

Improving economic accountability of investment decisions under community- based environmental governance

*Final report from the project 'Improving economic accountability
when using decentralised, collaborative approaches to environmental
decisions'*

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March 2011

ACKNOWLEDGEMENTS

The research documented in this report was funded by the Australian Government's Commonwealth Environmental Research Facilities (CERF) program. Participation by the Border Rivers – Gwydir, Namoi and Northern Rivers Catchment Management Authorities in the activities documented in this report, and in reviewing the various working papers on which this report is based, has been greatly appreciated. Project oversight and strategic direction by the members of the Project Steering Committee – Alison Archer, Dianne Bentley, Jim Booth, Bruce Brown, Alex McMillan, Nick Milham, Warren Musgrave and Don Vernon has been invaluable. Thanks also to Judy McNeill, Ian Reeve and Michael Coleman at the Institute for Rural Futures whose ideas and assistance contributed substantially to the performance of this project. The views and judgements expressed in this project report do not necessarily reflect those of the Australian Government or the CERF program. The author is wholly responsible for any errors or other deficiencies in the document.

THIS PROJECT

Further information on, and documents from, the project *Improving Economic Accountability when using Decentralised, Collaborative Approaches to Environmental Decisions* is available from <http://www.ruralfutures.une.edu.au/staff/3.php?nav=Program%20Leaders&staff=Dr%20Graham%20Marshall>

GLOSSARY OF ACRONYMS

BCA	Benefit: Cost Analysis
BCI	Benefit: Cost Index
BRGCMA	Border Rivers - Gwydir Catchment Management Authority
CBPDF	Capacity-Building Project Assessment Form
CEA	Cost-effectiveness analysis
CMA	Catchment Management Authority
CUA	Cost-utility analysis
FAC	Feasibility-adjusted cost
INFFER	Investment Framework for Environmental Resources
MBCI	Modified Benefit: Cost Index
MCA	Multi(ple) Criteria Analysis
NCMA	Namoi Catchment Management Authority
NMV	Non-market valuation
NRCMA	Northern Rivers Catchment Management Authority
NRM	Natural resource management
NSW	New South Wales
PAF	Project Assessment Form
SMART	Specific, Measurable, Achievable, Relevant and Time-bound

EXECUTIVE SUMMARY

Background

Approaches to environmental and natural resources governance described as community-based and collaborative have become widely adopted in Australia and other countries over recent decades. The project ‘Improving economic accountability when using decentralised, collaborative approaches to environmental decisions’ was initiated in response to strengthening demands for economic accountability in this domain, and also the difficulties experienced in satisfying these demands. The focus of these demands has predominantly been on the processes of making, justifying and documenting investment decisions (*ex ante* economic accountability) rather than on the outcomes of those decisions (*ex post* economic accountability). The emphasis has thus been mainly on increasing the confidence of investors and other stakeholders that the benefits from investment decisions made will not only exceed for full opportunity costs of the investments but also maximise the total benefits to society from the limited pools of public funds available for investment.

The activities, outputs and findings of this project are documented in this final report. The project sought to develop and trial methods for strengthening the economic accountability of investment decisions by regional, and other community-based collaborative, NRM organisations. It aimed to develop methods that: (a) are consistent with an economic way of thinking; (b) collaborative community-based organisations could apply proficiently; (c) accommodate value systems decided collaboratively in community-based processes; and (d) account for the consequences of NRM investments for community and other socio-economic capacities needed for investments into the future. Three regional NRM organisations – Border Rivers-Gwydir Catchment Management Authority (CMA), Namoi CMA and Northern Rivers CMA (all from New South Wales) – agreed to participate in the project by trialling the methods developed and providing feedback.

The Investment Framework for Environmental Resources (INFFER) was identified as the most appropriate foundation on which to build methods consistent with the above project aims. This framework was used as a foundation for pursuing the aims of the present project in two ways. The first of these ways involved accounting for capacity spillovers from on-ground projects which are important for the success of community-based NRM yet not accounted for by INFFER. The method developed towards this end was referred to as the supplemented PAF method. The second of these ways focussed on strengthening economic accountability in developing NRM capacity-building projects. The method developed towards this end was referred to as the Capacity-Building Project Development Framework.

Accounting for capacity spillovers from on-ground projects: the Supplemented PAF Method

The method

INFFER does account methodically in developing and evaluating an on-ground project for a specific natural asset for the capacities upon which the project’s feasibility in meeting its goal(s) depends. However, it does not account for the expected effects of implementing that project on the capacities available for other ‘asset-focussed’ investments to subsequently draw upon.

In order to overcome this weakness, a supplementary form (the ‘PAF supplement’) to the Project Assessment Form (PAF) applied in Step 3 of the INFFER process was developed to be used in tandem with the PAF. This tandem process, referred to in this document as the supplemented PAF

method, was the method for strengthening economic accountability of on-ground investment decisions trialled with the three participating CMAs.

A main purpose of the PAF is to collect the data needed to calculate a Benefit: Cost Index (BCI) for a project which can be used as a quantitative basis for ranking its economic worth against alternative investment opportunities. The PAF supplement is designed to collect the additional data needed to calculate a modified version of the BCI (referred to as the Modified BCI or MBCI) that accounts for the capacity spillover effects of the project being evaluated on other areas of investment by the same CMA. The MBCI accounts for these capacity spillover effects in terms of their combined impact on the cost of implementing the other areas of investment at a given level of feasibility.

Where the capacity spillovers are beneficial overall, this is accounted for as a saving in the total cost of the other areas of investment achieving a given set of outcomes. This cost saving is deducted from the direct cost of the project being evaluated to obtain the net impact on the CMA's investment costs of implementing the project. Where the capacity spillovers are adverse overall, in contrast, this is accounted for as an increase in the total cost of the other areas of investment achieving a given set of outcomes. This extra cost is added to the direct cost of the project being evaluated to obtain the net impact on the CMA's investment costs of implementing the project.

The supplemented PAF method was trialled on three assets selected by the Border Rivers – Gwydir CMA, two assets selected by the Namoi CMA, and three assets selected by the Northern Rivers CMA. The trial process commenced with a two-day training session on INFFER for the three CMAs. The CMAs then proceeded to select the specific natural assets to focus on and to complete PAFs for each of these assets.

Workshops were run with each of the three CMAs to review their experiences in trialling the supplemented PAF method. These were attended by the CMA staff who had participated in the trials and in some cases by CMA Board members or other CMA staff. The review process also involved a questionnaire designed to obtain quantitative data on how participants perceived the trials. The questionnaire listed 20 criteria that respondents were asked to rate for their importance in choosing a method for strengthening economic accountability of on-ground investment decisions, and against which they were asked to rate the performance of the standard PAF and PAF supplement methods relative to their CMA's current practice. The PAF and PAF supplement steps of the process were reviewed in turn.

Reviewing the standard PAF method

Workshop feedback

The perceived *strengths* of the PAF method compared with the CMAs' current approaches were identified in the workshops as including:

- broadens the range of assets/projects considered in evaluating investment opportunities;
- prompts a more rigorous process of thinking about project development;
- enables comparison of all kinds of projects;
- accounts better for risks to project success;
- provides increased transparency; and
- facilitates adaptive learning by better documenting assumptions and judgements.

The perceived *weaknesses* of the PAF method compared with the CMAs' current approaches were identified as including:

- requires more time and effort to apply;
- impractical for the large numbers of projects that CMAs have been investing in; and
- it is less valuable in the current funding environment than previously when regional NRM bodies had greater discretion over how to allocate their funds.

The perceived *obstacles* to applying the PAF method were identified as including:

- organisational inertia;
- obtaining a critical mass within CMA staff of the awareness and skills needed to apply the method and justify it to other stakeholders;
- obtaining consistency across a CMA in how the method is applied to competing investment opportunities; and
- community pressures to continue spreading investment funds broadly.

Questionnaire feedback

Of the 20 criteria listed in the questionnaire as relevant to CMAs in choosing a method to evaluate asset-focussed investments, the three rated on average by participants across the three CMAs as of *greatest* importance were:

- 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes';
- 'strengthens your CMA's confidence that the prioritised investments represent 'value for money''; and
- 'is practical to apply given the skills and time available to CMA staff'.

The three criteria ranked on average as of *least* importance across the three CMAs were:

- 'recognises the benefits from investing in innovative investment options rather than just 'tried and true' options';
- 'avoids subjective judgments'; and
- 'identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals'.

The three criteria against which the PAF method was rated on average by participants as performing *best* across the three CMAs, compared with their current evaluation practices, were:

- 'provides a quantitative basis for ranking investment options across different asset classes';
- 'makes transparent all the judgements and assumptions that need to be made'; and
- 'provides a quantitative basis for ranking investment options'.

The three criteria against which the PAF method was rated as performing *worst* on average across the three CMAs, compared with the CMAs' current evaluation practices, were:

- 'is consistent with the philosophy of integrated catchment management';
- 'avoids subjective judgments'; and

- ‘is practical to apply given the skills and time available to CMA staff’.

The criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the performance of the PAF method was rated lower on average by the three CMAs than their current practices. This criterion was rated across the three CMAs the third most important criterion for choosing an evaluation method. Despite close attention to this criterion in developing the PAF method, it is evident that the CMAs were not convinced enough had been done in this direction.

Reviewing the PAF supplement method

Workshop feedback

The *strengths* of the PAF supplement method compared with the CMAs’ current approaches were perceived in the workshops as including:

- raises awareness of the capacity spillover effects of on-ground projects;
- accounts for capacity spillovers quantitatively rather than intuitively; and
- reveals the difference that accounting for a project’s capacity spillovers makes to its economic ranking vis-à-vis other projects.

The *weaknesses* of the PAF supplement method compared with the CMAs’ current approaches were perceived in the workshops as including:

- lack of evidence with which to predict capacity spillovers and quantify them.

The perceived *obstacles* to applying the PAF supplement method included:

- CMA staff are often not familiar with thinking about capacity spillovers from projects; and
- difficulty of articulating what capacity spillovers might be expected from a particular project.

Questionnaire feedback

The performance of the supplemented PAF method compared with the CMAs’ current practice was rated by respondents against eight of the 20 criteria against which the standard PAF method was assessed. The performance of the supplemented PAF method was perceived on average across the three CMAs as superior to the standard PAF method against the following six of these eight criteria (although the superiority against the 5th and 6th the criteria listed below was negligible):

- ‘is consistent with the philosophy of integrated catchment management’;
- ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’;
- ‘avoids subjective judgments’;
- ‘is practical to apply given the skills and time available to CMA staff’;
- ‘strengthens your CMA’s confidence that the prioritised investments represent ‘value for money’’; and
- ‘helps justify investment decisions to your CMA’s regional community’.

The superiority of the supplemented PAF method compared with the standard PAF method was greatest in absolute terms against the criterion ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’. This was encouraging given that the supplementation of the PAF method was designed explicitly to improve its performance against this criterion. Nevertheless, the influence of this superiority on motivating adoption by the CMAs of the supplemented PAF method may be limited given that this criterion was ranked across the three CMAs only 16th in importance out of 20 criteria for choosing a method to evaluate asset-focussed investments.

As with the standard PAF method, the criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the perceived performance of the supplemented PAF method was rated lower on average by participants from the three CMAs than that of their current practices. This criterion was ranked across these CMAs the third most important criterion for choosing a method for economic accountability of asset-focussed investment decisions. Hence, poor perceived performance against this criterion remains a significant hurdle to be straddled in gaining adoption of the supplemented PAF method. Nevertheless, each of the three CMAs could envisage applying this method to at least some of their investment decisions.

Comment

The three participating CMAs face formidable obstacles in proceeding to adopt the supplemented PAF method (or the standard PAF method for that matter) due to their perceptions that the method is less practical to apply than their current practices given the available skills of their staff and the time they have available for evaluating investments. The degree to which these obstacles actually impede adoption of the method may be lessened by finding ways to develop the requisite skills and free up staff time. In the meantime, further research would help redress the lack of knowledge in this area that lessens the confidence with which regional NRM organisations currently can account for capacity spillovers from projects they propose to undertake.

Finally, we can expect regional NRM organisations to be motivated to account for capacity spillovers when evaluating asset-focussed investment projects only to the extent they feel confident that the investments those spillovers are expected to impact upon will actually occur (and indeed that governments will continue to fund these organisations so they remain able to undertake such investments). The shift in recent years by Australian governments to shorter-term NRM funding commitments and to leaving regional NRM organisations less discretion in how funds are to be invested tends to work against this confidence.

Developing cost-effective projects for NRM capacity-building: the Capacity-Building Project Development Framework

The method

Various authors have emphasised the importance of capacity-building investments for the success of Australia’s regionalised approach to NRM, and the need to make these investments strategically. Such a strategic approach includes targeting investments at building the ‘project-specific’ capacities needed for asset-focused projects we can confidently predict will occur. Given the considerable funding uncertainties faced by Australian regional NRM bodies, and the fact that capacities for many asset-focused investments in the longer term cannot be built overnight, a strategic approach to investing in ‘general’ capacity-building activities is also required to enable regional NRM bodies to adapt their investment programs as the outcomes of uncertainties unfold.

Accordingly, the second focus of the present project involved developing a method for investing strategically and cost-effectively in building both the project-specific and general capacities needed for successful community-based NRM. INFFER's PAF method was used as a starting point in pursuing this aim. This starting point was limited to identifying what project-specific capacity-building activities will contribute to the cost-effectiveness of an organisation's investment program, given that the standard PAF method is not designed for decision-making about investments in general capacity building.

The method developed in the present project was designed to complement INFFER's contribution by encompassing both general and project-specific capacity-building activities in a single framework. In developing such projects, the method explores how various capacity-building activities identified for investment might be coordinated to enhance their overall cost-effectiveness. Where a capacity-building project developed in this manner includes project-specific capacity-building activities (i.e., included in particular on-ground-action projects), the intention is not for these activities to be managed only as parts of the capacity-building project, independently of the on-ground projects that depend on them. The intention is rather for these activities to be managed both as parts of the relevant on-ground-action projects and concurrently as parts of the capacity-building project.

This intention recognises:

- that the expertise required to successfully design and implement capacity-building activities is specialised, and not always held by managers of on-ground-action projects who tend to be technically trained; and
- the benefits that can arise from coordinating the management of capacity-building activities included as part of different on-ground-action projects, or of general capacity-building activities with such project-specific capacity-building activities.

Aside from this departure from the PAF starting point, a range of further steps, detailed in the ensuing report, were required to arrive at a comprehensive method of developing cost-effective capacity-building projects.

The method developed in the present project for strengthening the economic accountability of decisions by community-based regional NRM organisations regarding their investments in capacity building consists of the four forms – A, B, C and D – comprising the Capacity Building Project Development Framework (CBPDF). Forms A, B and C deal with situations where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead. Form D applies where this is not the case.

Where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead, it is able to identify (a) the project-specific capacities that need to be developed for those plans to be successfully implemented, and (b) other general capacity-building activities to be undertaken with the available funding.

The roles of Forms A, B and C can be summarised briefly. One purpose of Form A is to identify sets of on-ground actions that the user's organisation expects to invest in and that depend for their successful implementation on capacity-building activities that need to be resourced from the organisation's investment funding for the coming year. The other purpose is to identify the value of investments in general capacity-building activities that need to be resourced from the organisation's investment funding for the coming year.

Subsequent to completing Form A, Form B (adapted from INFFER's PAF) is completed for each set of on-ground actions identified in pursuing the first purpose of Form A in order to develop cost-effective projects for implementing them. Completion of Form B for a particular set of on-ground actions includes calculating the Feasibility Adjusted Cost (FAC) of the particular project design developed in the form to achieve implementation of the goal(s) set in respect of those actions. Calculation of the FAC for a project design takes into account not only the costs of implementing the project design but also the probability of that project design fully achieving its goal(s). The FACs of different project designs intended to deliver the same goal(s) can be compared to identify the project design that achieves the goal(s) most cost-effectively.

Form C is then used to:

- (a) compile the details of the capacity-building activities included in the on-ground-action projects that were developed using Form B;
- (b) detail how the organisation's investment budget for general capacity-building activities over the coming year (identified in Form A) will be allocated between activities of this kind; and
- (c) consider how to manage all these capacity-building activities cost effectively as coordinated projects.

The four forms comprising the CBPDF are designed to provide a structured comprehensive process for developing cost-effective capacity-building projects. Such a process is required to ensure that those developing such projects consider all key considerations in a logical and accountable manner, including by documenting the evidence, assumptions and judgements on which their responses to questions in the forms are based.

The trials of the CBPDF with each CMA involved: (i) completing Form A; (ii) completing Form B for some of the sets of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year; and (iii) completing Form C based on the information contained in the completed copies of Form B. Form D was not relevant to the participating CMAs as they were each in a position to plan their investment programs for at least one year ahead.

Reviewing the method

Workshops were run with each of the three CMAs to review their experiences in trialling the CBPDF. These were attended by the CMA staff who had participated in the trials. The review process also involved a questionnaire designed to obtain quantitative data on how participants perceived the trials. The questionnaire listed 13 criteria that respondents were asked to rate for their importance in choosing a method for strengthening economic accountability of capacity-building investment decisions, and against which they were asked to rate the performance of the CBPDF relative to their CMA's current practice.

Workshop feedback on the CBPDF

The perceived *strengths* of the CBPDF compared with the CMAs' current approaches, as identified during the review workshops, included:

- prompts a process of looking ahead at what capacities will be needed in future;
- prompts a more rigorous process of developing cost-effective capacity-building projects;
- strengthens accountability by better recording and testing the assumptions and judgements made in developing capacity-building projects;

- provides a better foundation for diagnosing project success or failure, and thus for the monitoring and evaluation crucial for adaptive management ;
- prompts consideration of alternative project designs for achieving a given goal; and
- counters the tendency of project-specific and general capacity-building activities, and also general capacity-building activities and on-ground-action projects, to be planned and implemented in isolation from one another..

The perceived *weaknesses* of the CBPDF compared with the CMAs' current approaches included:

- a risk of users viewing the CBPDF as purely a form-filling exercise when its successful completion actually requires deliberation between those with the relevant knowledge;
- transferring information from one question to another, or from one form to another, can be time-consuming and cumbersome – also some questions in the forms were too wordy and complex;
- the framework is more time-consuming than the CMAs' current processes because it requires documented responses to questions that cover a more comprehensive set of factors;
- the process trialled was not easy enough for professionals to persevere with rather than revert to a less formalised process; and
- doubts about whether the benefits from the framework were sufficient to justify its significantly greater demands on staff time.

Actions suggested to overcome such weaknesses included:

- automate the various steps within the CBPDF of transferring information from one question or form to another;
- simplify the wording of questions in the forms, relying on the manuals to provide clarifications; and
- integrate the CBPDF into investment management systems that most CMAs in NSW are already using (e.g. Catchment Information Management System (CIMS) or the Site and Catchment Resource Planning and Assessment (SCaRPA) software).

Questionnaire feedback on the CBPDF

Of the 13 criteria listed in the questionnaire as relevant to CMA in choosing a method to develop cost-effective capacity-building projects, the three rated on average by trial participants as of *greatest importance* across the three CMAs were:

- 'ensures that capacity-building projects are based on sound logic and evidence';
- 'is practical to apply given the skills and time available to CMA staff'; and
- 'helps justify investment decisions to your CMA's regional community'.

The three criteria ranked on average as of *least importance* across three CMAs were:

- 'keeps a record of all the judgements and assumptions that need to be made';
- 'can incorporate local knowledge and values'; and
- 'avoids subjective judgements'.

The low average importance ranking for the three CMAs combined of the criterion ‘keeps a record of all the judgements and assumptions that need to be made’ runs counter to the focus of the present project on strengthening economic accountability.

The three criteria against which the CBPDF was rated on average as *performing best* across the three CMAs compared with their current practices were:

- ‘keeps a record of all the judgements and assumptions that need to be made’;
- ‘makes transparent all the judgements and assumptions that need to be made’; and
- ‘ensure that capacity-building projects are based on sound logic and evidence’.

The three criteria against which the CBPDF was rated on average as *performing worst* across the three CMAs compared with their current practices were:

- ‘avoids subjective judgements’;
- ‘can incorporate local knowledge and values’; and
- ‘is practical apply given the skills and time available to CMA staff’.

The criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the performance of the CBPDF was rated lower on average by the three CMAs than their existing practices. As observed above, this criterion was ranked across the three CMAs the equal-first most important criterion for choosing a method to develop cost-effective capacity projects. Despite close attention to this criterion in developing the version of the CBPDF trialled by the CMAs, they were clearly not satisfied enough had been done in this direction.

