is more likely to be a cooperative spirit and a sense of trust. When the community perceives that resources are being wasted on duplicating services, ineffectual works etc. they will be less inclined to participate in riparian restoration initiatives themselves. Apart from the community perceptions of cooperation between agencies, the extent to which agencies do actually cooperate is a key dimension of capacity. Sharing of information and resources and working together to prepare and implement plans and strategies increases the efficacy of limited resources.

Empowerment

Empowerment is one of the key dimensions of enabling communities with the capacity to successfully engage in riparian restoration. Empowerment is a multifaceted notion, encompassing issues of trust, reciprocity, inclusiveness, identity, leadership, self-efficacy, decision-making, and negotiation. If individuals and communities feel that they are trusted to take on responsibilities, they are far more likely to take an active and long-term interest in their work. However, there is a fine line between devolving tasks and responsibilities, and 'dumping' tasks and responsibilities. Individuals and communities need to be equipped with the knowledge, skills and resources to efficiently manage these tasks and responsibilities. If this support is not provided, the added workload and sense of responsibility is likely to contribute to the erosion of any sense of trust, and to burnout of key people.

Inclusiveness

A critical issue in relation to building trust and empowering communities is to be inclusive in all communication, consultation and decision-making activities. As well as building trust, actively engaging a wide cross-section of the community is important in enhancing many other elements of social capacity, such as: a sense of identification with a social collective; establishing and enhancing relational networks; and providing opportunities for events, meetings and communication sites.

Theme 4: Program design

Roles and responsibilities

This dimension relates to issues of trust, clarity of purpose, reciprocity, and networks. The degree to which groups and agencies have worked together to define roles and responsibilities, and the community's perceptions that this has occurred, is a measure of good will, cooperative spirit and trust.

Financial security

While the procurement of long-term funding provides the economic capital necessary to fund works and support services, it is the security that comes with long-term funding that is probably more important. This security ensures consistency in programs, personnel, cost-sharing arrangements etc., therefore building trust and familiarity within a community. Long-term funding provides the opportunity for agencies and groups to learn from their experiences and adopt a more adaptive approach to riparian restoration.

Short-term funding, on the other hand, provides little security and therefore a lack of consistency. Short-term funding can also contribute to the perception among the community that funding is being wasted on short-term works with little possibility of follow-up maintenance, or that most of the resources will go into planning and administration. Programs/projects with short-term finding can still have a place, but they must be strategically 'sited' within a longer term plan.

Program consistency	This dimension is essentially a 'marketing' issue, but is very important in building constructive relations with communities. If program/project naming and identity change regularly, it is likely that all but the most informed people within the community will see the new identity as yet another group or authority wasting scarce resources. Keeping identity constant is important in ensuring people's identity with a social collective, for building trust, and for transparent governance.
Institutional consistency	This dimension is very similar to that of 'program consistency': Similar issues are at stake, but in this case it is the consistency of the institution that is being assessed.
Flexibility	One of the key methods of responding to diverse values and perceptions of riparian lands within a community and facilitating a sense of ownership of problems and solutions, is to have flexibility within a program. Flexibility can be provided within an accountable and transparent program by being explicit about priorities and strategic directions and by focusing on outcomes.
Forward planning	Taking a proactive interest in future human-capital (and other forms of capital) conditions is important in strategic NRM and for planning 'capacity enhancement' programs. This dimension is particularly important in periurban catchments, especially on the coastal fringe, where there are high demands for lifestyle blocks and where current land uses are likely to change dramatically within the next two decades or so.
Transparency	The extent to which programs are transparent and accountable is a key factor influencing the degree of trust a community holds in the agencies and groups involved. One of the key scales at which transparency is of paramount importance is at the interface between landholders and the responsible group/agency — ie. implementing cost-sharing arrangements for on-ground works. If the same enthusiastic and supportive landholders are 'given' assistance repeatedly, there is often a perception within sections of the community that that person or persons have their 'snout in the trough', contributing to further divisiveness within the community. The statements provided for this dimension present three scenarios with different degrees of transparency within incentive mechanisms and the degree to which they fit within a broader strategic framework.

Theme 5: Program delivery

Decision-making	This dimension focuses on issues of leadership and the extent to which the wider community is involved in decision-making. Building a sense of trust, reciprocity, inclusiveness and ultimately empowerment, is dependent upon open but efficient decision-making processes.
Key people within agencies — consistency	This dimension relates to issues of social capital, human capital, consistency and trust. Just having key people within agencies to support and facilitate riparian restoration is critical. However, the effectiveness of these key people generally increases over time as they become more widely known and respected within the community. The extent to which they are respected is determined by their skills as well as their personality (see below).
Key people within agencies — personality	The personality of key people (ie. people who interact with the community regularly) within agencies is critical to building rapport and relations with a wide cross-section of the catchment community. Often, people who have local knowledge are able to build rapport with landholders and other community members more quickly than outsiders because they have some sense of identity with the social collective or group due to a sharing of common experiences.
Key people within agencies — skills and experience	The ability of key people within agencies to recognise, acknowledge and work with people within the community with diverse values and perceptions is paramount in developing and implementing inclusive, participatory processes for riparian restoration. These skills may not always be the result of formal training.

Community champions	This is a key dimension that relates to elements of social and human capital. Having social brokers is critical in building networks, providing leadership, building trust, being inclusive, and developing shared visions. However, there is a danger that relying on them too heavily can degrade the capacity of these key people. They need support and encouragement, and new 'champions' need to be constantly developed to share the workload and provide succession.
Monitoring and evaluation	Knowledge is a key element of social and human capital. This dimension focuses on the extent to which projects and works are monitored so that future works and programs can benefit from the lessons learnt. This process of adaptive management is important for building community awareness, interest and confidence that what they are achieving is either having a direct benefit to the condition of rivers and riparian lands, or contributing to the knowledge base about how they should be managed.
Institutional capacity	Establishing transparent, inclusive and participatory processes for riparian restoration can be resource intensive, depending upon the size and diversity of the catchment community. However, having the capacity within the institution to respond to inquiries and the interest shown in the program/project by the community is essential in building trust and respect.

5 Conclusion and recommendations — enhancing capacity for riparian restoration

5.1 Specific conclusions in response to the project brief

1. *Understand the opportunities and constraints to implementation of best-practice riparian management, identify and rank in importance key influencing factors, and provide advice on how to develop policies and programs that address these factors.*

This project has identified and described 35 'dimensions' of capacity that were identified from the regional investigations as having an influence on riparian restoration. This list may not be exhaustive, but the fact that the same issues were identified in each region, albeit to varying degrees of importance, suggests that they are probably universally applicable.

The key outcome of this project relates not so much to the identification of the dimensions themselves, but to the observation that each of these dimensions has different influences in different places and times. In some times and places, the same dimension can have a positive influence; in other places or times it may be negative. It is the relative importance of the dimension in the context of the here and now that is important. This makes it difficult to rank the importance of key influencing factors. Nevertheless, we suggest that nearly all the dimensions grouped under the 'values and perceptions' theme, and most of the dimensions under the 'program design' theme are probably more important, more of the time and in more places, than some of the other dimensions.

Specific recommendations regarding policy and program design are provided below. To summarise the key points, we suggest two principles that need to be applied in order to design more effective riparian restoration programs and policies:

- Firstly, in considering 'things' as outcomes of many underlying processes, there needs to be a focus on identifying how different dimensions of capacity interact to produce favourable outcomes.
- Secondly, this requires a more adaptive approach to management and policy design, and means that a wider range of flexible but integrated policy responses is required.

2. *Assess the extent to which community-based projects have built capacity in the individuals and groups/organisations involved, and develop practical measures so that this capacity can be quantified.*

The regional investigations undertaken during this project have revealed that capacity has been built within the individuals and groups/organisations involved in the demonstration and evaluation projects funded by LWA. However, there were other influences that contributed to this 'capacity enhancement' so it is difficult to directly attribute a cause. The funding provided by LWA enabled individuals and agencies to try different methods and approaches. The fact that the projects existed and were able to be viewed by just about anyone in the community meant that riparian management issues were brought to the attention of a wide range of people and, therefore, entered local discourse. This presence and the juxtapositioning of other events and works contributed to a gradual increase in awareness, interest and, ultimately, the action that slowly contributes to a cultural change in respect to riparian lands. While the particular circumstances of each region and the nature of each project were slightly different, the small but timely provision of the funding for the demonstration and evaluation projects, were in all cases important in progressing the capacity of regions to successfully engage in riparian restoration activities.