Comment

Questionnaire responses from participants in the trials of the CBPDF revealed on average that they rated accountability, in terms of documenting the key assumptions and judgements made in the process of developing a project, as a relatively unimportant criterion for choosing a method for developing capacity-building projects. Although these responses revealed on average that the trial participants found the CBPDF to perform most strongly (compared with their existing approaches) against this criterion, the low importance rating on average for this criterion suggests that these perceptions of strong performance may not figure highly in their CMAs’ decisions about whether to adopt the CBPDF.

The importance to CMAs of the criterion of user-friendliness in choosing a method of developing capacity-building projects was strongly emphasised in both workshop discussions and questionnaire responses, as was the perceived poor performance of the CBPDF against this criterion. A common view of the trial participants was that the CBPDF is too time-consuming and cumbersome for their CMAs to be able to adopt it. This was not unexpected given that:

- the performance of INFFER’s PAF against the criterion ‘is practical to apply given the skills and time available to CMA staff’ was rated by the same three CMAs earlier in the present project as substantially worse than their current approaches to developing and evaluating on-ground projects; and
- the CBPDF incorporates (as Form B of the framework) an adapted version of the PAF to which it adds a number of additional forms.

Various modifications have been made to the CBPDF since the trials to make it more user-friendly, less time-consuming, and thus more adoptable. Further modifications are possible that may contribute significantly towards this end but are beyond the scope of the present project. For

instance, a web-based version of the framework would simplify the process of transferring information from one form, or section of a form, to another, and also make it easier to check responses made elsewhere in the framework. Further trialling and evaluation of the framework could also be undertaken to demonstrate the benefits of adopting the framework.

It should be noted that recurrent funding of CMAs in NSW is greater than in some other states and territories, so that the issues with the practicality and user-friendliness of the methods developed in this project that were identified by the three NSW CMAs may be more pronounced elsewhere.

Conclusions

The conclusions of the report focus on the challenges faced by the three CMAs in applying the methods developed in the present project, especially in respect of their perceptions that the methods are less practical to apply than their current practices. In some cases there are perceptions also that the methods are not sufficiently superior to their existing approaches for developing and evaluating investment proposals that the additional effort involved in applying these methods can be justified. INFFER's PAF method itself, upon which the two methods developed in this project were built, faces similar challenges. The degree to which these challenges actually impede adoption can be ameliorated by finding ways to develop the requisite skills and free up staff time, and by further training in, and trialling of, the methods to demonstrate their benefits.

Even so, adopting INFFER as well as the methods developed in the present project all at once seems too much to ask of most regional NRM organisations, particularly those in states or territories where such organisations are not resourced to the level that they are in NSW. It seems advisable to work with regional NRM organisations in gaining confidence with INFFER and its standard PAF method before expecting them to build on that method using the complementary methods documented in this report. Meanwhile, further research would help redress the knowledge gaps (e.g., regarding the identification and quantification of capacity spillovers) that lessen the confidence with which regional NRM organisations are able to apply these methods.

More fundamentally, substantial changes to the institutional and governance system within which regional NRM organisations operate are required if the motivation of regional NRM organisations to adopt more rigorous and comprehensive methods of investment decision-making is to be strengthened sufficiently to overcome the challenges noted above. The issue here is not only with lack of tangible incentives from governments (e.g., rewards and/or punishments related to the quality of investment proposals submitted to them for funding) for regional NRM bodies to demonstrate greater economic accountability in their investment decisions. It relates also to the lack of incentives that lower levels of the governance system (e.g. local groups and individual landholders) are able to create for regional bodies to make their investment decisions more downwardly accountable to them.

Aside from affecting the incentives faced by regional NRM organisations when deciding whether to adopt more systematic decision-making tools, the institutional and governance arrangements surrounding these organisations strongly influence how practical it is for that adoption to occur. They affect the time pressures that these organisations face in completing their investment planning processes, and thus the time they can realistically devote to making their decisions more rigorously and comprehensively.

Part of the reason for reluctance by staff of regional NRM organisations to adopt more rigorous investment decision-making frameworks relates to the large number of projects that many such organisations currently invest in, and the major time and resource demands of applying such

frameworks to all these projects. Many regional NRM bodies are now addressing this issue to some degree by targeting investments at priority sub-catchments. However, if changes in the institutional and governance context of these organisations were enacted to also strengthen their incentives to invest in fewer projects, the overall time and resource demands of adopting a more rigorous investment decision-making framework would be reduced accordingly.

Another part of the reason for CMA staff reluctance to adopt more rigorous investment decision-making frameworks relates to this adoption involving substantial upfront investments of their time in learning to apply the framework, whereas the benefits from demonstrating stronger accountability (e.g., in terms of increased competitiveness in applying for investment funding) are spread into the future. The considerable uncertainty that CMA staff perceive concerning future funding of their programs, and even persistence of their organisations beyond the short term, makes it likely that the future benefits from adopting a more rigorous decision-making framework are being discounted by them markedly more, compared with the upfront costs of adoption, than would be the case in a more secure institutional context.

The institutional and governance issues identified in preceding paragraphs appear to arise from a smaller set of underlying weaknesses in economic accountability of the governments funding and administering the regional delivery model for NRM. Three deeper weaknesses of this kind were identified:

1. failures by governments to articulate the logic and evidence upon which their decisions to invest in the regional delivery model have been based – particularly in respect of claims regarding the capacity of the model to leverage greater community ownership and self-reliance than government-centred models;
2. lack of government accountability for success or failure of the regional delivery model in realising its claimed advantages for building community ownership and self-reliance; and
3. lack of government accountability for the performance of the regional delivery model in achieving the resource condition outcomes for which the model was introduced.

These weaknesses highlight the value of generalising some of the key principles behind the methods for regional-level economic accountability that were trialled in the present research, so that they may be scaled up for application to higher levels of the natural resource governance system where these weaknesses appear to arise. Four scaleable principles of this kind were proposed, as presented in the table below.

The second to fourth of the principles follow from the first which is the most general. The focus of the first principle is on the cost-effectiveness of the natural resources governance system as a whole in achieving societal goals for natural resource condition. To the extent that strengthening the self-reliance of community-based NRM bodies, communities, groups and individuals is important for cost-effective pursuit of society's goals for resource condition outcomes, this principle requires that any organisation be rewarded or punished according, *inter alia*, to whether its decisions strengthen or weaken self-reliance elsewhere in the governance system. Holding an organisation (e.g., government agency) to account against this principle should thereby bolster appreciably the incentives it faces to muster the strategic courage required to make decisions that strengthen the self-reliance of other organisations (e.g., regional NRM bodies) in pursuing society's NRM goals rather than increase their dependence on ongoing external support.

- 1 NRM organisations at all levels, from governments to individual enterprises, should be accountable for, and rewarded and/or punished in accordance with, how their policy and investment decisions facilitate or obstruct cost-effective pursuit of society's long term goals for the condition of natural resource and environmental systems.
 - 2 Where accountability against goals for the condition of natural resource systems is presently infeasible, NRM organisations should be made accountable, and rewarded and/or punished in accordance with, their performance in alleviating informational and other constraints on accountability against such goals.
 - 3 Assessment of the contribution of a particular decision by any organisation towards cost-effective pursuit of society's goals for the condition of natural resource systems should consider the feasibility of the objectives of the option chosen given the risks involved in (a) specifying those objectives realistically, (b) implementing the decision as planned given the resources likely to be available, and (c) ensuring the specified objectives are achieved and maintained given the various socio-economic risks that are involved.
 - 4 Assessment of the contribution of a particular decision by any organisation towards cost-effective pursuit of society's goals for the condition of natural resource systems should consider any significant consequences (positive or negative) for ongoing capacities within the overall governance system (i.e., within the same organisation, other organisations, communities, groups or individuals) to pursue those goals.
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Aside from institutional and governance challenges faced by regional NRM bodies in striving to adopt more rigorous investment decision-making frameworks, there are also cultural challenges within these organisations. One such challenge seems to lie in staff with temperaments predisposing them to perceive such frameworks as an unproductive use of their time. Previous studies of regional NRM bodies have remarked on the dominant desire of many staff in these bodies to 'get on with the job' of implementing investment strategies and plans that have already been decided. This challenge may be reduced over time through staff recruitment strategies that focus more closely on the aptitude of potential recruits to the relevant positions for applying more rigorous investment decision-making frameworks.

In summary, there is more that could be done with the methods developed in this project (e.g., developing web-based versions, and/or embedding the methods in management systems that regional NRM bodies are already using) to overcome perceptions by staff of regional NRM organisations that they are currently impractical to apply routinely or insufficiently advantageous to justify the significant additional effort entailed in their application. However, moves in this direction are unlikely by themselves to overcome these perceptions.

A key and essential message from this study is that, regardless of the elegance of the techniques that are developed to strengthen economic accountability in community-based collaborative environmental governance, substantive advances in this direction are unlikely without significant changes to the institutional and governance system within which community-based NRM bodies operate. Changes of this kind are needed to create incentives for such bodies (downwards from governments, upwards from their constituents, and sideways from other organisations) strong enough for them to embrace investment decision-making frameworks that are more rigorous and comprehensive than those they currently use. These changes could also motivate the cultural changes sometimes required within such bodies for staff to value adoption of more rigorous methods of economic accountability as an important use of their time. Such institutional and governance changes could also alleviate the time pressures faced by regional, and other community-

based, NRM bodies in completing their investment planning processes, and help to free up or otherwise make available the staff resources needed to make more rigorous and accountable decisions in this arena. A number of general principles were proposed above as a starting point for the institutional and governance reform needed in this area, although further research is required to support translation of these principles to specific contexts.

CONTENTS

ACKNOWLEDGEMENTS	I
THIS PROJECT	I
GLOSSARY OF ACRONYMS	I
EXECUTIVE SUMMARY	II
CONTENTS	XVI
LIST OF TABLES	XIX
LIST OF FIGURES	XXI
PART A: INTRODUCTION AND BACKGROUND.....	1
1. INTRODUCTION	3
1.1 THE COLLABORATIVE VISION FOR ENVIRONMENTAL GOVERNANCE	3
1.1.1 <i>The vision</i>	3
1.1.2 <i>Collaborative community-based natural resource governance in Australia</i>	6
1.2 PRESSURES FOR ECONOMIC ACCOUNTABILITY IN COMMUNITY-BASED COLLABORATIVE NRM.....	8
1.2.1 <i>The need for performance assessment</i>	8
1.2.2 <i>Increasing emphasis on priority setting</i>	9
1.2.3 <i>Calls to strengthen economic accountability</i>	9
1.3 RATIONALE FOR THE PRESENT PROJECT.....	11
1.3.1 <i>Weaknesses in existing approaches to supporting economic accountability</i>	11
1.3.2 <i>The economic way of thinking</i>	12
1.4 OVERVIEW OF THE PROJECT APPROACH.....	13
1.5 OUTLINE OF THIS REPORT	15
2. CHOOSING A FRAMEWORK TO BUILD ON	17
2.1 BENEFIT-COST ANALYSIS, MULTI-CRITERIA ANALYSIS AND DELIBERATIVE APPROACHES	17
2.1.1 <i>Benefit-cost and cost-effectiveness analysis</i>	17
2.1.2 <i>Multiple criteria analysis</i>	19
2.1.3 <i>Deliberative methods</i>	22
2.2 CHOOSING A METHOD.....	23
2.2.1 <i>A comparative institutions approach</i>	23
2.2.2 <i>Choosing between the standard categories of method for economic evaluation of environmental decisions</i>	24
2.2.3 <i>A recent innovation for economic accountability of environmental investment decisions</i>	25
2.3 COMPARING CUA AND INFFER	33
PART B: ACCOUNTING FOR CAPACITY SPILLOVERS IN STRENGTHENING THE ECONOMIC ACCOUNTABILITY OF ENVIRONMENTAL INVESTMENT DECISIONS	35
3. ACCOUNTING FOR CAPACITY SPILLOVERS FROM ASSET-BASED NRM INVESTMENT DECISIONS.....	37
3.1 RATIONALE	37
3.2 ACCOUNTING FOR CAPACITY SPILLOVERS WHEN EVALUATING NATURAL-ASSET-BASED PROJECTS.....	38
3.2.1 <i>The general approach adopted</i>	38
3.2.2 <i>Details of the approach</i>	39
3.3 CLOSING REMARKS.....	44
4. TRIALLING THE SUPPLEMENTED PAF METHOD	45
4.1 PREPARATORY STEPS.....	45
4.2 TRIALLING INFFER'S PAF	46
4.3 TRIALLING THE PAF SUPPLEMENT	47
5. SUMMARY OF RESULTS FROM TRIALLING THE SUPPLEMENTED PAF METHOD	51
6. REVIEWING THE TRIALS OF THE SUPPLEMENTED PAF METHOD	55

7.	REVIEW FINDINGS: BORDER RIVERS – GWYDIR REGION	57
7.1	TRIALS OF THE PAF	57
7.1.1	<i>Workshop discussions</i>	57
7.1.2	<i>Questionnaire data</i>	60
7.2	TRIALS OF THE PAF SUPPLEMENT	67
7.2.1	<i>Workshop feedback</i>	67
7.2.2	<i>Questionnaire feedback</i>	69
8.	REVIEW FINDINGS: NAMOI REGION	73
8.1	TRIALS OF THE PAF	73
8.1.1	<i>Workshop feedback</i>	73
8.1.2	<i>Questionnaire feedback</i>	76
8.2	TRIALS OF THE PAF SUPPLEMENT	83
8.2.1	<i>Workshop feedback</i>	83
8.2.2	<i>Questionnaire feedback</i>	85
9.	REVIEW FINDINGS: NORTHERN RIVERS REGION	89
9.1	TRIALS OF THE PAF	89
9.1.1	<i>Workshop feedback</i>	89
9.1.2	<i>Questionnaire feedback</i>	92
9.2	TRIALS OF THE PAF SUPPLEMENT	98
9.2.1	<i>Workshop feedback</i>	98
9.2.2	<i>Questionnaire feedback</i>	100
10.	THE SUPPLEMENTED PAF METHOD: OVERVIEW OF QUESTIONNAIRE FEEDBACK ACROSS THE THREE REGIONS	103
10.1	TRIALS OF THE PAF	103
10.1.1	<i>Ratings of the importance of different criteria in choosing a method for evaluating investments</i>	103
10.1.2	<i>Performance of INFFER’s PAF method relative to CMAs’ current practice</i>	106
10.1.3	<i>Rating how worthwhile was the experience of trialling the PAF method</i>	110
10.2	TRIALS OF THE PAF SUPPLEMENT	110
10.2.1	<i>Performance of the supplemented PAF method relative to CMAs’ current practice</i>	110
10.2.2	<i>Performance of the supplemented PAF method relative to the standard PAF method</i>	112
10.2.3	<i>Rating how worthwhile was the experience of trialling the supplemented PAF method</i>	106
PART C: ECONOMIC ACCOUNTABILITY OF DECISIONS TO INVEST IN BUILDING CAPACITIES FOR COMMUNITY-BASED NRM..... 109		
11.	RATIONALE FOR STRENGTHENING ECONOMIC ACCOUNTABILITY OF DECISIONS TO INVEST IN BUILDING CAPACITIES FOR NRM	111
11.1	BUILDING CAPACITIES FOR NATURAL RESOURCE MANAGEMENT	111
11.2	INVESTING STRATEGICALLY IN BUILDING CAPACITIES FOR NRM	113
11.3	THE NEED FOR BOTH ‘PROJECT-SPECIFIC’ AND ‘GENERAL’ CAPACITY BUILDING	114
11.4	CONTRIBUTIONS OF THIS PROJECT	115
12.	A METHOD TO STRENGTHEN ECONOMIC ACCOUNTABILITY OF DECISIONS TO INVEST IN BUILDING CAPACITIES FOR COMMUNITY-BASED NRM.....	121
12.1	OVERVIEW OF THE METHOD	121
12.2	DETAILS OF THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK.....	122
12.2.1	<i>Form A</i>	122
12.2.2	<i>Form B</i>	124
12.2.3	<i>Form C</i>	133
12.2.4	<i>Form D</i>	137
13.	TRIALLING THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK	139
13.1	PREPARATORY STEPS.....	139
13.2	THE TRIALS	140
13.2.1	<i>Trials by Border Rivers – Gwydir CMA</i>	140
13.2.2	<i>Trials by Namoi CMA</i>	142
13.2.3	<i>Trials by Northern Rivers CMA</i>	146
14.	REVIEWING THE TRIALS OF THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK	151

15.	REVIEW FINDINGS: BORDER RIVERS – GWYDIR REGION	152
15.1	WORKSHOP FEEDBACK	152
15.2	QUESTIONNAIRE FEEDBACK	154
16.	REVIEW FINDINGS: NAMOI REGION	161
16.1	WORKSHOP FEEDBACK	161
16.2	QUESTIONNAIRE FEEDBACK	162
17.	REVIEW FINDINGS: NORTHERN RIVERS REGION	169
17.1	WORKSHOP FEEDBACK	169
17.2	QUESTIONNAIRE FEEDBACK	172
18.	THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK: OVERVIEW OF QUESTIONNAIRE FEEDBACK ACROSS THE THREE REGIONS	179
18.1	PERCEIVED IMPORTANCE OF DIFFERENT CRITERIA IN CHOOSING A METHOD FOR DEVELOPING COST-EFFECTIVE CAPACITY-BUILDING PROJECTS	179
18.2	PERFORMANCE OF THE CBPDF RELATIVE TO CMAS' CURRENT PRACTICE	183
18.3	RATING THE 'USER-FRIENDLINESS' OF THE CBPDF FORMS	186
18.4	RATING THE HELPFULNESS OF THE USER MANUALS	187
18.5	RATING HOW WORTHWHILE WAS THE EXPERIENCE OF TRIALLING THE CBPDF	187
PART D: SUMMARY AND CONCLUSIONS		188
19.	SUMMARY	191
19.1	THE SUPPLEMENTED PAF METHOD	191
19.1.1	<i>The method trialled</i>	191
19.1.2	<i>Undertaking and reviewing the trials</i>	192
19.1.3	<i>Findings from reviewing trials of the PAF</i>	192
19.1.4	<i>Findings from reviewing trials of the PAF supplement</i>	195
19.1.5	<i>Comment</i>	197
19.2	THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK	198
19.2.1	<i>Background</i>	198
19.2.2	<i>The method trialled</i>	199
19.2.3	<i>Undertaking and reviewing the trials of the CBPDF</i>	200
19.2.4	<i>Findings from reviewing trials of the CBPDF</i>	201
19.2.5	<i>Comment</i>	204
20.	CONCLUSIONS	207
20.1	WORKING WITH THE PREFERENCES OF PROSPECTIVE ADOPTERS	207
20.2	CULTURAL CHALLENGES	209
20.3	INSTITUTIONAL AND GOVERNANCE CHALLENGES	210
20.4	SOME DEEPER ISSUES	213
20.5	SOME GENERAL PRINCIPLES FOR ECONOMIC ACCOUNTABILITY IN ENVIRONMENTAL GOVERNANCE	216
20.6	CLOSING REMARKS	217
REFERENCES		219

LIST OF TABLES

TABLE 1:	A SELECTION OF CRITERIA FOR CHOOSING BETWEEN METHODS FOR EVALUATING ENVIRONMENTAL DECISIONS	26
TABLE 2:	ALTERNATIVE POLICY TOOLS FOR SEEKING MANAGEMENT CHANGES ON PRIVATE LANDS	29
TABLE 3:	COMPARING INFFER AND CUA AS A FOUNDATION FOR A METHOD OF ECONOMIC EVALUATION TO TRIAL IN THE PRESENT RESEARCH	34
TABLE 4:	BCI AND MBCI RESULTS FOR THE PROJECTS ON WHICH TRIALS WERE RUN.....	52
TABLE 5:	COMPARISON OF PROJECT RANKINGS BY THE BCI AND THE MBCI.....	53
TABLE 6:	SUMMARY STATISTICS FOR THE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING AN EVALUATION METHOD: BORDER RIVERS – GWYDIR CMA.....	61
TABLE 7:	CRITERIA RANKED BY MEAN IMPORTANCE SCORES: BORDER RIVERS – GWYDIR CMA.	62
TABLE 8:	SUMMARY STATISTICS FOR PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA: BORDER RIVERS – GWYDIR CMA.....	64
TABLE 9:	CRITERIA RANKED BY MEAN PERFORMANCE OF THE PAF METHOD AGAINST EACH: BORDER RIVERS – GWYDIR CMA	66
TABLE 10:	MEAN PERFORMANCE OF THE SUPPLEMENTED PAF METHOD AGAINST THE DIFFERENT CRITERIA: BORDER RIVERS – GWYDIR CMA	70
TABLE 11:	COMPARING PERFORMANCE OF THE STANDARD PAF METHOD AND THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA: BORDER RIVERS – GWYDIR CMA.....	70
TABLE 12:	SUMMARY STATISTICS FOR THE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING AN EVALUATION METHOD: NAMOI CMA.....	77
TABLE 13:	CRITERIA RANKED BY MEAN IMPORTANCE SCORES: NAMOI CMA.....	78
TABLE 14:	SUMMARY STATISTICS FOR PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA: NAMOI CMA.....	80
TABLE 15:	MEAN PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE DIFFERENT CRITERIA (RANKED BY THEIR MEAN IMPORTANCE SCORES): NAMOI CMA	82
TABLE 16:	MEAN PERFORMANCE OF THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA: NAMOI CMA.....	86
TABLE 17:	COMPARING PERFORMANCE OF THE STANDARD PAF METHOD AND THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA: NAMOI CMA.....	86
TABLE 18:	SUMMARY STATISTICS FOR THE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING AN EVALUATION METHOD: NORTHERN RIVERS CMA	93
TABLE 19:	CRITERIA RANKED BY MEAN IMPORTANCE SCORES: NORTHERN RIVERS CMA.....	94
TABLE 20:	SUMMARY STATISTICS FOR PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA: NORTHERN RIVERS CMA.....	96
TABLE 21:	MEAN PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA (LISTED IN DESCENDING ORDER OF PERCEIVED IMPORTANCE): NORTHERN RIVERS CMA.....	97
TABLE 22:	MEAN PERFORMANCE OF THE SUPPLEMENTED PAF METHOD (COMPARED WITH CURRENT PRACTICE) AGAINST THE VARIOUS CRITERIA: NORTHERN RIVERS CMA	102
TABLE 23:	COMPARING PERFORMANCE OF THE STANDARD PAF METHOD AND THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA: NORTHERN RIVERS CMA... ..	102
TABLE 24:	MEAN SCORES FOR CRITERION IMPORTANCE, FOR EACH CMA AND THE THREE CMAS COMBINED.....	104
TABLE 25:	RANKINGS (IN DESCENDING ORDER) OF MEAN CRITERION IMPORTANCE, FOR EACH CMA AND THE THREE CMAS COMBINED	105
TABLE 26:	MEAN PERFORMANCE SCORES (COMPARED WITH CURRENT PRACTICE) FOR THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED.....	107
TABLE 27:	RANKINGS (IN DESCENDING ORDER) OF MEAN PERFORMANCE OF THE STANDARD PAF METHOD AGAINST THE VARIOUS CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED.....	109

TABLE 28:	RATINGS FROM EACH CMA AND OVERALL IN RESPONSE TO THE QUESTION ‘HOW WORTHWHILE FOR YOU WAS THE EXPERIENCE OF COMPLETING INFFER’S PAF?’	110
TABLE 29:	MEAN PERFORMANCE OF THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED	111
TABLE 30:	RANKINGS (IN DESCENDING ORDER) OF MEAN PERFORMANCE OF THE SUPPLEMENTED PAF METHOD (RELATIVE TO CURRENT PRACTICE) AGAINST EIGHT CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED.....	111
TABLE 31:	COMPARING PERFORMANCE OF THE STANDARD PAF METHOD AND THE SUPPLEMENTED PAF METHOD AGAINST EIGHT CRITERIA, ALL CMAS COMBINED	113
TABLE 32:	RATINGS FROM EACH CMA AND OVERALL IN RESPONSE TO THE QUESTION ‘HOW WORTHWHILE FOR YOU WAS THE EXPERIENCE OF COMPLETING THE SUPPLEMENTARY FORM TO THE PAF?’.....	107
TABLE 33:	COMPARISON OF RATINGS FROM THE THREE CMAS OVERALL TO THE QUESTIONS ABOUT HOW WORTHWHILE WERE THE EXPERIENCES OF COMPLETING THE PAF AND PAF SUPPLEMENT	107
TABLE 34:	SETS OF ON-GROUND ACTIONS IDENTIFIED IN RESPONSE TO QUESTION A5 OF FORM A AS DEPENDING ON CAPACITY-BUILDING ACTIVITIES TO BE FUNDED IN THE COMING YEAR: BORDER RIVERS – GWYDIR CMA*	141
TABLE 35:	CAPACITY-BUILDING ACTIVITIES IDENTIFIED IN RESPONSE TO QUESTION C2 OF FORM C AS CONTRIBUTING TO THE ‘CONTROL OF WEEDS’ PROJECT DEVELOPED BY THE BRG CMA	143
TABLE 36:	GENERAL CAPACITY-BUILDING ACTIVITIES IDENTIFIED IN RESPONSE TO QUESTION C3 OF FORM C AS TO BE UNDERTAKEN IN THE COMING YEAR BY THE BRG CMA*	144
TABLE 37:	COMPOSITION OF ONE CAPACITY-BUILDING PROJECT AS IDENTIFIED IN RESPONSE TO QUESTION C6 OF FORM C: BORDER RIVERS – GWYDIR CMA*	145
TABLE 38:	SETS OF ON-GROUND ACTIONS DEPENDING ON CAPACITY-BUILDING ACTIVITIES TO BE FUNDED IN THE COMING YEAR: NAMOI CMA*	147
TABLE 39:	SETS OF ON-GROUND ACTIONS DEPENDING ON CAPACITY-BUILDING ACTIVITIES TO BE FUNDED IN THE COMING YEAR: NORTHERN RIVERS CMA*	149
TABLE 40:	RELATIVE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING A METHOD FOR DEVELOPING CAPACITY-BUILDING PROJECTS: BORDER RIVERS – GWYDIR CMA	155
TABLE 41:	RELATIVE PERFORMANCE OF THE CBPDF AGAINST THE VARIOUS CRITERIA: BORDER RIVERS – GWYDIR CMA.....	157
TABLE 42:	CRITERIA RANKED BY MEAN PERFORMANCE OF THE CBPDF AGAINST EACH: BORDER RIVERS – GWYDIR CMA.....	159
TABLE 43:	RELATIVE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING A METHOD FOR DEVELOPING CAPACITY-BUILDING PROJECTS: NAMOI CMA	163
TABLE 44:	RELATIVE PERFORMANCE OF THE CBPDF AGAINST THE VARIOUS CRITERIA: NAMOI CMA	165
TABLE 45:	CRITERIA RANKED BY MEAN PERFORMANCE OF THE CBPDF AGAINST EACH: NAMOI CMA	167
TABLE 46:	RELATIVE IMPORTANCE OF VARIOUS CRITERIA IN CHOOSING A METHOD FOR DEVELOPING CAPACITY-BUILDING PROJECTS: NORTHERN RIVERS CMA.....	173
TABLE 47:	RELATIVE PERFORMANCE OF THE CBPDF AGAINST THE VARIOUS CRITERIA: NORTHERN RIVERS CMA	176
TABLE 48:	CRITERIA RANKED BY MEAN PERFORMANCE OF THE CBPDF AGAINST EACH: NORTHERN RIVERS CMA	177
TABLE 49:	MEAN SCORES FOR CRITERION IMPORTANCE, FOR EACH CMA AND THE THREE CMAS COMBINED	180
TABLE 50:	RANKINGS (IN DESCENDING ORDER) OF MEAN CRITERION IMPORTANCE, FOR EACH CMA AND THE THREE CMAS COMBINED	181
TABLE 51:	MEAN PERFORMANCE SCORES (COMPARED WITH CURRENT PRACTICE) FOR THE CBPDF AGAINST THE VARIOUS CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED	184
TABLE 52:	RANKINGS (IN DESCENDING ORDER) OF MEAN PERFORMANCE OF THE CBPDF AGAINST THE VARIOUS CRITERIA, FOR EACH CMA AND THE THREE CMAS COMBINED	185

TABLE 53:	RATINGS FROM EACH CMA AND OVERALL IN RESPONSE TO THE QUESTION ‘HOW ‘USER-FRIENDLY’ DID YOU FIND THE FORMS?’	186
TABLE 54:	RATINGS FROM EACH CMA AND OVERALL IN RESPONSE TO THE QUESTION ‘HOW MUCH DID THE MANUALS FOR THE METHOD TRIALLED HELP YOU WHEN COMPLETING THE FORMS?’	187
TABLE 55:	RATINGS FROM EACH CMA AND OVERALL IN RESPONSE TO THE QUESTION ‘HOW WORTHWHILE FOR YOU WAS THE EXPERIENCE OF TRIALLING THE METHOD?’	188
TABLE 56:	GENERAL PRINCIPLES FOR ECONOMIC ACCOUNTABILITY IN ENVIRONMENTAL GOVERNANCE.....	217

LIST OF FIGURES

FIGURE 1:	EXCERPT FROM THE PAF SUPPLEMENT WHERE CAPACITY SPILLOVERS RELATING TO PRIVATE ADOPTABILITY OF ON-GROUND PRACTICES ARE RECORDED	42
FIGURE 2:	MULTIPLIER VALUE OPTIONS FOR CAPACITY SPILLOVERS RELATING TO PRIVATE ADOPTABILITY OF ON-GROUND PRACTICES TARGETED IN OTHER AREAS OF INVESTMENT	42
FIGURE 3:	MULTIPLIER VALUE OPTIONS FOR CAPACITY SPILLOVERS RELATING TO SOCIO-POLITICAL RISKS FACED BY OTHER AREAS OF INVESTMENT	42

PART A: INTRODUCTION AND BACKGROUND

1. INTRODUCTION

Approaches to environmental and natural resources governance described as community-based and collaborative have become widely adopted in Australia and other countries over recent decades (Lane et al. 2009; Marshall 2008c). Meanwhile, pressures to improve the economic accountability of the regional natural resource management (NRM) organisations established in Australia under these approaches have been mounting (Hajkowicz 2009).

The project ‘Improving economic accountability when using decentralised, collaborative approaches to environmental decisions’ commenced in 2008 in response to these strengthening demands for economic accountability in this domain, and also the difficulties that governments, regional NRM bodies and economists have experienced in developing and applying methods capable of satisfying these demands. This project aimed to develop and trial methods for strengthening the economic accountability of regional, and other community-based collaborative, NRM organisations that:

- (i) are consistent with an economic way of thinking;
- (ii) collaborative community-based organisations are able to apply proficiently;
- (iii) accommodate value systems decided collaboratively in community-based processes; and
- (iv) account for the consequences of NRM investments for community and other socio-economic capacities needed for investments into the future.

Two related methods were developed in the project to achieve these aims. These methods built on the foundation of the Investment Framework for Environmental Resources (INFFER) that had been developed by other researchers for use by Australian regional NRM bodies (Pannell et al. 2009a).

This final report on the project documents its rationale and the process of developing the methods trialled in the project. It details these methods and the processes by which they were trialled and reviewed. It presents the findings of these reviews and the conclusions reached therefrom. Section 1.1 of this introduction to the report explores the collaborative vision for environmental, or natural resources, governance and how it has come to be interpreted in the context of NRM in Australia. Section 1.2 considers the emergence of pressures to strengthen economic accountability of investment choices by Australian regional NRM bodies that are expected to be collaborative and community-based. Section 1.3 then discusses the rationale of the present research, particularly in terms of how it sought to address the continuing challenges being encountered in responding to these pressures. An overview of the general approach to the research undertaken in the project is provided in section 1.4. This includes discussion of the three regional NRM bodies that participated in the project through a process of action research. An outline of the remainder of the report is presented in section 1.5.

1.1 The collaborative vision for environmental governance

1.1.1 The vision

The ‘collaborative vision’ originally inspiring attempts to implement these approaches represented a marked departure from the ‘Progressive vision’ which had previously guided Australian approaches to environmental and natural resources governance (Frawley 1994; Marshall 2005, 2010c). The Progressive vision sought to emulate for public policy problems the success of Newtonian science in solving biophysical problems. Accordingly, it was based on the five modernist premises of this science: objectivism, universalism, mechanism, atomism, and monism (Norgaard 1994).

Objectivism as applied to public governance led to a distinction in governance functions between the realms of 'politics' and 'administration'. The latter realm was to regard values and policy directions set in the political realm as externally determined, and thus objective, and pursue them efficiently on the basis of the other four modernist beliefs. Universalism, for instance, was reflected by the confidence of 'administrative rationalists' that phenomena widely dispersed in space and time could be understood by applying a few basic principles, and that solutions to local problems could accordingly be devised from afar by a central authority. Centralised governance, with its decisions implemented through a single integrated command structure, thus came to be viewed as the most cost-effective governance arrangement across all areas of public policy (Marshall 2005, 2010c).

By the 1970s, citizens' trust in this Progressive or 'administrative rationalist' model of governance had eroded in Australia and other nations such that its capacity to gain sufficient cooperation from citizens to implement its decisions was under threat. Governments looked towards new ways of operating. One main response was to acquiesce to strong demands by communities to collaborate in public decision-making. Aside from legislating rights for such collaboration in otherwise centralised decision-making processes, Australian governments from the 1980s onwards began decentralising responsibilities to community-based and related participatory programs as a way of strengthening popular ownership of, and cooperation with, public policy decisions.

The other main response was to agree that the aspiration of achieving all public goals through direct administration was unrealistic, and at the same time substitute the idea that these goals be attained through centralised manipulation of the 'market mechanism' (Nelson 1987). This response followed from mainstream economic arguments that the 'invisible hand' could achieve spontaneously what direct administration could not, provided that governments refocused their energies on remedying market failures. The intellectual legitimacy of the Progressive vision thus came to be sustained by substituting the foundation of economic rationalism for its previous reliance on administrative rationalism (Marshall et al. 2010).

This second response has strongly influenced how governments have responded to pressures from the public to adopt more collaborative and decentralised approaches to environmental governance. Economic rationalism has been central to how the ideas of New Public Management (NPM), now the dominant paradigm for public governance around the world (McLaughlin et al. 2002), have come to be applied. The NPM sees government as 'steering not rowing', and thus using market and market-like instruments wherever possible in delivering public services. So dominant have been NPM ideas that governments soon came to reinterpret their commitments to promoting collaborative and decentralised (including community-based) modes of environmental governance through the prism of these ideas. In particular, the commitments came to be understood in terms of a purchaser-provider model where governments purchase provision of public services from community-based organisations.

I have argued elsewhere (Marshall 2005, 2010c; 2010) that the premises of economic rationalism are inconsistent with the collaborative vision as originally understood, and that interpretation of the vision through these premises led to its subversion. Discourses on sustainable development within which the collaborative vision emerged were informed by insights from developments in the 'science of surprise' which highlighted the inappropriateness of analysing and managing environmental (and associated social) systems on the basis of mechanistic models such as the conventional neo-classical economic models underpinning economic rationalism¹ (Batie 1989).

¹ While neoclassical economics conventionally assumes that the systems under examination are mechanistic, this assumption is not required in this tradition (Batie 1989).

Subsequent developments in complexity science (Allinson et al. 2006) and related fields including ‘resilience thinking’ (Walker et al. 2006) have corroborated the significance of these insights for environmental management and governance. These later developments have led to increasing acceptance that the ‘social-ecological systems’ at issue in environmental problems are normally best understood and managed as complex adaptive systems (Anderies et al. 2004). In contrast to a mechanistic system with unchanging relationships between unchanging parts, the parts of a complex adaptive system adapt continually to one another and to the state of the whole system as it changes in an emergent process. Hence, behaviour of a complex adaptive system cannot be understood adequately by experts studying its parts and simply summing their findings to provide an overall understanding. Adequately understanding such a system requires collaboration involving not only experts but also a diversity of others with ‘local’ knowledge of their respective parts of the system.

The focus in sustainable development discourse on collaboration and public participation was motivated also by arguments that problems in this field are normally ‘wicked’, rather than amenable to objective definition as the Progressive vision presumes. Each such problem originates as a ‘mess’ because the divergent interests of the different parties to the problem lead them to frame it differently (Australian Public Service Commission 2007; Rittel et al. 1973). A collaborative model of governance is required in such cases to allow the pluralistic deliberation on such messes that is needed to reach sufficient consensus on problem definition that the task of identifying mutually-acceptable solutions can proceed with reasonable prospects of success.

The emphasis in this discourse on collaboration and local participation was motivated too by arguments from rural development theorists (e.g., Chambers 1983; Uphoff 1986) that building the self-reliance of citizens and their communities is often necessary for them to be able to collaborate in solving their problems. These arguments run counter to the Progressive model’s atomistic premise that the capacities of citizens are fixed. They run counter also to arguments from conventional neoclassical economics (e.g., Gordon 1954 ; Olson 1965; Scott 1955) that attempts at self-reliance by large groups of citizens in solving their shared (i.e., collective-action) problems will inevitably be stymied by free riding. The mechanistic model of conventional neo-classical economics does not account for the positive-feedback dynamics through which the social capital needed to deter free riding has potential to emerge and persist (Ostrom 1998).

Like any governance system, however, collaborative community-based governance systems need to be held accountable for the resources invested in them. The economics discipline can make an important contribution in this respect. If the collaborative vision motivating the adoption of such governance systems is not to be subverted, however, the economic models and methods applied in making this contribution need to be consistent with the vision (Marshall 2005). In particular, they need to be able to account for the:

- uncertainty and path dependence associated with intervening in complex adaptive systems;
- likelihood that evaluating investment alternatives will often itself constitute a wicked problem, and that a collaborative approach to evaluation (e.g., in deciding the values against which economic efficiency is measured) can be important for achieving broad legitimacy; and
- possibility of investments affecting the social capital and other capacities needed by citizens to become more self-reliant in addressing the problems they face.

In addition to these requirements, the method of economic evaluation needs to be able to be applied proficiently given the particular circumstances of collaborative community-based environmental governance. The fact that this governance is decentralised means that the number of organisations

responsible for undertaking evaluations is much greater than in a centralised system, and that few of these organisations may be of sufficient scale to justify employing an economist to undertake the evaluations. Seymour et al. (2008) reported accordingly that a low level of capacity to assess and apply economics was found in a study of 18 regional NRM organisations around Australia. Certainly, the method of benefit-cost analysis used conventionally for economic evaluation of public policy decisions would exceed the capacities of most community-based organisations to apply self-reliantly – especially in the domain of environmental decisions where many of the benefits at issue are non-market ones that can only be valued monetarily using sophisticated methods that only relatively few economists are trained to apply.

While the foregoing ‘internal’ circumstances of community-based NRM bodies affect their abilities to adopt methods for strengthening their economic accountability, so do ‘external’ circumstances which can impact considerably on their incentives and opportunities to undertake such adoption. Pannell et al. (2010) found that there are currently few if any incentives for regional NRM bodies in Australia to assess more rigorously their investment decisions, and that their opportunities to adopt more rigorous methods have been limited by the time pressures imposed on them in the ways that governments have introduced and administered investment funding programs. Some of the ways in which Robins et al. (2011) identified the regional delivery model for NRM as changing under the Australian Government’s Caring for our Country (CfoC) program have probably exacerbated the disincentives that regional NRM bodies face in adopting methods for demonstrating their economic accountability. For instance, they observe that prioritisation of investment options has become more centralised under this program, making regional prioritisation processes less relevant. This implies reduced incentives for regional NRM bodies to adopt methods for running such processes more rigorously.

Uncertainties faced by such bodies regarding their survival beyond the short term also reduce their incentives to adopt approaches to economic accountability which yield benefits spread into the longer term that they might not capture despite having invested substantially in the upfront learning and skilling-up costs required to apply these approaches proficiently. Byron (2011 p. 2) observed how ‘the current situation and prospects [of regional NRM bodies] are very uncertain in some states. Concerns have been raised about their ability to continue under uncertain or ‘hand to mouth, ‘stop-start’ program funding’.

1.1.2 Collaborative community-based natural resource governance in Australia

The National Conservation Strategy for Australia, prepared in 1983, emphasised the need for rural communities to participate in the planning and implementation of conservation initiatives. The National Landcare Program (NLP), launched in 1989, is an early landmark in the Australian turn towards community-based NRM. The NLP’s original emphasis was on catalysing local activity by supporting the formation and facilitation of Landcare groups, education and awareness-raising activities, and demonstration sites (Curtis et al. 2008; Marshall 2008c, 2008a).