Looking at the contribution of demonstration projects in this way, it is important to note that even projects that were apparent failures could contribute positively to the capacity of regional communities to engage in riparian restoration. This would only happen if the lessons learnt are utilised to inform future efforts, and not swept under the carpet as embarrassments. If the political and institutional setting within which these 'failures' take place is mature enough to highlight these lessons to the community and to the agencies that funded and supported the works, lessons could be learnt at various levels.

3. *Evaluate the extent to which Land & Water Australia's National Riparian Lands R&D Program's Demonstration and Evaluation projects have influenced management practices at a catchment scale, and develop ways in which Land & Water Australia and other organisations can improve program and project design to maximise community capacity building.*

As has been discussed, there is little evidence to enable a direct assessment of the broader influence of the demonstration and evaluation projects at a catchment level. There is anecdotal evidence to suggest that the demonstration and evaluation projects did have a broad influence, but probably not on their own. The influence of the projects over the broader catchment is likely to wax and wane over time, according to the relative importance of the sites/experiences of the projects in the context of other events and initiatives within the catchment.

Our approach to the issue of 'capacity' for riparian restoration has raised important implications for capacity building. Instead of identifying the limitations of individuals and communities in relation to particular goals or end-points, we suggest that the role of capacity enhancement is to help people to use their existing capacities to achieve better outcomes from the underlying processes that are constantly occurring around us. This means focusing on helping people work 'smarter' not 'harder'. Improving communication, cooperation, empowerment, leadership and the ability of people to recognise knowledge gaps and how to overcome them, are key objectives for enhancing capacity.

5.2 Implications

This project has critically reviewed the notion of 'capacity' in order to understand what it means in practical terms for agencies and communities tackling riparian restoration. It has considered the issue of 'capacity' from a holistic and dialectic perspective by examining the processes, at a variety of spatial and temporal scales, that influence outcomes in relation to riparian lands.

By critically analysing what capacity means in practice, we have suggested an alternative definition of capacity. Capacity can be considered as:

> **… the capability of individuals, groups and institutions to understand and deal with the enabling and constraining elements, dimensions and issues that drive the process of capital accumulation and decline (in all its forms) to produce desirable outcomes.**

This focus on capacity as process highlights that the same issue or event — the dimensions of capital — can have both positive and negative influences at different points in time and place. It is the relative importance of each dimension at one time and place that is the key determinant of outcomes. The first key implication of this approach relates to policy design and to research:

- **Implication 1:** because 'things' are outcomes of underlying processes, there needs to be a focus on the interactions between the dimensions or elements of these processes to both understand why different outcomes occur, and how these processes and interactions can be influenced to achieve desired outcomes.

Understanding these interactions and how they influence outcomes requires a more adaptive approach to policy and management. This is consistent with the observation by Dovers (2003) in the recent cooperative research venture which culminated in the book *Managing Australia's Environment*, that in taking an adaptive approach to policy, institutions and management

> **… there is never complete policy success or failure — all experiences can yield both positive and cautionary lessons … The challenge was to identify the *particular features* that contributed to success or failure, so as to inform future activities (Dovers, 2003:5, original emphasis).**

The second key implication for policy design and for research is therefore that:

- **Implication 2:** Monitoring and evaluation are of primary importance so that an adaptive approach to not only the management of the physical landscape, but also policy responses and institutional arrangements, can be implemented.

The 'capacity assessment tool' developed during this project will contribute to this task of monitoring the social and institutional landscape, so as to inform and refine policies, programs and projects. However, the assessment tool is not a panacea — it needs testing and refinement and there are many other important issues and dimensions that need to be monitored: we need new methods of measuring various social and institutional conditions. As Zammit *et al.* (2000) observed, there is currently a tendency to select indicators based on the availability of data, instead of developing consistent and rigorous evaluation programs. Another implication of the approach to 'capacity' developed here is that:

- **Implication 3:** Monitoring the condition of individual, community and institutional capacity for riparian restoration is required at regular intervals so as to enable adaptive management, program design and policy initiatives. There is a need to refine indicators of capacity that are consistent, rigorous and integrated.