Adoption by Australian governments of the concept of ‘integrated catchment management’ (ICM) during the 1980s and 1990s consolidated this move towards a collaborative community-based approach, although the catchments delineated for ICM programs were normally much larger than the local landscapes around which Landcare groups had formed. Each ICM committee was expected to engage stakeholders groups collaboratively in developing a strategy for their catchment, and this engagement was expected to engender sufficient ownership of the strategy from these groups that their members would proceed to cooperate voluntarily to a significant extent² with efforts to implement the strategy. The focus of the NLP on fostering local self-help made state and

² That is, in addition to any cooperation motivated by payment of financial incentives.

territory governments particularly interested in Landcare groups as vehicles for implementing ICM programs with modest additional budget outlays (Marshall 2008c; 2010).

In 1997, the Commonwealth established the Natural Heritage Trust (NHT) which differed from the NLP by focussing its investments on on-ground implementation and by channelling investments principally via catchment or regional-level ICM organisations. The NHT program was presented as a framework for ‘partnerships’ between communities, industry and government. Concerns regarding the accountability of regional NRM organisations to investing governments (e.g., Industry Commission 1998) led to a tightening of partnership arrangements under the National Action Plan for Salinity and Water Quality (NAP), established in 2000, and the extension of the NHT (NHT2), announced in 2001 (*ibid.*).

The NAP and NHT2 programs became known jointly as the ‘regional delivery model’. Governments viewed the partnership approach as a means of fostering ‘community ownership’ of natural resource problems. The aspiration was to foster among farmers and other community members a sense of shared responsibility in addressing environmental problems (Wallington et al. 2008). Policy documents preceding the launch of the regional delivery model referred accordingly to landholders having ‘a mutual obligation, or duty, to manage and care for [natural] resources in a sound and sustainable manner’ (Agriculture Fisheries and Forestry Australia 1999 p. 53), and to an objective of ‘self-sustaining, proactive communities that are committed to the ecologically sustainable development of natural resources in their region’ (Steering Committee 2000 p. 6).

When the present research was conceived in 2007, there were promising signs that the regional delivery model was evolving in directions that were more attuned to the collaborative vision for environmental governance than the NHT2 and NAP programs under which regional NRM bodies had limited financial autonomy to adapt their investment priorities in response to the knowledge and preferences of those local and other stakeholders with whom they were expected to collaborate and build self-reliance (Marshall 2008c). A review of the regional delivery model commissioned by the federal government recommended that ‘where a regional body has demonstrated a capacity to manage its business effectively and accountably to an agreed standard, then block funding be devolved to that body to allow greater flexibility in their operations’ (Keogh et al. 2006 p. 11). Government block funding of an organisation allows the latter considerable flexibility in allocating those funds between possible investments subject to a mutually-negotiated investment strategy. Such an arrangement was anticipated when the regional delivery model was first proposed for consideration (Agriculture Fisheries and Forestry Australia 1999).

Nevertheless, this recommendation was not followed when the Rudd Labor Government, which took office nationally in 2007, introduced the Caring for our Country (CfoC) program in 2008 to replace the NAP and NHT2 programs. Baseline funding of regional NRM bodies under the new program was reduced markedly, and the autonomy with which regional bodies could allocate those funds to investment priorities they had identified in collaboration with their stakeholders was further diminished (Byron 2011; Marshall et al. 2010; Robins et al. 2011; Ryan et al. 2010). It had become difficult to regard the regional NRM model as an authentic exercise in collaborative, community-based environmental governance.

Nevertheless, governments continue to assume that devolution of appropriate NRM responsibilities to collaborative community-based regional organisations strengthens community members’ self-reliance in addressing environmental problems. Launching the Outcomes 2008–2013 Statement for CfoC, the then Minister for the Environmental, Heritage and the Arts stated: ‘One of the national priorities in Caring for our Country is community engagement and ownership and connection’ (Garrett 2008). The importance of fostering landholders’ self-reliance in addressing NRM problems was restated more recently in an Australian Government Senate inquiry report as follows:

It is very clear that the extent of land use change needed at the landscape scale to address the combined challenges of landscape degradation, weed and pest management, biodiversity conservation, and sustainable water use in a changing climate will continue to require a significant level of voluntary action and private investment by land managers and regional communities (Senate Standing Committee on Rural and Regional Affairs and Transport 2010 pp. 69-70).

1.2 Pressures for economic accountability in community-based collaborative NRM

1.2.1 The need for performance assessment

Expenditure by Australian governments on natural resource management (NRM) programs has grown steeply in the last three decades. The \$A340 million allocated in 1990 for a decade of expenditure under the National Landcare Program represented a quantum leap in the level of public funding of NRM (Hajkowicz et al. 2006). In their 1989 joint submission to the Commonwealth recommending this program, the Australian Conservation Foundation and the National Farmers Federation stated their aim was to ensure ‘Australia’s agricultural and pastoral lands are used within their capability by the year 2000 and that there is sustainable use of lands from that time on’ (quoted in Toyne et al. 2000 p. 5).

Even so, the Australian Government found itself in 1997 allocating a further \$A1.25 billion over five years to NRM programs under the Natural Heritage Trust (NHT). In 2000, the Council of Australian Governments endorsed the National Action Plan for Salinity and Water Quality (NAP), which involved the Australian and state/territory governments committing another \$A1.4 billion over seven years to salinity- and water-quality-related programs. In 2001, the Australian Government extended the NHT for a further five years (becoming known then as NHT2, as distinct from NHT1 for the first phase) by contributing an additional \$A1 billion (Marshall 2008c). Most recently, in 2008, the Australian Government committed to investing \$2.25 billion over the first five years of its new NRM program called Caring for our Country (CfoC) (Australian Government 2008).

Compared with an \$A11 million spent on the National Soil Conservation Program in 1988-89 (McDonald et al. 1993), budgeted expenditure for 2008-09 under CfoC is 40 times larger (in nominal terms) at \$A440 million (Hajkowicz 2009). Australia, unlike most other OECD nations, does not have large amounts of public funds allocated to agricultural production support programs that could be diverted into agriculture-oriented NRM programs. Hence, increasing expenditure on NRM programs in Australia has been more challenging politically since it has relied more on reallocating funds from other areas of public expenditure (ibid.). Given this challenge, it is hardly surprising that pressures to demonstrate ‘value for money’ from expenditures on NRM programs increased with the magnitude of these expenditures.

One consequence of such pressures has been calls for improved performance assessment of the nation’s main NRM programs. The Industry Commission (1998) proposed that accountability under NHT1 be enhanced by establishing goals and performance indicators for each decision-making level (Commonwealth, state/territory, regional and local) against which performance measures could be measured. In its review of the regional delivery model by which the NAP and the NHT2 had been rolled out, the Australian National Audit Office (ANAO) (2008 p. 22) noted that its audits ‘in 1996-97, 2000-01 and again in 2004-05 found weaknesses in the monitoring and reporting of the performance of the NHT. In summary there was no effective outcomes reporting’. Moreover, it found overall from its current review that:

... the information reported in the DAFF [Department of Agriculture, Fisheries and Forestry] and NHT Annual Reports has been insufficient to make an informed judgement as to the progress of the programs towards either outcomes or intermediate outcomes. There is little evidence as yet that the programs are adequately achieving the anticipated national outcomes ... (ibid. p. 16).

1.2.2 Increasing emphasis on priority setting

Another consequence of these pressures has been increasing emphasis on 'priority setting' in deciding how much of the public funds available at any time should be allocated to NRM programs, and how the funds allocated to NRM programs should be directed between competing opportunities. Priority setting has been defined as 'the task of selecting a subset of issues, policies or projects towards which limited resources will be directed. ... The priority-setting task always involves trade-offs due to political, social, cultural, financial, legal and technological constraints' (Hajkowicz et al. 2006 p. 88). Crean (2003) argued that NRM should compete with other government portfolios in the prioritisation of public funds, and Edwards et al. (2001) reasoned that budgets for environmental conservation should be subjected to the same level of scrutiny that applies to budgets for other areas of public expenditure.

The language of priority setting features strongly in policy documentation for the regional delivery model for NRM, under which most of the investments and expenditures have been undertaken by community-based regional organisations. For instance, the Intergovernmental Agreement for the NAP (Australian Government 2001 p. 3) required that an integrated regional plan be developed for each NRM region designated as a priority under the NAP, and that each such plan 'be based upon a scientific analysis of natural resource conditions and problems and priorities carried out at the catchment / regional level ...'. Notwithstanding this requirement, the ANAO (2008 p. 24) review of the regional delivery model found that 'stronger targeting ... towards the highest priorities and most critical national assets is necessary to achieve measurable results'. In apparent acknowledgement of this criticism, the new CfoC program was announced claiming that '[f]or the first time [the Australian Government] will work towards one clear goal with clearly defined outcomes and investment priorities' (Commonwealth of Australia 2008 p. 22).

Despite the intentions in the CfoC program to move towards a more rigorous process of deciding investment priorities, Byron (2011 p. 4) recently questioned as follows the capacity of this and other NRM investment programs to deliver credibly on such intentions:

For the last decade or so, governments – state and federal, across the country – have been spending between \$8 and 10 Billion per year on 'NRM and Environmental Management' broadly defined. But as an economist, it stuns me that they've been doing so without any systematic metrics that would enable anyone to prioritise where expenditures should be made, or to assess progress after implementing policies and/or programs for 3 or 5 years! We've been flying blind, groping around in the dark – and as a result, flitting from one brush-fire hotspot to another on the basis of political whims, publicity stunts or pressure campaigns, with ineffective learning about what's worked well or what may have been a total waste of time and money. It's difficult to even discuss 'effectiveness' sensibly, let alone efficiency, cost-effectiveness or equity.

1.2.3 Calls to strengthen economic accountability

This growing emphasis on priority setting has been accompanied by increasing use of language influenced by an economic way of thinking. For instance, the Intergovernmental Agreement (IGA)

for the NAP (Australian Government 2001 p. 4) specified that ‘catchment / regional targets will be ... based on good science and economics’ and that these targets will be ‘... achievable in a cost effective way’. It prescribed also that ‘[i]nvestment principles for determining priority funding of regional activities should include ... the cost-effectiveness and return on investment measured against catchment / regional targets ...’ (ibid. p. 8). One of the IGA’s principles was identified as ‘restor[ing] degraded landscapes where that is practical and economic’ (ibid. p. 2). More recently, publicity materials for the CfoC program observed that ‘[h]istorically there was a raft of programs for managing natural resources that ... have been unable to demonstrate value for investment’. The new program would ‘take a business approach to investment’ under which the Australian Government will ‘choose the most efficient and effective ways of taking action ...’ (Australian Government 2008).

The influence of economic thinking is evident also in state / territory level policy documentation concerned with regional NRM delivery. For instance, the New South Wales (NSW) Natural Resources Commission prepared a Standard for Quality Natural Resource Management against which regional bodies in that state (known as Catchment Management Authorities or CMAs) will periodically be audited (Natural Resources Commission 2005). The Standard’s purpose ‘is to give confidence to the public, government, other interested parties and to natural resource managers themselves that investment in natural resource management is cost effective ... and maximises benefits ...’ (ibid. p. 2). One outcome required by the Standard concerns monitoring and evaluation, and guidance for this outcome includes the statement that ‘[e]valuation should assess the efficiency, effectiveness and appropriateness of strategies in progressing towards catchment and state-wide targets ...’ (ibid. p. 13). In addition, the NSW Government (2006 p. 121) set the following target under Priority E4 (concerned with natural resource management) of its State Plan: ‘Natural resource decisions contribute to improving or maintaining economic sustainability and social well-being’.

The focus of these calls to strengthen economic accountability has predominantly been on the processes of making, justifying and documenting investment decisions (*ex ante* economic accountability) rather than on the outcomes of those decisions (*ex post* economic accountability). That is, the focus has been mainly on increasing the confidence of investors and other stakeholders that the benefits from investment decisions made will not only exceed for full opportunity costs of the investments but also maximise the total benefits to society from the limited pools of public funds available for investment.

Despite the increasing emphasis of Australian governments on priority setting within regional community-based processes of investing public funds, and the apparent calls for priority setting to be guided, at least in part, by an economic way of thinking, these governments have been silent on how priority setting of this kind would feasibly occur. Farquharson et al. (2007 p. 3) observed accordingly that:

...the rhetoric of Governments in Australia for NRM is of ‘maximising returns’, ‘maximising the efficiency and effectiveness of investments in natural resources’, and ‘targeting resources to the activities and places with the greatest potential for improvement’. However, the processes for achieving these ‘goals’ are not clearly specified or determined. The CMAs are aware of the rhetoric but do not have guidelines on what constitutes ‘maximum efficiency’, ‘better NRM’ or ‘maximum return’.

However, this lack of government guidelines seems not to be the only important constraint on regional NRM organisations pursuing an economics-influenced approach to priority setting in their investment planning processes. The finding of Seymour et al. (2008) that a low level of capacity exists among Australia’s regional NRM bodies to assess and apply economics was mentioned above. This finding is consistent with the scoping phase of the present project identifying that staff

in the three CMAs studied were aware of the lack of economic rigour in their investment planning processes, and willing to consider using an economics-influenced framework or process developed in this project that is feasible for them to apply, adds transparency and rigour to their decisions, and strengthens their accountability to investors (Marshall 2008b).

1.3 Rationale for the present project

1.3.1 Weaknesses in existing approaches to supporting economic accountability

The present project was initiated in recognition of the continuing challenges that governments, regional bodies and economists were experiencing in developing and applying methods for strengthening *ex ante* economic accountability that are consistent with the premises of the collaborative vision underpinning the regional delivery model for NRM. Three main reasons for these difficulties were identified. The first is that the method of benefit-cost analysis (BCA) conventionally employed for *ex ante* economic evaluation of environmental decisions exceeds the capacities of most regional bodies to apply. Some of the most important effects of environmental decisions are generally not priced by market transactions, and conventional economic methods tend to rely on estimating these ‘non-market values’ through sophisticated procedures requiring considerable input from skilled professionals. Given the substantial number of priority-setting decisions normally made by any regional body in any year, it seems unrealistic to expect any such body to apply conventional methods to more than a small subset of these decisions.

A second main reason for these difficulties is that the regional delivery model was intended as a community-based approach to environmental governance, under which considerable emphasis would be placed on developing the capacities of regional bodies and their communities to respond self-reliantly to the environmental challenges they face. Important among these capacities is the social capital shared by groups and individuals. The *National Natural Resource Management Capacity Building Framework* endorsed by the Natural Resource Management Ministerial Council (2002 p. 1) for the regional delivery model stated that ‘in addition to the transfer of technology and technical capability, capacity building should foster social cohesion within communities, and build both human and social capital’. It recognised that social capital in the context of regional NRM delivery had multiple aspects including trust, reciprocity, social norms and community ownership. However, the positive-feedback (or increasing-return) dynamics by which social capital is created or destroyed cannot be explained or predicted by conventional economic methods which do not account for these dynamics (Marshall 2005)³. This blindspot of conventional economic analysis renders it deficient in accounting for the full range of implications that governments have identified as important under the regional delivery model.

The third main reason for these difficulties is that decision-making under community-based governance is meant to be collaborative. A key reason for collaboration is its potential to move different parties deliberatively towards collective agreement on the knowledge and value systems they can use in defining their shared problems and deciding how to prioritise alternative solutions. A key assumption of community-based governance is that ‘community ownership’ of decisions reached under such governance will arise to the extent that community members feel they have been genuinely engaged in a collaborative decision-making process that has accommodated

³ Diminishing-return (or negative-feedback) dynamics dampen the effects of an original change such that a system is predictably brought back into equilibrium. Increasing-return (or positive-feedback) dynamics amplify the effects of an original change (e.g., loss of trust) such that the system may not converge to equilibrium or, if it does, it becomes virtually impossible to predict which equilibrium state will occur (Arthur 1999). Economists also refer to increasing-return dynamics as ‘cumulative causation’, which ‘describes a relationship between an initial change in an independent variable and a dependent variable, whereby the dependent variable in turn causes a change in the formerly independent variable in the same direction as the initial movement’ (Schmid 2004 p. 112).

adequately their own knowledge and values. The *National Natural Resource Management Capacity Building Framework* states accordingly that a ‘strong feeling of ownership over the NRM planning process will increase motivation and the likelihood that the outcomes identified in the regional integrated NRM plans are achieved’ (Natural Resource Management Ministerial Council 2002 pp. 5-6).

The critical difficulty here in applying conventional methods of economic evaluation to community-based environmental governance is therefore that these methods are unable to accommodate collective value systems emerging from a deliberative process of collaboration. This is because these conventional methods remain faithful to the principle of individual (or consumer) sovereignty which holds that the preferences of individuals should not be influenced by others but rather be formed independently (Norton et al. 1998).

1.3.2 The economic way of thinking

The present project recognised the foregoing three main difficulties of applying conventional methods of economic evaluation to priority setting under a collaborative and community-based model of NRM governance. It sought to explore beyond conventional methods to develop an approach strengthening economic accountability in this realm that is not only (i) consistent with stated government objectives in adopting community-based approaches for this realm (e.g., advantages for building social capital and for fostering collaborative decision-making), and (ii) feasible and cost-effective to apply given the capacities of community-based organisations, but also (iii) consistent with the ‘economic way of thinking’.

The fundamentals of the economic way of thinking, at least as applied to priority setting, relate to the textbook definition of the economic problem as the problem of allocating scarce means among competing ends. Central to these fundamentals are the concepts of ‘opportunity cost’ and ‘marginal analysis’ (Black 2008; Mooney et al. 1997). Since means (e.g., natural resources) are normally scarce relative to the ends that people want to use them for, the use of particular means towards one end often creates ‘opportunity costs’ by way of foregoing benefits that otherwise could have been obtained by devoting them to other ends.

The concept of ‘marginal analysis’ complements that of opportunity cost. It proposes that any decision should be made on the basis of the incremental benefits and costs expected to result from that decision. Hence, an option should be pursued only when its marginal benefits are expected to exceed its marginal opportunity costs. Marginal analysis within neoclassical welfare economics has been criticised for presuming that the effects of any marginal change are invariably continuous, when effects of environmental decisions not uncommonly are discontinuous (e.g., where loss of a keystone species in an ecosystem ‘flips’ the ecosystem into another state) (Gowdy et al. 2005). This presumption is not necessary for marginal analysis, however, which can (albeit with considerable modesty) anticipate and account for effects of decisions that are discontinuous.

Hajkowicz et al. (2000 p. 45) emphasised as follows the advantages for environmental decision-making of the economic way of thinking:

Whether we like it or not, we have to make choices about the resources we allocate to environmental projects or the decisions we make about the control of environmental risks. The benefit of economics is that it makes decisions explicit, even though it may be painful to say we cannot afford to invest a certain amount to achieve an environmental objective. It allows the tradeoffs we will make, or may have to make, to be viewed by the public.

1.4 Overview of the project approach

Recognising the need for stakeholders in Australia's regional approach to NRM delivery to 'own' the approaches developed in the project for strengthening their *ex ante* economic accountability, and develop the kinds of capacities required to supervise its application, the project followed a process of action research. This process focused on three regional NRM organizations in New South Wales (NSW) which agreed to participate in the project: the Border Rivers – Gwydir Catchment Management Authority (CMA); the Namoi CMA; and the Northern Rivers CMA.

The region for which the Border Rivers – Gwydir CMA (BRGCMA) is responsible extends for about 50,000 km² over part of the upper reaches of the Murray-Darling Basin in northern NSW (bounded northwards by the Queensland border). The region's population of around 50,000 resides in 11 local government areas. The Namoi CMA (NCMA) is responsible for a region that covers about 42,000 km² and is located within the Murray-Darling Basin in north-western NSW. Approximately 100,000 people live in the region. Eight local government areas are either wholly or partly located in the region. The region for which the Northern Rivers CMA (NRCMA) is responsible extends for about 50,000 km² over much of the north coast of NSW. It includes the area three nautical miles out to sea, as well as the Lord Howe Island Group in the Pacific Islands. The population of the region exceeds 450,000 people, with 19 Local Government Areas included in the region.

These three CMAs are a subset of the 13 statutory authorities established by the NSW Government under the *Catchment Management Authorities Act 2003* to coordinate NRM within a designated region. The Board of each CMA in NSW comprises a Chair and six independent members from the community chosen for their collective skills and experience to contribute to sound natural resource decision-making and corporate governance.

These three CMAs also form a subset of the larger group of 56 regional NRM bodies funded by the Australian Government and relevant state/territory governments under the regional delivery model. Arrangements for regional NRM delivery vary considerably across the states and territories:

... from institutional models with high levels of community empowerment to those where State Government agencies retain full responsibility for all statutory functions ... There is also inconsistency between states in the name given to the regional NRM bodies. They are called Catchment Management Authorities in New South Wales and Victoria, Catchment Councils in Western Australia, Natural Resources Management Boards in South Australia, Regional NRM Groups in Queensland and Regional Committees in Tasmania' (Pannell et al. 2008 p. 1).

Like other CMAs in NSW, each of these three CMAs was required to develop in consultation with their regional populations a Catchment Action Plan (CAP) for the decade ahead. The CAPs are statutory, but non-regulatory, plans approved by the relevant NSW Government Minister. Each CAP defines a catchment target for each of its major 'themes', as well as a number of more specific management targets under each catchment target. For instance, the CAP developed by the BRGCMA defines the following catchment target for its 'Water' theme: 'By 2015 maintain or improve the condition of all sub-catchments based on the scores from the 2001 Riverine Condition Index'. One of the corresponding management targets is: 'By 2015 maintain or improve native aquatic biodiversity by improving the condition of 100 km of stream in strategic priority locations'.

The CAPs for the three regions emphasise the importance of the CMAs collaborating (or 'partnering') with other organisations, as well as with landholders, in pursuing the identified targets. These CAPs also emphasise the importance of building the capacities of individuals and

organisations in their region to act as effective partners. For instance, the BRGCMA's CAP explains that the long-term strategy is to 'increase the knowledge, understanding and skills of members of the community so that they are equipped to make sound management decisions regarding natural resources'. One of the key emphases in the NCMA's 2008-09 Investment Program was 'building community capacity to provide leverage for government funding'.

The CAPs recognise that trust of individual and organisations in a CMA is integral to their capacity to be willing partners. The CAP for the Border Rivers – Gwydir Region states that: 'Confidence and trust in the regional model across community, industry and government sectors must be built'. The CAP for the Northern Rivers Region states that one of the aims of its 'Community' theme is 'to increase trust across all NRM networks ...'. The Namoi Region CAP identifies a core value for the NCMA as being 'trusted by the community'.

The need to capitalise on the capacities built in current and prior investments is also emphasised in the CAPs. One of the key investment principles identified in the Namoi Region CAP states that 'existing successful programs are built on, particularly in areas where community groups or other stakeholders are able to manage their own projects'. The CAP for the Northern Rivers Region states that one of the aims of the management targets for its 'Community' theme is 'to continue to build on the skills and knowledge developed in the past ...'.

Each of the three CMAs expressed interest during the scoping phase of the present research in adopting an approach to deciding their investment priorities that was more aligned with an economic way of thinking, provided that such an approach was within their capacities to apply given their available skills and the pressures of other duties. An officer from the NCMA commented that 'there's no formal economic decision tool that prompts us to cover all the elements of a decision in an economic or triple-bottom-line way' (Marshall 2008b p. 48). Staff of the NRCMA were interested particularly in how an economic approach to investment priority setting might account for the implications of prioritisation decisions for community capacity. One officer observed: 'It's pretty easy to get the most cost-effective outcome until you begin to deal with the community and all that. ... There is always someone asking whether we should just be chasing natural resource outcomes or whether we should be trying to build community capacities at the same time. That's why we're interested in this project' (ibid. p. 65).

Nevertheless, the feedback from these CMAs was that input from economic evaluation would form only part of the information considered when making final decisions about how to prioritise investments. A member of the NCMA Board remarked accordingly that: 'Even if you don't do what is objectively found [through economic evaluation] to be best, you at least have some handle on the opportunity cost' (ibid. p. 48).

Clearly, the three CMAs serving as partners in this project represent a small proportion of the full set of 56 regional bodies operating under the regional delivery model. They are also located in one state. Nevertheless, the three partner organisations are quite diverse in respect of their contexts, experiences and approaches to investment planning, and it is expected that the findings will apply to an appreciably wider subset of regional NRM bodies, including in other states and territories.

Broader stakeholder participation in the project occurred through the input of a Project Reference Committee (PRC) at various stages during the project. The composition of this committee was as follows: Alison Archer (NSW NRM team, Australian Government), Dianne Bentley (Assistant Commissioner, NSW Natural Resources Commission); Jim Booth (Director, Natural Resource Management Investment, NSW Department of Environment); Bruce Browne (General Manager, Namoi CMA); Alex McMillan (Executive Director, NSW Natural Resources Commission); Nick Milham (from 2009 to present) (Director Socio-Economic Evaluation, NSW Department of

Industry and Investment); Warren Musgrave (PRC chair, and Emeritus Professor, University of New England); and (during 2008) Don Vernon (Manager, Socio-Economic Evaluation, NSW Department of Primary Industries).

1.5 Outline of this report

This report contains 4 parts – A, B, C and D. Part A, ‘Introduction and background’, consists of two chapters. Chapter 1 presents an introduction to the report, including the rationale for undertaking the present research as well as an overview of the approach taken in the project. Chapter 2 documents (a) the frameworks that were considered as a foundation for developing approaches to *ex ante* economic accountability that are capable of fulfilling the aims of the project, and (b) the process that was followed in comparing these frameworks and ultimately choosing the Investment Framework for Environmental Resources (INFFER) (Pannell et al. 2009a) as the best foundation for this project to build on. It explains that INFFER served as a foundation in two ways. The first of these involved accounting for ‘capacity spillovers’ from on-ground project which are important for the success of community-based NRM but not accounted for by INFFER. Secondly, INFFER was used as a foundation for strengthening economic accountability in developing capacity-building projects.

Part B of the report, ‘Accounting for capacity spillovers in strengthening the economic accountability of environmental investment decisions’, discusses the rationale for developing a method to account for capacity spillovers from on-ground projects, the method that was developed for this purpose, the trials of that method, and the feedback obtained from participants in those trials. This part contains eight chapters. Chapter 3 presents the rationale for developing this method, discusses its logic, and provides details of how that logic is operationalised in the method. Chapter 4 discusses the process of trialling that method with the three regional NRM organisations participating in the project. Chapter 5 provides a summary of the results from trialling the method. Chapter 6 discusses the process of obtaining feedback on the method as it was trialled. This process involved workshop discussions as well as asking trial participants to complete a short questionnaire. Chapters 7 to 9 document the feedback obtained from the Border Rivers – Gwydir, Namoi and Northern Rivers CMAs, respectively. Chapter 10 provides an overview of the questionnaire feedback obtained across the three CMAs.

Part C, ‘Economic accountability of decisions to invest in building capacities for community-based NRM’, discusses the rationale for strengthening this aspect of economic accountability, the method developed for this purpose, the process of trialling the method, and the feedback obtained from those trials. This part also contains eight chapters. Chapter 11 presents the rationale for developing this method, and Chapter 12 provides details of the method. Chapter 13 discusses the process of trialling that method with the three regional NRM organisations participating in the project. Chapter 14 discusses the process of obtaining feedback on the method as it was trialled. Again, this process involved workshop discussions as well as asking trial participants to complete a short questionnaire. Chapters 15 to 17 document the feedback obtained from the Border Rivers – Gwydir, Namoi and Northern Rivers CMAs, respectively. Chapter 18 provides an overview of the questionnaire feedback obtained across the three CMAs.

Part D, ‘Summary and conclusions’, contains two chapters. Chapter 19 presents a summary of the preceding 18 chapters. Finally, chapter 20 presents the conclusions of the report, focusing particularly on the challenges and opportunities that lie ahead in gaining adoption by regional, and other community-based, NRM bodies of approaches to economic accountability that are more rigorous and comprehensive than those they are currently using.

2. CHOOSING A FRAMEWORK TO BUILD ON

The different frameworks available for strengthening the economic accountability of decisions in the arena of environmental management and policy have come to be classified by various schemes. In their review of decision support methods for natural resource management in Australia, Hajkowicz et al. (2000) distinguished analytical techniques (including benefit-cost analysis and multiple criteria analysis) from policy frameworks (including citizens' juries, social impact assessment, and environmental impact assessment). In their view, '[a]nalytical techniques involve a highly specialised, repeatable and structured process for identifying an optimal or 'best' decision alternative' (ibid. p. 113, while 'policy frameworks are much more loosely structured' (ibid. p. 114).

When considering an appropriate decision support tool for the Western Australian Salinity Investment Framework, Black et al. (2002, 2004) argued that the former authors had incorrectly classified the citizens' jury method as a policy framework and had also overlooked related deliberative methods like consensus conferences and deliberative polls. They proposed that it is 'much more logical and helpful' to distinguish methods according to whether they are (a) economic, (b) multiple criteria, or (c) deliberative methods (ibid. p. 162). By 'economic' methods they meant methods conventionally associated with benefit-cost analysis. Vatn (2005) adopted a similar classification. Recognising that economists are increasingly employing multiple criteria methods, however, he referred to 'benefit-cost analysis' instead of 'economic' methods. His classification of evaluation approaches – into methods of benefit-cost analysis (BCA), methods of multi-criteria analysis (MCA), and deliberative methods.

An extensive review of the international literature relevant to choosing frameworks for strengthening economic accountability was undertaken as a basis for choosing an approach that was most consistent with the aims of the project as stated in chapter 1. See Marshall et al. (2009) for a full account of this literature review, which was structured in accordance with Vatn's (ibid.) classification for methods of economic accountability. The remainder of this chapter is largely drawn from that working paper. The BCA (including cost-effectiveness analysis), MCA (including cost-utility analysis) and deliberative approaches to economic accountability are reviewed in section 2.1. The choice between these approaches is considered in section 2.2. The relevance of economists' comparative institutions approach to this choice is highlighted. A new approach to economic accountability – the Investment Framework for Environmental Resources (INFFER) – that does not fit neatly into Vatn's categories is also discussed in that section. The decision to choose INFFER as a foundation to build on in the present research is justified in section 2.3.

2.1 Benefit-cost analysis, multi-criteria analysis and deliberative approaches

2.1.1 Benefit-cost and cost-effectiveness analysis

Benefit-cost analysis (BCA) is the method of comparing decision alternatives, or setting priorities, conventionally preferred by economists. This method has been explained by various authors including Sinden et al. (1995), Department of Finance (1991) and Mishan et al. (2007).

BCA aims to determine whether the welfare of a given public (e.g., regional community) will be enhanced as a result of a planned change (e.g., investment). Where multiple planned changes are under consideration in respect of a particular issue, the method seeks to identify which of the possible options (including non-adoption of any of the other options) would maximise the relevant public's welfare.

Proponents of BCA point to its strong foundations in neoclassical welfare economics as giving it a decisive edge over other methods of priority setting. The advantage of these foundations, it is argued, is that all BCA procedures are based on a common model of economic behaviour that is itself derived from an explicit philosophical foundation.

The philosophical foundations of neoclassical welfare economics centre on the assumption of 'methodological individualism', reflected in the principle of individual sovereignty. The assumption is that individuals know their own preferences with regard to goods and services in a market, and that these preferences are fixed, fully informed, and cannot be influenced by others. The satisfaction of individuals' preferences brings utility, measurable in monetary amounts. These monetary amounts, when summed over all individuals concerned, are taken to comprise 'social welfare'.

Based on these starting assumptions, a sequence of stages similar to the following is generally followed in conducting BCA (adapted from Hajkowicz et al. (2000) and Sinden et al. (1995)):

1. Define the options, including the 'without project' scenario (see stage 2).
2. Identify and quantify the effects of each option that will lead to benefits and costs during the planning horizon of the analysis. The impacts of the change options are measured relative to the without-project scenario.
3. Estimate the benefits and costs of each option for each year of the planning horizon. Where the effects of options under consideration are priced in markets, and where the relevant markets are not significantly affected by 'market failures' (e.g., externalities), the effects are translated into monetary benefits and costs on the basis of their market prices. When significant market failures are apparent in respect of a particular effect, the preferred solution is to estimate what the market price for that effect would be in the absence of those failures (i.e., its 'shadow price').
4. Convert streams of benefits and costs into present values. Economists account for the tendency of people to prefer benefits sooner than later, and costs later than sooner, by discounting present monetary amount according to how far into the future they are expected to arise. The present value of the benefits (costs) of an option is calculated as the sum of the discounted annual benefits (costs) of the option.
5. Calculate the net present value (NPV) for each option (other than the without-project option). This is calculated as the difference between the present value of the benefits of the option and the present value of its costs. When more than one option is under consideration, and there is a budget constraint on the choice of options, the Department of Finance (1991) recommended the decision rule of choosing the option, or combination of options, that maximises NPV subject to the budget constraint.
6. Perform sensitivity testing. It is important then to test the robustness of the BCA findings when key values subject to uncertainty are varied across a realistic range.

Despite BCA remaining the method conventionally advocated by economists for evaluating public decisions, Watson (2007 p. 6) observed that '[t]echniques like benefit-cost analysis ... seem to have gone by the board in the Australian public sector', and Hajkowicz et al. (2000 pp. 45-46) argued that 'economists [in Australia] need to understand why economics is often ignored as a vehicle for advising decision making ...'.

There is no single reason for the declining use and influence of BCA in Australian public decision-making, including in respect of environmental decisions. One reason is that public policy issues have tended to become more complex and contentious (i.e., 'wicked'). BCA was designed originally as a guide for public policy in the context of specific local projects with fairly clear

benefits (e.g., whether to invest in flood control or a bridge), whereas public policy, perhaps especially in the environmental realm, has become increasingly concerned with broad-ranging programs seeking benefits that are harder for the public to understand and agree on (e.g., biodiversity conservation) (Gowdy et al. 2007). The declining use and influence of BCA can be attributed also to increasing reliance on other methods of evaluating decisions (e.g., multi-criteria analysis) that have gained credence, including among economists, as more appropriate for wicked problems.

A number of other reasons for the declining use of BCA by environmental decision-makers are listed below (see Marshall et al. (2009 , section 2.2) for elaboration):

- concerns over assigning monetary values for environmental effects;
- equity concerns;
- concerns over the validity and affordability of using non-market valuation methods to assign shadow prices to unpriced environmental effects;
- inability of foster and account for deliberatively-determined value systems;
- misidentification of environmental problems as mechanistic;
- difficulty of accounting for transaction costs;
- practicality and affordability of BCA for community-based decisions;
- limitations of BCA as a guide to allocating limited funds between programs or projects.

Cost-effectiveness analysis (CEA) is a variant of BCA that is sometimes used by economists when monetary valuation of the benefits of the alternative options is not feasible or consensus cannot be reached on how this should occur. It seeks to identify the least-cost option (in present-value terms) for achieving a given objective (Randall 1981). If the options under consideration would achieve exactly the same quantity of benefits (i.e., they would equally achieve the same objective, e.g., 20 megalitres of water freed up at Lower Weir during April for reallocation to environmental flows), then it is valid to conclude that the least-cost option is best in terms of *relative* economic efficiency (although not necessarily economically efficient in an *absolute* sense since the costs of this option might still exceed its benefits).

When the options under consideration would deliver different levels of benefits (e.g., 15, 20 and 27 megalitres of water freed up at Lower Weir during April for reallocation to environmental flows), CEA analysts sometimes ‘make do’ by calculating cost-effectiveness ratios, where the quantity of benefits achieved by each option is divided by its cost in present-value terms. However, the information provided by this ratio about the average cost per unit output for each of the options is not sufficient to determine their relative economic efficiencies (i.e., in the absence of a strong assumption of constant marginal utility across the range of quantities of benefits from the alternative options). Often, moreover, the objectives of options to be prioritised differ qualitatively rather than quantitatively (e.g., one option frees up water for environmental flows while another protects endangered species). CEA cannot be applied validly in such situations (ibid.).

2.1.2 Multiple criteria analysis

Multiple criteria (or multi-criteria) analysis (MCA) is a generic title given to various methods of evaluating decisions where the performance of options is measured against more than a single criterion. MCA takes a set of options, a set of objectives to be achieved, and a set of criteria by which performance against these objectives are measured. It evaluates the performance of each option against each criterion. Through a formal procedure it then compares each option’s

performance against the various criteria to identify the option or combination of options that most successfully satisfies the objectives.

MCA was formulated to account for values that cannot easily be transformed into a monetary measure or any other single metric. Thus it has advantages over BCA when valuation of all effects of decisions in monetary terms is likely to cause controversy. Black et al. (2004 p. 176) remarked accordingly that '[t]he difficulty and/or objection of converting all benefits and costs to monetary values are the main reasons for the growing interest in multiple criteria tools'.

This approach has found widening acceptance among economists as one of the approaches they apply to better inform decision making. For instance, Gowdy et al. (2005 p. 207) referred to MCA as one of 'the major tenets of ecological economics'. Most environmental and resource economists using MCA have employed methods based on multi-attribute utility theory (Keeney et al. 1976) given their similarity to BCA in assuming different value dimensions are commensurable and can be traded-off against each other.

The following basic steps are normally followed in an MCA (Vatn 2005; Hajkowicz et al. 2000; Hajkowicz 2008):

1. define and structure the problem;
2. define the objectives;
3. define the options (the possible solutions) – a 'without-project' option should be included when this is a realistic alternative;
4. define the set of criteria to measure the performance of each option against the various objectives;
5. score each option against each criterion;
6. assign weights to the criteria that reflect their relative values to decision makers;
7. select and apply an algorithm for ranking the options – where relevant, after standardising the criterion scales into units that are commensurable and aggregating the standardised scores across the different criteria;
8. evaluate the result – including by sensitivity analysis – and select the preferred option, or return to step 1 for a second round of the procedure.

Application of MCA normally proceeds in a more iterative manner than BCA. It may involve reformulating the options, the objectives and/or the criteria, and in some cases even redefining the problem. Moreover, 'while the foundation of [BCA] is the rational agent with given preferences, MCA tries to capture the alternative view that preferences are not clarified. They may rather develop or become clarified as part of the decision making process itself' (Vatn 2005 p. 341).

MCA conventionally involves a decision maker (e.g., ministry, board of an authority) and an analyst. To be consistent with its focus on wicked problems, MCA should strongly involve the decision maker in defining the problem, the options, the objectives, the criteria and the weights (Vatn 2005). Conduct of BCA, in contrast, is driven much more by the analyst, while the weights given to different value dimensions are obtained by the analyst following the principle of individual sovereignty rather than from the decision maker.

Variations on conventional MCA involving public participation have become more common in recent years. Hajkowicz et al. (2000 p. 48) explained this trend as follows: 'Failure to adequately engage members of the community impacted by the decision may result in overlooking criteria or alternatives of importance'. However, balancing the participation of experts and the public in MCA

studies can be challenging, and various deliberative approaches to MCA have been developed in response to this challenge. These approaches include social multi-criteria evaluation (Kallis et al. 2006), participatory integration of MCA with BCA (Messner et al. 2006), and deliberative multi-criteria evaluation (Proctor et al. 2006).

Notwithstanding the fact that MCA is finding increased use within the economics profession, a number of economists have criticised this approach. For instance, Bennett (2005) referred to use of MCA by economists as an ‘avoidance strategy’ since this approach departs in some significant ways from neoclassical welfare economics which he held to be the standard for a rigorous economic approach to decision analysis. The Bureau of Transport Economics (1999 p. 187) remarked similarly that the choice of impacts to be evaluated using MCA is more arbitrary than in BCA because the former is not based on an established analytical framework. Sugden (2005) stated similarly that ‘[i]n the judgement of most economists (including the present author), it is a major merit of CBA [i.e., BCA] that it is based on well-understood theoretical foundations, derived from more than a century of research in welfare economics. This gives CBA a high degree of internal consistency’.

A particular limitation in respect of the objectives of the present project is that it cannot be used to compare options for which a common set of criteria cannot be developed. The Bureau of Transport Economics (1999 p. 201) gave the example of comparing a project to build a road with a project to build a hospital: ‘Because the impacts of a road project (travel time, environmental effects, etc.) differ so markedly from the impact of a hospital project (e.g., improvement in health, bed-waiting times, etc.) and are measured in different units – rather than the unifying metric of money values – comparisons [using MCA] would be almost meaningless’.

The Bureau of Transport Economics (*ibid.*) observed that MCA lacks BCA’s theoretical framework for incorporating time preference, although they acknowledged that Dillon et al. (1977) had proposed the solution of ‘time-indexed attributes’ whereby effects relevant to a criterion occurring in different years would be weighted less the later they occur. Further criticisms of MCA from economists are discussed in Marshall et al. (2009 , section 3.4.2).

Many economists using MCA remain supportive of neoclassical welfare economics as a theoretical foundation for economic evaluation of public policy decisions, and thus supportive of BCA as the appropriate method of economic evaluation when it is feasible to assign monetary values to all important decision consequences with reasonable accuracy. For instance, Strijker et al. (2000) regarded MCA as a ‘next-best solution’ to BCA that is nonetheless required when problems arise in validly assigning non-market values to environmental consequences of decisions.