Arising from the 'implication' that monitoring and evaluation is an activity of primary importance, is the requirement that programs and projects need to be more inclusive and participatory. Without throwing the net more widely, the impacts of policies and programs on the broader community cannot be understood (monitored and evaluated), and refinements made to enhance their opportunities for participation and empowerment among what are often now considered 'fringe' interests.

- **Implication 4:** Being inclusive and actively seeking the participation of a wider cross-section of the community is critical to enable the adaptation of policies and programs to enhance opportunities for broader community involvement in NRM. This means there needs to be a focus on developing methods of engaging with diverse audiences, developing means of representation for different sectors of the community, and designing ways of monitoring and evaluating these processes and their outcomes.

The fifth key implication arising from this approach to capacity relates to 'capacity building', or, as we prefer to call it, 'capacity enhancement', initiatives.

- **Implication 5:** The role of 'capacity enhancement' is to enable communities, institutions, groups and individuals to recognise opportunities to influence processes to achieve more desirable outcomes. This does not replace the 'traditional' interests of 'capacity building', such as education and training, enhancing skills in working together, leadership etc., but changes slightly the focus of such activities.

5.3 Specific recommendations

Arising from these five key implications of considering capacity for riparian restoration as a process, there are some specific recommendations for policy developers, program designers and government funding bodies, which will progress action in relation to these implications.

Institutional, policy and funding issues

The outcomes of this project suggest that there needs to be a greater emphasis on getting the balance of policy instruments 'right' in order to maximise beneficial outcomes for riparian restoration. There is unlikely to be a single policy instrument that will be universally applicable to achieve riparian-restoration goals. The types of policies that appear to have a role to play in riparian restoration include:

- funding and supporting demonstration sites, as long as they are very carefully sited within the physical and social landscape
- devolving financial responsibility to local, preferably community-driven groups and authorities, as long as they are also supported in non-financial ways (eg. skills training and logistic support) and provided with a high degree of certainty, through such things as continuity of funding
- supporting regional strategic planning, ensuring these processes are inclusive, well resourced, and driven from local issues and concerns
- promoting monitoring and evaluation, without burdening groups and individuals with onerous amounts of paperwork that takes them away from core roles of liaising with community and getting works on the ground
- establishing funding streams that are independent of short-term political cycles and reduce the tendency for 'fashionable' issues to receive priority over core issues such as maintaining and enhancing biodiversity, stream bank erosion, etc.
- developing capacity enhancement strategies that focus on improving individuals', groups' and institutions' abilities to understand how they can 'pull the right levers' to achieve more beneficial outcomes from the underlying processes that influence the condition or rivers and riparian lands.

Capacity building

- identify ways of helping people work smarter, not harder, by helping them understand that different outcomes can be achieved by understanding and manipulating the interactions between various underlying processes — this needs to happen at all scales, from individual to institutional
- focus on improving networks, relationships and opportunities for participation
- improve communication so that people are aware of a broader range of issues, how these interact and the outcomes of the processes of change that are constantly occurring in their day to day lives
- provide opportunities for experiential learning and discovery
- improve leadership to foster empowerment, improve communications and better representation in decision-making.

Research

There are two key areas of research that arise from the conduct of this project. One relates to understanding the relative importance of different dimensions of capacity and how they interact to influence different outcomes at various times and places. This is a complex area of research and would require a more considered effort to develop a thorough scoping paper.

The second area for further research is the development of rigorous methods to monitor various 'dimensions' of capacity.

As part of the second key area of further research, there is a smaller and well-defined investigation that is of high priority — an evaluation of the 'capacity assessment tool' developed as part of this project. There is potential for such an evaluation to be used as a 'scoping study' for the broader research need of identifying a range of indicators of capacity.