A particular strand of MCA used by resource and environmental economists (e.g., Cullen et al. 2001) has been cost utility analysis (CUA). This method is useful when the monetary costs of each option can be estimated but an MCA approach is needed to account for the benefits (or utility) of the option. The utility of each option is divided by its cost (in discounted or present value terms), and options are ranked in descending order of their utility per unit of cost (Hajkowicz 2008). Where options are not mutually exclusive, the results of CUA can be used to identify the set of options that maximises aggregate utility subject to a budget constraint.

CUA can be used to rank options generating benefits (utilities) that are qualitatively similar enough (e.g., options each protecting a different bird species) that they can be valued against a common set of criteria. Hence, it has wider applicability than CEA (cost-effectiveness analysis) which is limited to ranking options that are qualitatively identical (e.g., options that each protect the same bird species) (Randall 1981). As explained in section 2.1.1, moreover, CEA can validly be used only to rank options with the same quantified physical objective (e.g., increase the population of one

particular endangered bird species by 10 per cent). CUA is not limited in this way because it quantifies the positive effects of different options in utility units rather than physical units.

2.1.3 Deliberative methods

Despite their differences, BCA and MCA are both based primarily on logics of calculation. In the literature on evaluation of environmental decisions, evaluation methods based on logics of communication have also received considerable attention. These alternative logics emphasise the role of argumentation or deliberation in defining a problem, and in identifying and choosing between possible solutions. Chambers (2003 p. 309) defined deliberation as ‘debate and discussion aimed at producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants’. Deliberative approaches thus help people ‘reach agreement on the basis of the better argument, on the basis of mutual understanding and trust’ (Vatn 2005 p. 350).

Chambers (*ibid.* p. 308) characterised the increasing interest in deliberative decision-making processes as a ‘turning away from liberal individualist or economic understandings of democracy’ in which ‘fixed preferences and interests compete via fair mechanisms of aggregation’. She observed that deliberative democracy is not normally considered a substitute for representative democracy but rather an expansion of it.

Various methods of deliberative evaluation have been used, including focus groups, citizens’ juries and consensus conferences (De Marchi et al. 2001). A focus group comprises small number of randomly-selected citizens led by a facilitator. This method seeks to explore the views of the group members on a particular issue in an atmosphere supportive of them openly sharing their ideas, opinions and arguments. The issue to be discussed is defined by the decision maker/s. The discussions are not meant to converge on any recommendation. Instead, a summary of arguments from the focus group is delivered to the decision maker/s for their consideration.

Citizens’ juries can be applied on a standalone basis or as part of a broader method of evaluating decisions. It is integral to the method of deliberative multi-criteria analysis that was discussed earlier. A citizens’ jury comprises a small group of randomly-selected citizens led by a facilitator. A citizens’ jury is expected to reach a conclusion on the issue put before it and make a recommendation to the decision maker or commissioning body. Its deliberations are supported by ‘witnesses’ who present information to the panel of jurors. The jury decides what additional information should be presented to it.

A consensus conference shares many of the characteristics of a citizens’ jury. It involves a small group of randomly-selected citizens who deliberate on an issue under the supervision of a facilitator. It has been applied as a way of capturing the perspectives of the public for inclusion in assessments of controversial scientific and technological developments. The participants can question a panel of experts and stakeholders. They are expected to assess the information before them, discuss the issue among themselves, and arrive at a consensual conclusion.

The literature on deliberative methods of evaluation has identified various challenges encountered in applying these methods successfully. These challenges (discussed further in Marshall et al. (2009) include:

- representativeness – the small-group format of deliberative methods makes it easier for participants to establish the mutual trust needed for open communication and consensus, but the fewer the participants the harder it is to represent all interests within the relevant public and thus arrive at an outcome widely accepted as legitimate;

- small-group dynamics – deliberative methods are prone to the problems associated with decision making by small groups, notably the problem of discussions being dominated by few of the participants;
- scope of deliberation – unless a small-group deliberative process is carefully structured and facilitated, discussion may dwell excessively on preoccupations of the group members, so that the conclusions reached may not account for the full range of relevant issues;
- limited understanding and interest of participants – deliberative methods require participants to have sufficient interest in, and understanding of, the issue under discussion to be able to contribute meaningfully to the process, but environmental issues are often of a complexity that non-experts find alienating or difficult to comprehend;
- lack of trust from participants – Spash (2007 p. 694) observed that ‘[w]here responsible agencies fail to follow through on the recommendations of consultation future attempts to consult will likely prove unpopular and levels of distrust will be increased’, and also that some stakeholders may balk at joining deliberative processes if they lack trust that their arguments will carry as much weight as they do in conventional decision-making processes;
- problems in striving for consensus – Spash (2007 p. 692) cautioned that ‘consensus’ approaches may be used to silence minority opinions and that ‘consensus can be achieved more easily where issues are generalized, but once specific plans of action and detail arise divisions tend to appear’; and
- disincentives for governments to sponsor deliberative processes – a disincentive for governments to sponsor deliberative processes is that ‘[o]nce people have been engaged in a process of deliberation and been empowered as part of a decision process their presence and opinion is less easily dismissed’ (Spash 2007 p. 694).

Tensions normally exist between the theoretical ideal for deliberative processes and the ‘unavoidable requirement to comply with constitutional, institutional, or policy rules expressing public choice which have been set at different organisational and spatial scales’ (Kallis et al. 2006 p. 232). One such constraint involves the expectation that a decision process can feasibly be reconstructed and justified if queried (Messner et al. 2006). Proctor et al. (2006) indicated that this expectation is often not met in deliberative processes because much of the logical thought processes that occur remain implicit.

Meanwhile, formidable challenges remain in creating and maintaining the conditions needed for participatory processes to run deliberatively. Kallis et al. (2006 p. 232) noted that many applications of deliberative methods have been exploratory, and observed ‘there are good reasons to suspect that the greater the decision impact of a participatory process, the more that the process would be governed by power games, strategic behaviour, and attempts by powerful vested interests to capture the process’.

2.2 Choosing a method

2.2.1 A comparative institutions approach

Methods of evaluating decisions – including those about environmental investment – are ‘value articulating institutions’ (Jacobs 1997) which define the rules to be followed in the process of evaluation. Vatn (2005 pp. 301-302) identified these rules as concerned with:

- participation – who participates, on what premises (position or role), and by which method (e.g., responding to a survey, attending a meeting, written submission);
- what counts as data, and what form it should take (e.g., prices, weights, arguments); and
- the kind of data handling procedures to be used (how data is produced, weighed and aggregated).

Choosing a method to use in evaluating a particular environmental investment decision is thus a choice between alternative institutions. Economists have long concerned themselves with institutional choices in general, and the consensus now in neoclassical welfare economics is that such choices are evaluated most appropriately using a comparative institutions approach ‘in which the relevant choice is between alternative real institutional arrangements’ (Demsetz 1969 p. 1). This approach would recognise that all feasible evaluation methods are imperfect and that the objective is to identify the best one given the situation at hand. As Vatn (2005 p. 360) stated succinctly, ‘No VAI [value articulating institution] is ideal’. This recognition is echoed beyond economics by environmental governance scholars including Young (2011 p. 82) who argued that ‘it is essential to draw a clear distinction between the ideal and the actual, thereby avoiding comparisons between an ideal version of one system of property rights and real-world versions of other systems of rights governing human-environment relations’.

2.2.2 Choosing between the standard categories of method for economic evaluation of environmental decisions

As discussed in the chapter 2 introduction, the international literature on methods for economic evaluation of environmental decisions has focused largely on three broad categories of methods: BCA methods (including CEA); MCA methods (including CUA); and deliberative methods. Black et al. (2002, 2004) essentially applied a comparative institutions approach in comparing the suitability of these standard method categories for the Western Australian Government’s Salinity Investment Framework (SIF). Each of the categories was assessed for its performance against various criteria deemed important for decisions in natural resource management.

These criteria included: (a) ability to account for macro-policy concerns (e.g., equity and macro-economic effects); (b) workability given available data and skills; and (c) community perceptions of the legitimacy of the method. They found that ‘the choice of an appropriate decision tool for the SIF is extremely complex’ since no one method dominated in respect of the yardsticks applied (Black et al. 2004 p. 182). Based on their wide-ranging review of the applicability of various decision evaluation methods to NRM in Australia, Hajkovicz et al. (2000 p. 118) similarly found it ‘evident that no single NRM decision support method is clearly dominant’.

The discussion in section 2.1 highlighted a range of criteria that commentators on evaluation methods for environmental decisions have stated or implied should be considered when choosing between these standard categories of methods for evaluating environmental decisions. A non-exhaustive list of such criteria is presented in Table 1. The comments in the table suggest that none of the BCA, MCA or deliberative categories of evaluation method is likely to be scored highest across all the criteria, even by someone particularly committed to one of the method types. Hence, a choice between the methods would normally depend on the relative importance that a chooser places on each of the criteria and on how highly they rank or score each method type against each of the criteria.

Such a process of choosing the best method of economic evaluation for a given context would recognise that the choice is not only between BCA, MCA and deliberative methods as ‘pure types’.

To start with, each of these method types encompasses multiple variations from which a specific method must be chosen. Moreover, method types can often usefully complement one another when they are combined. Black et al. (2004 p. 166) referred to the array of method types on offer as a 'multi-purpose workbench' and noted that 'the intrinsic difficulties associated with each [evaluation] tool has encouraged a growing number of practitioners to explore the potential for combining tools'.

Of the various methods for evaluation of environmental decisions that were identified in section 2.1 as attracting most attention from economists over recent decades, the method of cost-utility analysis (CUA, a variant of MCA) was identified in the present project as best satisfying its criteria for choosing a method for strengthening economic accountability in community-based, collaborative NRM.

The demands on budgets and skills of the non-market valuation methods needed (given the absence to date of benefits-transfer databases and methods than can be applied at the scale of most community-based environmental bodies) to apply BCA to environmental decisions typically are much greater than what community-based bodies can afford. The CEA variant of BCA circumvents these demands where it is applicable, but can be applied validly over only a small portion of the decision-making domain of the kinds of community-based NRM bodies of relevance to the present study.

Deliberative methods are by themselves too unstructured to provide a transparent means of demonstrating economic accountability to those not directly involved in their application, although clearly they are essential to incorporate in any method, including CUA, that claims to support collaborative decision-making.

MCA methods offer a structured way of accounting for environmental values in evaluation processes without the onerous budgetary demands of the non-market valuation methods needed, at least at this stage in the absence of practicable benefits-transfer models, to account for such values in BCA. However, such methods are themselves skill-intensive to apply validly, and need to be designed carefully if they are to be consistent with an economic way of thinking. The CUA variant of MCA is structured already, at least in outline, to be consistent with an economic way of thinking and has been applied by economists including environmental and resource economists. CUA allows ample scope for incorporation of deliberative methods in the definition of options and in the specification of the MCA models through which the utilities of these options are estimated.

2.2.3 A recent innovation for economic accountability of environmental investment decisions

Aside from the three categories of methods for evaluation of environmental decisions mainly considered by ecological, environmental and resource economists over recent decades, an innovative method not fitting into these categories has been developed and applied in recent years: the Investment Framework for Environmental Resources (INFFER) (Pannell et al. 2009a; 2010b). It was singled out for review in the present study because of its explicit focus on being adoptable within the context of community-based regional NRM, and because it has received significant levels of endorsement and use by governments and regional NRM bodies in Australia. As this was the method ultimately chosen in the present project as a foundation for pursuing its objectives, details of it are provided below.

Table 1: A selection of criteria for choosing between methods for evaluating environmental decisions

<i>Criterion</i>	<i>Comments</i>
Consistency with neoclassical welfare economics	An advantage claimed for BCA. However, MCA methods based on multi-attribute utility theory (MAUT) share some of the theoretical foundations of BCA. Some stakeholders may view consistency with neoclassical welfare economics as a disadvantage.
Alignment with an economic way of thinking	An advantage claimed for BCA, although MCA can be structured along the lines of an economic way of thinking.
Consistency with a focus on environmental outcomes	An advantage sometimes claimed for BCA, although each of the methods can be applied consistently with a focus on environmental outcomes. The possible advantage for BCA in this respect derives from its use of (shadow) market prices to value decision impacts, where these prices are reasoned to reflect the marginal social utility of any outcome. MCA and deliberative methods are not as constrained theoretically to focus on outcomes, so a risk exists that they may stray from this focus. This risk may be managed with structured procedures that serve to maintain an outcomes focus.
Ability to account for incommensurable values	A weakness of BCA. MAUT-based MCA methods score different values against relevant scales, but subsequently combine the scores into an overall score. Non-MAUT-based MCA methods do not combine scores into an overall score. Deliberative methods are well-suited to accounting for incommensurate values.
Scope to reflect philosophy of integrated environmental (catchment) management	In principle, each of the methods has equal scope to account for the whole range of benefits that a project may generate for different natural and environmental resources (and also in respect of other social and economic assets). In practice, however, BCA is likely to face greater problems in accounting for those benefits that cannot be readily valued using existing market prices.
Acceptability of underlying value judgements (to governments & other investors, and to communities & others whose cooperation is required)	Such value judgments may relate to (a) commensurability of different values; (b) appropriateness of measuring environmental and other intangible values on a monetary basis; (c) procedural fairness and distributive fairness (equity).
Acceptability of results (to governments & other investors, and communities & others whose cooperation is required)	Perceived validity of BCA results can be lessened by controversy concerning any non-market values incorporated in the analysis. On the other hand, governments and other stakeholders may prefer the clear-cut answers from BCA to the conditional answers often emerging from MCA or deliberative methods. (However, stakeholders can also be sceptical of clear-cut answers to problems they know are far from simple). Acceptability of results to a stakeholder may also depend on the degree to which they have participated in the process of deriving them, and thus gained trust in and ownership of the results. To the extent that deliberative and MCA methods typically allow for greater stakeholder participation than BCA, their results may find greater acceptance.
Internal consistency	An advantage claimed for BCA because it applies a single coherent body of theory in identifying and measuring all relevant values. Internal consistency in applying a method reduces risks of double counting or of introducing biases in measuring different values. However, structured approaches to MCA can strengthen internal consistency in its application.
Protection against strategic manipulation	An advantage claimed for BCA due to (a) the rigour imposed by its reliance on a single coherent body of theory, (b) its adherence to the principle of individual sovereignty which limits inclusion of values to those of defined (sets of) individuals, and (c) its provision of clear-cut answers which provide discipline on decision makers. Even so, considerable scope for strategic manipulation remains due to reliance of BCA analysts on scientists and others for the data and assumptions they require, and also due to the 'black box' nature of BCA techniques.

Table 1: A selection of criteria for choosing between methods for evaluating environmental decisions (continued)

<i>Criterion</i>	<i>Comments</i>
Transparency	An advantage claimed for MCA (sometimes referred to as a 'glass-box' method), especially where simpler MCA algorithms are applied. BCA techniques are sometimes criticised for their 'black-box' nature, and deliberative methods have been criticised for lacking transparency in terms of clarifying all the value judgements and reasoning upon which a decision was made.
Ability to account for transaction (including political) costs	BCA often has difficulty here. MCA offers scope to include transaction costs of options as a distinct criterion.
Ability to accommodate values arising from community-based or other deliberative processes	BCA's adherence to the principle of individual sovereignty renders it unable to accommodate values arising from deliberation. In contrast, deliberatively-determined values can readily be facilitated and accounted for by deliberative methods or deliberative approaches to MCA.
Affordability	Financial costs in applying BCA can be high when consultants need to be paid, and particularly when sophisticated non-market valuation (NMV) techniques are employed. Costs of NMV may be reduced by using benefits-transfer methods where appropriate data is available, although validity concerns may arise. MCA and deliberative methods can involve significant financial costs when consultants are required and/or sophisticated techniques for applying these methods are employed. Reliance on deliberative methods (including within MCA) can also be costly in terms of time demands on participants.
Ease of use	Considerable skill is required in applying each of the types of methods – BCA, MCA and deliberative – to a standard at which confidence in the results is justified. Structured procedures may be developed that facilitate ease of application by non-experts. The skill level needed for BCA studies involving sophisticated NMV techniques is higher again, and is not easily alleviated by providing structured procedures.
Timeliness	Limited availability of appropriately-skilled practitioners can lessen the timeliness with which any of the methods is applied (e.g., in respect of funding-submission deadlines). A need to use sophisticated NMV techniques when applying BCA may especially cause timeliness issues. Reliance on deliberative methods (including within MCA) may lessen timeliness when problems arise in coordinating involvement of the relevant participants.
Facilitation of stakeholder learning	An advantage claimed for deliberative methods and MCA methods (particularly where deliberative processes are incorporated). This advantage arises from the greater participation of decision makers and other interested parties in the application of these methods, compared with the more expert-driven process involved in applying BCA.
Ability to reduce conflict and facilitate cooperation	An advantage claimed particularly for deliberative methods, but also for MCA methods that incorporate deliberative processes.
Consistency with recognition that the decisions at issue are concerned with complex adaptive systems	BCA recognises only mechanistic relationships. Unless it forfeits its internal consistency, therefore, it cannot account for consequences of decisions arising from complex adaptive systems (e.g., related to resilience, adaptive capacity, path dependence, irreversibility). MCA and deliberative methods are not similarly constrained.
Scope to account for effects of decisions on ongoing social capacities	Social capacities (e.g., trust, reciprocity, social norms, peer pressure) typically emerge from interactions within complex adaptive systems. Unless BCA forfeits its internal consistency, therefore (see above), it is unable to account for the consequences of a decision for the social capacities needed for longer-term success in environmental management.

Background

INFFER evolved from experiences in developing a framework for evaluating investments in addressing natural resource degradation problems associated with salinity, initially in Western Australia and subsequently in Victoria. This framework was known as the Salinity Investment Framework (SIF), which evolved through three phases culminating in SIF3. A preliminary version of INFFER was completed in early 2008 (Pannell et al. 2009a).

Like SIF3, INFFER is an asset-based framework. A justification for continuing with this kind of approach for INFFER was:

Even in large government programs for the environment and natural resource management, the available funding is small relative to the problems it is intended to address. Spreading the available public resources thinly across many areas will result in little or no effective protection of any of the threatened assets. Experience shows that basing decisions around key assets helps to improve the cost effectiveness of investment (Anon. 2009).

Accordingly, INFFER is intended only for projects with a clear focus on protecting or enhancing specific natural resource assets. It is not meant for projects focused on general education, awareness raising, capacity building, or research that is not targeted at specific assets.

It was designed to fill gaps in the suite of existing methods for economic evaluation of environmental decisions by including the following characteristics:

- (a) considers both the selection of policy tools and project prioritisation in an integrated way;
- (b) uses a comprehensive set of information (particularly including social and economic considerations) when prioritising projects;
- (c) considers a comprehensive set of possible tools when providing advice on policy tool choice;
- (d) applicable to different types of natural assets (e.g., biodiversity assets as well as soil assets);
- (e) able to compare the cost effectiveness of projects across different types of natural assets and across projects of different spatial and temporal scales;
- (f) supports the development of projects that are internally consistent; i.e., project activities are consistent with the project goal(s) and the project budget; and
- (g) as easy to use as possible, while still meeting the above requirements.

An important contribution of SIF3 in respect of characteristics (a) and (c) was its development of a Public: Private Benefits (PPB) framework, which distinguishes between four classes of policy tools identified in Table 2. This framework provides a simple graphical approach that spells out the logic for selecting the most appropriate class of policy tool for influencing the behaviour of private individuals in cases where their actions have positive or negative impacts on others in the community (Pannell 2008).

Table 2: Alternative policy tools for seeking management changes on private lands

Class of policy tool	Policy tools included in class
Positive incentives	Financial or regulatory instruments to encourage change
Negative incentives	Financial or regulatory instruments to inhibit change
Extension	Technology transfer, education, communication, demonstrations, support for community networks
Technology development	Development of improved land management options, such as through strategic R&D, participatory R&D with landholders, provision of infrastructure to support new management options
No action	Informed inaction

Source: Pannell (2008)

The recommendations deduced from the PPB framework are:

- Positive incentives should be used where public net benefits⁴ of a proposed practice are highly positive and private net benefits⁵ are close to zero.
- Negative incentives should be used where public net benefits are highly positive and private net benefits are slightly positive.
- Extension should be used where public net benefits are highly positive and private net benefits are slightly positive.
- No action should occur where private net benefits outweigh public net costs, where public and private net benefits are both negative, where private net benefits are sufficiently positive to prompt rapid adoption of environmentally beneficial activities, or where private net costs outweigh public net benefits (provided that technology development is not sufficiently attractive) (Pannell 2008).

The contribution of INFFER in respect of characteristic (e) is significant for the purposes of the present project given the limitations of CUA in comparing the economic performance of projects that focus on natural assets that differ sufficiently that their benefits cannot be compared against a common set of criteria. Given that regional NRM organisations in Australia are expected to allocate the funds invested in them in projects that differ considerably in the kinds of natural assets they focus on, this contribution is a valuable one.

The contributions in respect of characteristics (a), (c) and (f) are important also given that other methods of economic evaluation tend to assume that each of the project options to be prioritised has already been through a rigorous process of project development to ensure that they are internally consistent and the most appropriate policy tools have been chosen for motivating the required behaviour change. The project options to be compared do need to be realistic if the project prioritisation process is to be meaningful. No amount of sophistication in such a process can compensate for the lack of a rigorously-formulated set of options. However, the assumptions often made that the options to be compared have been developed rigorously are often mistaken, with

⁴ Public net benefits ‘means benefits minus costs accruing to everyone other than the private land manager. They exclude any costs borne by the environmental manager in the process of intervening to encourage the change in land management’ (Pannell 2008 p. 225).

⁵ Private net benefits ‘refer to benefits minus costs accruing to the private land manager as a result of the proposed changes in land management. They exclude transfers which are part of the policy intervention, so that we can compare landholder behaviour with, and without, the intervention. In principle, private net benefits are broader than financial benefits, and include the broad range of factors that influence the relative advantage of the new land use options (as perceived by the landholders) such as riskiness, complexity, social considerations, personal attitude to the environment, and farming-system impacts of the land-use practice ...’ (Pannell 2008 p. 225)

Pannell et al. (2010a) reporting that many existing projects run by regional NRM bodies have employed inappropriate policy tools, and Pannell et al. (2010c p. 4) concluding that:

The definitions of most existing environmental projects are internally inconsistent, in the sense that the planned interventions will not deliver the intended on-ground change, or the intended on-ground works are not sufficient to deliver the projects' goals, or the interventions will cost more than budgeted for, or will require ongoing funding that is not identified.

The process

Where INFFER is used to prioritise different project options, the process of applying it proceeds as follows:

1. Elicit a list of natural assets that are considered good prospects for investment. These assets must be particular, spatially explicit assets for which a SMART (Specific, Measurable, Achievable, Relevant and Time-bound) goal can be defined. This list may be compiled from community and expert input.
2. Use simple criteria to filter this list down to around 20-40 assets. Then apply a Pre-Assessment Checklist to cull members of this list for which it is unlikely to be worthwhile developing a project using the INFFER Project Assessment Form (e.g., because a SMART goal for the asset cannot be defined).
3. Apply the Project Assessment Form (PAF) to each asset not culled in the previous step. The PAF is used to develop an internally consistent project for each of these assets, and elicit the information needed to calculate a Benefit: Cost Index (BCI) to be used in project ranking. The PAF is designed to be 'comprehensive in the inclusion of categories of information that are relevant to the prioritization decision, but to use a simple approach within each category ... For example, the impact of each major threatening process is represented as one of four categories: low (0 to 25% loss of asset value, medium (26 to 50%, high (51 to 75%) or very high (76 to 100%)' (Pannell et al. 2009a p. 5).
4. Select a short list of priority assets/projects based on information from completed PAFs and other relevant considerations.
5. Develop investment plans or proposals for external funding (depending on whether INFFER is being used to allocate an internal budget or to develop and assess projects for external funding).
6. Implement those projects that receive funding.
7. Monitor, evaluate and adaptively manage projects (Pannell et al. 2009a).

The Benefit: Cost Index

The BCI for a project is calculated as follows:

$$BCI = \frac{V \times W \times F \times A \times B \times P \times G \times DF_B(L) \times 20}{C + PV(M)} \quad (1)$$

where

- V = value of the asset in good condition (score out of 100, or non-market valuation);
 W = multiplier for proportionate impact of works on asset value (from 0 to 1);

- F = probability that the project will not fail due to problems with technical feasibility (from 0 to 1);
- A = multiplier for adoption of changed management by private landholders (proportion of the adoption level needed to achieve project goal) (from 0 to 1);
- B = probability that the project will not fail due to private landholders adopting practices adverse to achieving the project goal (from 0 to 1);
- P = multiplier for socio-political risk (probability that socio-political factors will not derail the project, and that required changes will occur in other organisations) (from 0 to 1);
- G = probability that essential funding subsequent to this project will be forthcoming (from 0 to 1);
- DF_B = discount factor function for benefits (proportion between 0 and 1), which depends on L
- L = time lag until the majority of anticipated benefits from the project occur (years)
- C = short-term cost of project (\$ million in total, over 3-5 year life of project);
- PV = present value function to convert future costs to equivalent present-day values; and
- M = annual cost of maintaining outcomes from the project after its completion (\$ million per year beyond the immediate project).

The denominator of equation (1) measures the expected costs of the project and maintaining its benefits after it is completed. The time frame of the project (3-5 years) is judged to be short enough that the error from not calculating the present value of the upfront cost of the project (C) will be minor.

The numerator of equation (1) measures the net benefits from a project as discounted for how slowly they are expected to arise. The PAF manual (Pannell et al. 2009b) recommends that the scoring system set out in Table 2 of the manual, which is calibrated so that an asset of very high national significance has a score of 100, be used as a guide in choosing a V score for a particular asset. According to this scoring system, an asset of local significance (e.g., a locally valued wetland or creek) might be assigned a score somewhere between 0.1 to 2. This procedure was recommended on the basis that adequate information on monetary values of natural asset values will normally not be available. In those instances where a monetary value of the asset in good condition has been estimated, this value can be inserted for V and the BCI becomes equivalent to a standard Benefit: Cost Ratio.

The fact that natural assets of all kinds and scales are valued non-monetarily against a common scale means that the BCIs for projects targeting different kinds of assets (e.g., biodiversity and soil health) are comparable. Moreover, the fact that future benefits and costs are discounted to present-day values means that projects spanning different temporal scales can also be compared. Hence, the BCI offers a metric for prioritising different project options that is more generally applicable than CUA. Firstly, CUA is limited to comparing project options with benefits similar enough that they can be assessed against a common set of criteria. Given that CUA relies on MCA to calculate the benefits of project options, and MCA is poorly equipped to account for differences in the temporal scales of options, CUA is normally appropriate only for prioritising options sharing a similar temporal scale.

Although the non-monetary method of valuing assets that will normally be used means that the BCI for a project does not provide a guide to whether its benefits exceed its costs, the BCIs for different

projects do provide a means of ranking them consistently with economic logic. The proposed procedure for allocating a fixed budget between competing projects on the basis of their BCIs involves ranking the projects in descending BCI order and continuing to fund projects down the list while the cumulative cost remains within the total available budget (Anon. 2008). However, the BCI 'is not to be applied in a simple prescriptive way. It provides information that can assist decision makers, but given the inevitable limitations of data, and the likely relevance of other considerations that have not been captured in the assessment, the resulting ranking of options should be treated as a guide, rather than as 'the answer'' (ibid. p. 7).

A further advantage of the BCI metric compared with CUA given the purpose of the present study is that the former is already formulated to be consistent with an economic way of thinking; i.e., to compare the benefits of each project option with its costs after accounting explicitly for what would occur in the without-project scenario. The numerator and denominator of the BCI formula are carefully formulated to measure the benefits and costs of options consistently with sound economic logic. The numerator involves multiplication of values assigned to various parameters, with the parameters and multiplicative algorithm chosen specifically to be consistent with how the expected benefits of a project option are estimated in BCA.

In contrast, formulating the MCA model which comprises the numerator of the CUA metric remains the responsibility of the analyst. The terms in this model, or formula, are values assigned to a project option against criteria chosen by the analyst. The analyst also remains responsible for specifying the algorithm by which the values assigned against the chosen criteria are combined to obtain an overall measure of utility, or benefit, for the project option. Pannell et al. (2009a) observed that the additive algorithm is commonly used in MCA, and argued that this kind of algorithm is often inappropriate for measuring benefits that are proportional to the relevant variables. Application of CUA for the purposes of economic evaluation of environmental decisions would therefore need to be tightly supervised for it to be employed confidently as a method of economic evaluation. Hence, it is likely to be appreciably less successful than the BCI metric in fulfilling INFFER's 'intent ... that it be usable by environmental managers who are not specialists in modeling, economics or technical analysis' (ibid. p. 2). Hence, INFFER was judged superior to the CUA approach in respect of the present project's focus on developing a method of economic evaluation that is within the capacity of collaborative community-based organisations (specifically regional NRM organisations) to apply proficiently.

Although INFFER is broadly consistent with an economic way of thinking, it does not necessarily accord with the conventional economic way of thinking associated with neoclassical welfare economics (upon which benefit-cost analysis is founded). The INFFER process is consistent with the collaborative vision in so far as it allows ample scope for the value judgments underpinning choices of parameter values (e.g., the *V* score for asset value) to be decided deliberatively, rather than simply by aggregating the preferences of individuals as is required by this form of economics. It is consistent also with the recognition underlying this vision that the environmental decisions at issue are often concerned with complex adaptive (social-ecological) systems and, accordingly, that relationships between interventions and effects are not always mechanistic as assumed in neoclassical welfare economics. INFFER imposes no requirement that all cause-effect relationships be assumed mechanistic.

Adoption, policy impacts and ongoing challenges

Of the 56 regional NRM bodies in Australia, 19 in four states had used or trialled INFFER as of January 2010. However, only two of these have adopted INFFER in full to guide their planning and prioritisation process. The remaining 17 have trialled its use with a limited number of natural resource assets (Pannell et al. 2009a). The INFFER team has reported that there has been strong

interest in their framework from two Australian states, Western Australia and Victoria, where the direction of policy was already moving towards an asset-based approach to environmental management. They have reported also that the Australian Government has been briefed extensively about the framework and that it was the only planning tool recommended to applicants for competitive government funding under Caring for our Country (its main national NRM program) (ibid.).

Even so, the experience with INFFER has been that many regional NRM organisations remain reluctant to adopt investment decision-making frameworks that are more onerous and time-consuming than the simpler and more partial approaches they have become used to, and that it is not possible to overcome this reluctance by simplifying such frameworks without compromising their essential rigour and comprehensiveness. Training and support for users of such frameworks is necessary but not sufficient to overcome their reluctance to adopt them. The INFFER team found accordingly that ‘acceptance of INFFER requires more than training in its mechanics. It requires support for a change in mindset, and in some cases even a change in organizational culture. Users need to be persuaded that it is worthwhile investing the time and effort into a more comprehensive assessment’ (Pannell et al. 2010b p. 10).

2.3 Comparing CUA and INFFER

The respective merits of CUA and INFFER are compared in Table 3 against the four aims of the present research (as stated in chapter 1) as well as against a number of additional relevant considerations. On the basis of these comparisons, it was recommended to the Project Reference Committee (PRC) that INFFER be chosen in the present research as the foundation for developing methods of strengthening the economic accountability of environmental decision-making by collaborative community-based NRM bodies. The working paper on the literature review of economic accountability methods (Marshall et al. 2009) was made available to the PRC to assist their decision on this recommendation. The PRC accepted the recommendation, and the proposal to trial methods built on INFFER was then put to the three CMAs participating in the project. This proposal was subsequently accepted by each of these CMAs. See section 4.1 for further details of the process by which staff from these CMAs were made familiar with INFFER and decided whether to support its use as a foundation for the methods they would trial in the project.

INFFER was used as a foundation for pursuing the aims of the present project in two ways. The first of these involved accounting for ‘capacity spillovers’ of on-ground projects which are important for the success of community-based NRM but not accounted for by INFFER. The rationale for focusing on this area is discussed in Part B of this report, as is also the method that was developed for this purpose and the trials of that method. Secondly, INFFER was used as a foundation for strengthening economic accountability in developing capacity-building projects. The rationale for focusing on this area is discussed in Part C of this report, as is also the method that was developed for this purpose and the trials of that method.

Table 3: Comparing INFFER and CUA as a foundation for a method of economic evaluation to trial in the present research

Criteria	Option A: Use INFFER as a foundation	Option B: Develop a framework based on cost-utility analysis
Consistent with an economic way of thinking?	Yes. Purposefully designed to be so.	Depends on how the CUA model is designed.
Within the capacity of regional NRM organisation to apply?	Yes. Purposefully designed to be so. However, some training required.	Yes, if simpler MCA algorithms are used. However, simpler MCA algorithms are not necessarily consistent with an economic way of thinking.
Able to accommodate value systems decided in community-based processes?	Yes, although INFFER provides little guidance on how community value systems are to be identified other than in scoring the value of the focal asset.	Yes, although standard MCA approaches provide little guidance on how community value systems are to be identified. Deliberative MCA approaches address this explicitly.
Able to account for the consequences of NRM investments for ongoing social capacities?	Not as currently designed. However, scope exists to modify the performance criterion used (the BCI) to remedy this.	Yes, by including appropriate criteria in the MCA model.
Other considerations ...	<p>Able to compare investments in different asset classes.</p> <p>Many of the 56 regional NRM bodies would know of INFFER. About 15 were already using or trialling it at the time of choosing between the options, including two in NSW.</p> <p>Clear similarities with a BCA approach which government agencies tend to favour</p> <p>Many relevant government agencies have been exposed to INFFER.</p> <p>Substantial progress already made in addressing 'teething problems' with INFFER</p>	<p>Not necessarily able to compare investments in different asset classes.</p> <p>Many regional NRM bodies familiar with simple CUA models through experiences with Environmental Benefit Indices and the like. However, CUA models need to be more sophisticated than this to capture an economic way of thinking.</p> <p>Any new CUA approach would be competing with INFFER for the limited attention of regional bodies and government agencies, and may possibly undermine the 'authority' of both approaches in the process. Competing would be difficult given the head-start and track record of INFFER.</p> <p>Government agencies tend to be less accepting of the MCA approach on which CUA is based</p> <p>Fewer government agencies have been exposed to the CUA approach, and their exposure to MCA has mostly been to simple applications.</p> <p>Any new CUA model would face 'teething problems'</p>

**PART B: ACCOUNTING FOR CAPACITY SPILLOVERS IN
STRENGTHENING THE ECONOMIC ACCOUNTABILITY
OF ENVIRONMENTAL INVESTMENT DECISIONS**

3. ACCOUNTING FOR CAPACITY SPILLOVERS FROM ASSET-BASED NRM INVESTMENT DECISIONS

Part B of this report documents the first of the two related methods for economic accountability that were developed in the present project. It draws from the working paper *Economic evaluation of investments in natural assets under community-based environmental governance: developing and testing a method* (Marshall 2010a) that was prepared earlier in this project to provide feedback to the three participating regional NRM organisations, and also the Project Steering Committee, on progress achieved in developing and trialling a method of evaluating options for investing in asset-focused NRM projects that accounts for capacity spillovers from the options. The reader is advised to refer to that working paper for details that could not be included in the present report due to space limitations.

Part B contains eight chapters (chapters 3 to 10). Presented here in chapter 3 is the method for economic accountability that was developed to account for capacity spillovers in addition to the factors already accounted for in the INFFER process. Chapter 4 provides details of how this method was trialled with the three regional NRM organisations participating in the project. Chapter 5 presents a summary of the results of the trials. Chapter 6 describes the process whereby the trials were reviewed by the participating regional organisations. Chapters 7, 8 and 9 proceed to present the review findings for the Border Rivers-Gwydir, Namoi and Northern Rivers CMAs, respectively. Chapter 10 provides an overview of the questionnaire findings from the review processes with these three bodies.

The present chapter is organised as follows. The rationale for accounting for capacity spillovers in economic evaluation of natural-asset-focused investment options is considered in section 3.1. The method developed towards this end is then documented and explained in section 3.2. Some brief closing remarks are presented in section 3.3.

3.1 Rationale

One of this project's four criteria for choosing an economic method of NRM investment evaluation was that the method should account for how investments affect the capacities needed for the feasibility of other such investments into the future. INFFER does account for capacity-building activities required within a project to achieve its goals, and implicitly for existing community and other capacities when assessing the feasibility of the project. However, it is not designed to account for the consequences of a current project (whether from specified capacity-building activities or other aspects of a project) on the feasibility of subsequent projects (as would be accounted when evaluating those projects by the values assigned to the parameters A , B , P and G in equation (1)). These consequences may be for community capacities (e.g., capacity of landholders to adopt practices likely to be promoted to them in subsequent projects), for capacities of the regional body itself (e.g., for the ability of its staff to work effectively with landholders), or they may be for the capacities of other parties whose cooperation could be required (e.g., for the other parties establishing the knowledge and trust needed to motivate them to adopt the changes needed for success in subsequent projects).

Australian governments recognise that making progress against environmental policy goals is often a long-term endeavour (Curtis et al. 2008). They also generally acknowledge the crucial importance of making success feasible by strengthening and sustaining the community and other social capacities needed to make affordable the transaction (including political) costs that often threaten to stifle momentum in this domain. Nevertheless, under-investment in the social capacities needed for longer-term NRM success can be expected until the implications of investment decisions in this

domain for ongoing community and other capacities are accounted for systematically when evaluating these decisions.

3.2 Accounting for capacity spillovers when evaluating natural-asset-based projects

3.2.1 The general approach adopted

The main weakness of INFFER as a method for economic evaluation of natural-asset-based investments consistent with the collaborative vision for environmental management lies in its inability to account for the effects of such investments on the socio-economic capacities available to successfully implement other collaborative asset-based investments into the future. These socio-economic effects are referred to in this report as ‘capacity spillovers’. A capacity spillover occurs when implementing a current project affects the socio-economic capacities available for, and thus the feasibility of, implementing other investments. Various types of socio-economic capacity may be affected, including financial capacities, personal or human capacities (e.g., awareness, knowledge and skills), and social capacities (e.g., community ownership, inter-organisational trust). To the extent that capacity spillovers differ between projects, or in alternative project design options for a particular natural asset, a method of economic evaluation unable to account for such differences will provide an inaccurate basis for prioritising options according to their cost-effectiveness.

The process of developing a method to account for capacity spillovers in a modified BCI progressed through progressively simpler variants of a similar approach. This progression was informed by awareness that many users of INFFER’s Project Assessment Form (PAF) had found it overly long and cumbersome (Marsh et al. 2010; Pannell et al. 2009a), so that any supplement added to this form would not be greeted favourably by users unless it were simplified as far as possible without sacrificing essential rigour. The variants considered are discussed in section 5.1 of Marshall (2010b).

Capacity spillovers from a ‘current project’ (the project currently being evaluated) to other investments affect the feasibility of those other investments achieving their respective goals. ‘Positive’ capacity spillovers from a project for another investment mean that a more ambitious goal can be set for that investment without rendering it infeasible. On the other hand, ‘negative’ capacity spillovers from a project for another investment mean that the goal for that investment needs to be made less ambitious for it to remain feasible.

The most direct approach to accounting for these effects would involve assessment of how the benefits of the affected other investments would change as a result of influencing their feasibility. However, this approach would require the assessor to complete a PAF not only for the current project but also for each of the affected investments. The method ultimately recommended to the participating CMAs for the purpose of a trial was judged to be simplified as far as it could be while maintaining essential rigour.

Rather than focusing on how capacity spillovers from a current project affect the benefits from other investments (with investment costs held constant), it focuses on how they affect the costs of these investments (with the benefits of those investments held constant). Due to this refocusing, it is no longer necessary to complete a PAF for each of the affected investments. It is necessary only to estimate the total costs of each of these investments. The effect of capacity spillovers from the current project on the level of benefits that could feasibly be achieved with affected investment j ’s original budget would be estimated by the multiplier R_j . The approach was based on the following logic:

- the more that capacity spillovers from a project strengthen the feasibility of another investment, the less will costs need to be incurred in achieving a given level of investments benefits; and
- the more that capacity spillovers from a project weaken the feasibility of another investment, the greater will be the need for costs to be incurred in achieving a given level of investment benefits.

More specifically, the effect of capacity spillovers on the costs incurred in a particular affected investment was assumed inversely proportional to the effect of those spillovers on the level of benefits that could feasibly be achieved from that investment. For illustrative purposes, suppose that:

- the total cost of feasibly achieving the goal of affected investment j in the absence of capacity spillovers is $Q_j = \$1.0$ million; and
- capacity spillovers from the current project would change the feasibility of that investment by the multiplier $R_j = 0.98$.