Evaluation of the assessment tool

The 'capacity assessment tool' is a key outcome of this project and has much potential to inform a range of interest groups about the social landscape within which programs and projects operate. However, the tool needs to be evaluated and refined so that its potential can be realised. Specifically, an assessment needs to be undertaken in five key areas:

- the breadth of issues and dimensions covered, and the content of the themes and dimensions themselves — are there more dimensions that need to be added?
- the practicality and usability of the tool for different audiences
- the ease with which the statements are interpreted, the ability of the statements to remain relevant and applicable in a wide range of settings and for a range of projects
- is the tool too big? — ie. does it take too long to work through — this will have implications for evaluating if other dimensions should be added
- the value and sensitivity of the scoring system — does it work? — is it sensitive enough?
- do the results and the implications report really mean anything? — does it help?
- the effectiveness of the tool in highlighting the issues surrounding 'capacity' for riparian restoration — this might involve refining the structure of the tool, re-assessing the appropriate audience for the tool, and assessing how it has been used
- the suitability of the tool for use in a group setting, and how this might be improved through 'voting' sheets or similar input devices
- the suitability of the tool for other forms of delivery — eg. as a web-based tool, as a facilitated workshop procedure, as a training course etc.

Another key role of the review would be to gather ideas about how existing monitoring activities, and existing data, could be used to help users make a more informed decision when applying the tool. This will be a key outcome of the review in terms of informing a broader study of indicators for capacity.

It is suggested that the review take place in six to twelve months, after a range of people have used the tool. To facilitate the review process, the names and contact details of all people who receive the assessment tool should be collected, along with an indication of their willingness to participate in a review of the tool at some stage in the future.

We believe that the most effective method of reviewing the tool would be to interview a sample of users (a minimum of 10, but preferably 20 people), and to provide an opportunity for all users to submit their comments on the tool in the form of a semi-structured questionnaire mailed or emailed to all users. If there were a sufficiently large group of users within one locality, or close to a central locality, it would also be beneficial to conduct at least one focus group with users to brainstorm issues and solutions.

The amount of work required to refine the tool will be directly proportional to how practical and usable the tool is found to be.

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Appendix 1
Workshop registrants

Workshop date: 2 April 2003

Title	First name	Surname	Organisation
Mr	John	Amprimo	Department of Natural Resources & Mines
Dr	Jenny	Andrew	Resource Policy and Management Consultants
Ms	Kate	Andrews	Greening Australia
Ms	Madelaine	Baldwin	Department of Agriculture, Fisheries and Forestry - Australia
Mr	Kevin	Balm	Participative Technologies (Facilitator)
Mrs	Leith	Boully	Community Advisory Committee, Murray–Darling Basin Commission
Ms	Alison	Cochrane	Department of Sustainable Natural Resources
Ms	Penny	Cook	Land & Water Australia
Ms	Susanne	Cooper	Sinclair Knight Merz
Ms	Lynda	Coote	Blackwood Basin Group
Dr	Jeff	Coutts	Coutts J&R Pty Ltd
Ms	Christine	Ellis	Land & Water Australia
Dr	Sarah	Ewing	Department of Civil and Environmental Engineering
Ms	Fleur	Flanery	Land & Water Australia
Mr	Kym	Good	Northern Adelaide & Barossa Catchment Water Management Board
Mr	Neil	Inall	Neil Inall Pty Ltd
Ms	Jill	Kerby	Onkaparinga Catchment Water Management Board
Dr	Siwan	Lovett	Program Coordinator, National Riparian Lands R&D Program
Ms	Jinnie	Lovett	Environment ACT
Mr	Don	McPhee	Department of Sustainable Natural Resources
Ms	Biz	Nicholson	Tasmanian Revegetation Services
Ms	Sharon	Pepperdine	Landscape & Social Research Pty Ltd
Ms	Catherine	Potter	Environment Australia
Dr	Phil	Price	Mackellar Consulting Group
Dr	Alice	Roughley	Land & Water Australia
Ms	Penny	Scott	Department of Agriculture, Fisheries and Forestry - Australia
Mr	Wayne	Tennant	Goulburn Broken Catchment Management Authority
Dr	Don	Thomson	Landscape & Social Research Pty Ltd
Mr	Damian	Wall	Environment ACT
Dr	Trevor	Webb	Bureau of Resource Sciences
Mr	Brad	Wedlock	Mary River Catchment Coordinating Committee

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Vision of the National Riparian Lands R&D Program

To achieve continuous improvement in the management of Australia's rivers