Given these parameters and the preceding assumption, it follows that the cost of feasibly achieving the goal of that affected investment is increased to $Q_j/R_j = \$1.0 \text{ million} \div 0.98 = \1.020 million as a result of the capacity spillovers. The effect of these spillovers on the total cost of that investment is thus calculated as $\Delta Q_j = Q_j/R_j - Q_j = \$1.020 - \$1.0 = \0.02 (million). The sum of the ΔQ_j values for the various affected investments ($\Sigma \Delta Q_j$) would be calculated to obtain the total effect of capacity spillovers from the current project on the costs incurred in other investments achieving their goals. This value for $\Sigma \Delta Q_j$ (converted to a present value) would be included in the denominator of the BCI for the current project as an additive term. The costs of this project would thus be increased to the extent that $\Sigma \Delta Q_j$ is positive, and decreased to the extent that $\Sigma \Delta Q_j$ is negative⁶. This approach involves significant simplification by way of assuming constant returns to scale in the relationship between the costs of an investment and the level of benefits it is feasible to achieve in that investment.

3.2.2 Details of the approach

The outlines of this ‘cost-reduction’ approach was submitted to the INFFER team for feedback regarding its (i) consistency with the INFFER method, and (ii) likelihood of being applied proficiently by regional NRM bodies (given the INFFER teams’ prior experiences in working with such bodies). David Pannell, a co-leader of that team, responded favourably in respect of (i). However, in respect of (ii), he observed that regional NRM bodies were already baulking at the demands of completing the existing PAF, and that the additional demands of accounting for capacity spillovers in the way proposed might well not be acceptable to them.

Accordingly, the cost-reduction approach was further simplified as far as was possible without forfeiting its essential rigour. A supplementary form to the PAF (hereafter ‘PAF supplement’) was developed (with an accompanying instruction manual) to capture from project assessors the information required to apply this approach. The PAF supplement form and its accompanying user manual are available from

⁶ It is possible for the costs of the current project to be calculated as negative when ‘positive’ capacity spillovers from the project are sufficiently strong that the total cost savings accruing to affected investments exceed the costs of the project itself (as measured by the denominator of equation (1)). In such a case, presuming the benefits of the project (as measured by the numerator of equation (1)) are positive, the BCI for the current project will be calculated as negative. Rather than signifying that the project lacks economic merit, the negative BCI value in such a case means that benefits are being achieved for ‘less than nothing’ and consequently that the project should be ranked higher than projects with positive BCIs.

The approach trialled with the participating CMAs involved the following steps:

1. Predict Q , the average annual budget⁷ the investing organisation (the relevant CMA in the case of the trials) will have available over the subsequent ten years⁸ for asset-focused investments $j = 1, \dots, n$ other than the current project.
2. Predict how Q will be apportioned, on average over the subsequent ten years⁹, between areas of asset-focused investment other than the current project.

‘Area of investment’ does not refer here to a geographic area, but rather to a general focus of investment; for instance, to all asset-focused investments aligned with a particular management target in a CAP. This step, together with step 1, enables calculation of the average annual budget over the subsequent ten years that the relevant CMA is expected to invest in each defined area of investment (i.e., the Q_j values). The proportion of Q accounted for by the average annual budget of area of investment j is given by $P_j = Q_j \div Q$.

3. Identify the various capacity spillovers from the current project for each of the other areas of investment identified in step 2.

Two classes of capacity spillovers are distinguished for the purposes of this step¹⁰:

- (a) Capacity spillovers affecting the adoptability by private citizens (including landholders) of on-ground works and actions targeted in the other areas of asset-focused investment. In assessing the feasibility of a current project, the PAF distinguishes between two types of adoptability by private citizens: (i) adoptability of beneficial practices (i.e., that contribute to achieving the project’s goal); and (ii) adoptability of adverse practices (i.e., that work against achieving the project’s goal). Class (a) capacity spillovers relate to

⁷ An estimate of the average annual budget over the subsequent ten years was requested, rather than for estimates of budgets for each year over that period, for reasons of simplification. Although this simplification clearly involves losses of accuracy compared with the more demanding alternative (which would enable calculation of the average present-value budget over that period), this disadvantage was judged to be outweighed by the advantage of reducing the risk of CMAs and other users losing their commitment to proceed.

⁸ The choice here of a ten-year horizon represents a compromise between a more realistic longer-term horizon (given that the effects of capacity spillovers may be long-lasting) and the practical difficulties of predicting funding levels for CMAs beyond three or so years ahead.

⁹ The choice of a ten-year horizon represents a compromise between a more realistic longer-term horizon (given that the effects of capacity spillovers will often be long-lasting) and the practical difficulties of predicting not only CMA funding, but also apportionment of that funding, beyond the short-term. Uncertainties regarding apportionment arise partly from the discretion available to CMA Boards in allocating funds between areas of investment but also (recognising that this discretion has been reduced under the Caring for our Country program) from the likelihood of government and other investors changing their investment priorities periodically (and perhaps also entire investment programs).

¹⁰ The two classes cover three of the four aspects of investment socio-economic feasibility accounted for in the PAF when evaluating a current project (aspects relating to BCI parameters A , B and P), except that they relate here to the feasibility not of the current project but of other areas of asset-focused investment. The aspect not covered relates to BCI parameter G , which measures the probability that funding needed to maintain outcomes of the current project will be forthcoming. (In the context of accounting for capacity spillover effects, the focus would instead be on effects in terms of the probability that funding needed to maintain outcomes of the other areas of asset-focused investment will be forthcoming.) This aspect was accounted for in an early version of the PAF supplement, but trials of this version with participating CMAs highlighted that the task of predicting consequences for the likelihood of obtaining future funding for other areas of asset-focused investment was not one that project assessors felt able to complete with any confidence.

both these classes of adoptability, although the focus here is on consequences for adoption in other areas of investment (rather than for adoption in the current project)¹¹.

- (b) Capacity spillovers affecting the socio-political risks faced in pursuing the goals of other areas of asset-focused investment. The PAF defines socio-political risk as arising from (i) non-cooperation by other organisations responsible for natural resource management; and (ii) social, administrative or political constraints. Here we are concerned with socio-political risks faced not by the current project but by other areas of investment.

For each of these two classes of capacity spillover in turn, project assessors could identify from zero to multiple capacity spillovers from the current project for each area of investment. They were encouraged to consider possibilities of both positive and negative capacity spillovers for another area of investment (where ‘positive’ refers to spillovers contributing to the goal of another area of investment, and ‘negative’ refers to spillovers working against the goal of another area of investment). They were encouraged also to consider capacity spillovers in terms of one or more of physical, financial, personal/human and social capacities.

Figure 1 presents an excerpt from the PAF supplement of the table into which project assessors are asked to insert details of the capacity spillovers from the current project relating to each other area of asset-focused investment. The excerpt is from the table concerned with effects on the private adoptability of on-ground practices targeted in the other areas of investment. The table concerned with effects on socio-political risks faced by the other areas of investment is similar. The project assessor is asked to list each of the other areas of investment in the leftmost column of the table¹², and to list the relevant capacity spillovers for each area of investment in the corresponding rows of the middle column.

- 4. Assign a multiplier to each capacity spillover indicating the direction and strength of its effect on the relevant aspect of socio-economic feasibility of the relevant other area of investment.

Although considerable evidence exists of the importance of capacities of various kinds for gaining cooperation from individuals (e.g., landholders in terms of adopting conservation practices promoted to them) and others (e.g., organisations in terms of monitoring and enforcing the rules of NRM programs) in pursuing NRM objectives, this evidence is generally not specific nor context-relevant enough to provide a basis for estimating in the form of a multiplier the strengths of a each different capacity spillover effect. The multiplier value options presented in Figure 2 (for capacity spillovers relating to private adoptability) and Figure 3 (for capacity spillovers relating to socio-political risk) were judged to provide a reasonable range for project assessors to choose from¹³. Given the uncertainty that will commonly exist regarding the values of these multipliers, sensitivity testing of these values in

¹¹ There were two reasons for grouping together in this step these two types of private adoptability in assessing capacity spillover effects. The first was that this allowed the length of the PAF supplement to be reduced. The second was that capacity spillovers in terms of ‘type (ii)’ adoptability are relatively uncommon, and they also tend to be difficult for CMA staff to understand. (The INFFER team has reported that the process in the PAF of identifying instance of adverse private adoption is often misunderstood by project assessors).

¹² The full table allows up to eight different other areas of investment to be listed.

¹³ The instruction manual for the PAF supplement explains that project assessors can set multiplier values outside this range. Justification for choices of multiplier values is required in all cases.

respect of the value of the (Modified) BCI value for each competing current project and for their ranking according to this criterion is recommended.

Figure 1: Excerpt from the PAF supplement where capacity spillovers relating to private adoptability of on-ground practices are recorded

Area of investment	Effects of current project on the adoptability of on-ground practices targeted by other areas of investment	Multiplier
		[ma11]
		[ma12]
		[ma13]
		[ma21]
		[ma22]
		[ma23]

Figure 2: Multiplier value options for capacity spillovers relating to private adoptability of on-ground practices targeted in other areas of investment

Small increase (decrease) in adoption of beneficial (adverse) practices	1.01	Small decrease (increase) in adoption of beneficial (adverse) practices	0.99
Moderate increase (decrease) in adoption of beneficial (adverse) practices	1.03	Moderate decrease (increase) in adoption of beneficial (adverse) practices	0.97
Larger increase (decrease) in adoption of beneficial (adverse) practices	1.05	Larger decrease (increase) in adoption of beneficial (adverse) practices	0.95

Figure 3: Multiplier value options for capacity spillovers relating to socio-political risks faced by other areas of investment

Small increase in risk	0.99	Small decrease in risk	1.01
Moderate increase in risk	0.97	Moderate decrease in risk	1.03
Larger increase in risk	0.95	Larger decrease in risk	1.05

The instruction manual for the PAF supplement developed to account for capacity spillovers explains that the multiplier value chosen for a particular area of investment should reflect the strength of the capacity spillover effect across all projects comprising that area of investment. If the effect is rated as strong for one project within an area of investment but insignificant for all other projects comprising that

area of investment, then the strength of the effect across the area of investment as a whole should be weighed up accordingly.

5. Calculate a multiplier measuring the aggregate effect of capacity spillovers from the current project on the feasibility of the combination of other areas of asset-focused investment.

This multiplier, represented by the parameter R , is calculated in the spreadsheet developed for deriving a (Modified) BCI value for any current project. This involves:

- (i) Calculating for aspect of socio-economic feasibility i (where $i = 1$ refers to the private-adoptability aspect, and $i = 2$ refers to the socio-political-risk aspect) the total multiplier for each area of investment j . If three capacity spillovers are identified in respect of feasibility aspect i for area of investment j and the corresponding multipliers are estimated to be 1.03, 1.01 and 1.01, for instance, the total multiplier for area of investment j is given by

$$R_{ij} = 1.03 \times 1.01 \times 1.01 = 1.051.$$

- (ii) Calculating a multiplier measuring the aggregate effect of capacity spillovers from the current project on feasibility aspect i in respect of the combination of other areas of investment. This involves calculating the weighted average of the R_{ij} values for feasibility aspect i , which involves in turn multiplying each R_{ij} value in respect of this aspect by its corresponding P_j value (as defined in step 2) and summing the resulting products. Suppose five other areas of asset-focused investment have been identified, their R_{ij} values for feasibility aspect i are 1.051, 0.985, 1.0, 1.0 and 1.0¹⁴, and their respective P_j values are 0.3, 0.1, 0.3, 0.2 and 0.1. The aggregate multiplier for feasibility aspect i is then calculated as

$$R_i = (1.051 \times 0.3) + (0.985 \times 0.1) + (1.0 \times 0.3) + (1.0 \times 0.2) + (1.0 \times 0.1) = 1.014.$$

- (iii) Calculating R as the product of the R_i values derived for $i = 1$ and $i = 2$. If these values are 1.014 and 0.988, for instance, $R = 1.014 \times 0.988 = 1.002$.

6. Calculate a (Modified) BCI value for the current project.

The modified BCI (MBCI) is calculated in the spreadsheet developed for this purpose. It is calculated using equation (2) which is embedded in the spreadsheet¹⁵.

$$MBCI = \frac{V \times W \times F \times A \times B \times P \times G \times DF_B(L) \times 20}{C + PV(M) + PV(Q)/R - PV(Q)} \quad (2)$$

where V , W , F , A , B , P , G , DF_B , L , C , PV and M are defined as for equation (1), Q is calculated as described in step 1, R is calculated as described in step 5, and PV is a present value function¹⁶.

¹⁴ An R_{ij} value of unity for feasibility aspect i and area of investment j signifies that this area of investment is not an affected area of investment in respect of this feasibility aspect.

¹⁵ The BCI used in the standard INFFER process is also calculated in this spreadsheet, enabling assessment of the degree to which the BCIs and MBCIs differ for various current projects, and of the sensitivity of project rankings to these differences.

7. Identify qualitatively any capacity spillovers effects on asset-focused investments by other organisations.

Steps 1-6 are concerned with capacity spillover effects of the current project on other areas of investment expected to be implemented by the project assessor's own organisation. Their scope is bounded in this way since in most cases it is likely to be difficult enough for project assessors to provide the kinds of quantitative responses required by the PAF supplement for investments by their own organisations, let alone for investments by other organisations they will normally have much less knowledge of. Step 7 provides an opportunity to identify in words any capacity spillover effects from the current project that are anticipated to be visited upon investments by other organisations. This qualitative information can be included in the Project Assessment Report for that project alongside its MBCI, and thus can be accounted for in the subsequent process of prioritising that project in relation to alternatives.

8. Rank the various current projects under consideration on the basis of their MBCIs, sensitivity testing of their MBCIs, and other information recorded in their respective Project Assessment Reports.

3.3 Closing remarks

In this chapter of the report the method developed in the present project to account for capacity spillovers from asset-focused NRM investment option when evaluating them was documented and justified. This method is referred to in the remainder of this report as the 'supplemented PAF method'. The process of trialling this method with the three regional NRM organisations participating in the project is described in chapter 4.

¹⁶ Consistent with the BCI used in the standard INFFER process, the present value function in this formula assumes an annual discount rate of 5 per cent

4. TRIALLING THE SUPPLEMENTED PAF METHOD

The process of trialling the supplemented INFFER method, as detailed in chapter 3 of this report, is discussed in this chapter. The supplemented PAF method involves completing a Project Assessment Form (PAF) for a particular natural asset and then proceeding to also complete for that asset the PAF supplement form that was formulated in the present project. The steps taken in preparation for trialling the supplemented PAF method with the three participating regional NRM organisations, including training staff from these organisations in the INFFER process and completing a Project Assessment Form (PAF), are discussed in section 4.1. The process of trialling the PAF with these three organisations is documented in section 4.2. Details of the process of trialling the PAF supplement are provided in section 4.3.

4.1 Preparatory steps

The process of trialling the supplemented PAF method began by informing the INFFER team of our intention to trial an approach that used the method they had developed as a foundation to work from. The INFFER team subsequently offered to provide (a) a two-day training workshop in Armidale with a purpose of familiarising the participating CMAs with the INFFER method, and (b) help-desk support to the CMAs during the process of completing PAFs for the assets they chose to target. The INFFER team observed it would be feasible only to focus on step 3 of their approach (completing PAFs for the assets selected) for 2-3 assets per CMA given the time available for completing the trials.

Meetings with each of the three CMAs were then held at which we proposed the idea of trialling with them a method of investment evaluation that built on the INFFER approach. An outline of that approach was provided, as was the offer from the INFFER team to provide training and help-desk support and also the proposal from us to extend their approach to account for capacity spillovers. Each of the CMAs agreed in-principle to attend the training session and to decide after the training whether they would proceed to trials as proposed.

The two-day training workshop was held over 10-11 August 2009. It was attended by three staff (including at least one senior officer) from each of the participating CMAs. The logic underlying the INFFER approach, and the process of applying this approach, was explained to participants step by step. Participants from each CMA chose a particular natural resource asset from their region to focus on in a 'quick and dirty' experience of completing a PAF. Participants were each provided with a complete set of the training materials developed to assist users in applying the INFFER process.

Each of the CMAs were asked soon after the training workshop whether they were willing to proceed to trial the INFFER approach on 2-3 assets chosen by themselves, and also to trial the proposed extension of this approach designed to account for capacity spillovers. It was explained that our aim was to complete these trials by early November 2009 (i.e., within three months). The first phase of the trial process would involve completing a PAF for each selected asset, and the second phase would involve completing a PAF supplement that was in the process of being developed to account for capacity spillovers from the project defined for each asset.

The CMAs each responded positively to this question, although some reservations were expressed. A common concern involved the demands of the approach on CMA staff time. Another common concern was the challenge to the prevailing CMA culture that a wholesale move to using the INFFER process for investment prioritisation would entail. Another related to the subjectivity involved in setting values for some of the parameters.

4.2 Trialling INFFER's PAF

Meetings were held with each of the Regional Working Groups (comprising representatives from the participating CMAs) soon after the training workshop to decide on the assets that the trials would target, decide on who in the relevant CMA would be responsible for completing the PAF for each selected asset (usually drawing on expertise of colleagues), and to commence the process of completing PAFs for these assets.

The meeting for the Northern Rivers region was held in Coffs Harbour over 26-27 August 2009, attended by the three CMA staff from this region who had attended the INFFER training. One of these staff was at Program Manager level (2nd highest tier) and the other two were at Catchment Coordinator level (3rd highest tier). The two Catchment Coordinators had previously emailed their respective theme teams (terrestrial and aquatic) for suggestions regarding specific environmental assets in their region for which trials could be undertaken using the PAF. Of the list of 10 or so assets thus identified, the three staff at the meeting decided to focus on assets matching the priorities of the Caring for our Country (CFoC) Business Plan, so that their time devoted to the trials would better position them to submit quality funding bids to that program. However, they decided also to continue with an asset for which they had commenced completing a PAF during the INFFER training. With the assets identified as fitting CfoC priorities, these were subjected to a rapid run-through of the INFFER Step 2 process ('Filtering significant assets prior to detailed assessment'). Two assets emerged from this process (on the basis that they were highly significant, subject to a high level of threat and 'passed' the five questions in the pre-assessment checklist). The resulting three assets were:

- (i) water quality in a designated catchment (this was the asset for which a PAF had been commenced at the INFFER training);
- (ii) biodiversity of a particular landscape; and
- (iii) a particular complex of wetlands in a floodplain¹⁷.

Each of the three individuals present agreed to take the lead in completing a PAF for one of the assets, drawing in the expertise of others as needed. The reasoning in this region for allocating high-level staff to completing the PAF was that CMAs too often trained their staff in new frameworks and tools that subsequently didn't get used much. They felt it was better that a few senior staff of their CMA learn for themselves about the value of the method being trialled rather than risk wasting the time of other staff.

The meeting for the Namoi region was held on 11 September 2009 in Armidale, attended by two of the three CMA staff from this region who had attended the INFFER training. These two staff were at the Senior Project Officer and Project Officer levels respectively (i.e., lower than the Catchment Coordinator level). The third (non-attending) staff member was at the Program Manager level. The two attending staff had decided prior to the meeting on two assets they focus their trials on. They decided to select one asset that their CMA had already developed a project for, since this would provide a benchmark against which the method to be trialled could be compared, and another asset that may be a target for future investment. The first asset was a population of an endangered riparian fauna species, and the second asset was a nature corridor. Each of the two individuals present agreed to take the lead in completing a PAF for one of the assets, drawing on the expertise of others as needed.

¹⁷ Assets are defined in this report only in general terms since some of the participating CMAs may have been reluctant otherwise to permit the evaluation results to be reported. The assets evaluated were of course defined much more precisely than this for the purposes of undertaking the trials.

The meeting for the Border Rivers – Gwydir region was held on 23 September 2009 in Inverell, attended by two of the three staff who had attended the INFFER training plus three additional staff who would be involved in the trials. The non-attending staff member was at the Program Manager level. The two staff who attended the INFFER training were at the Catchment Officer level (equivalent to the Project Officer level). One of these was the CMA’s Planning Officer. The three additional staff were at the level of Project Officer or Senior Project Officer. The CMA had designated the Planning Officer as the coordinator of the trials, who had in turn chosen three of the Project Officers/Senior Project Officers present at the meeting to be responsible for leading completion of a PAF for one asset each. These three staff members had each chosen an asset to focus a trial on. The three assets were:

- (i) a vegetation community focused on one part of their region;
- (ii) a vegetation community extending across their region; and
- (iii) particular Ramsar-listed wetlands.

A phone hook-up with members of the INFFER team occurred towards the end of each of these meetings to discuss issues that had arisen, obtain advice on how the assets chosen might be defined more tightly to better facilitate the PAF process, and obtain guidance on what would be an appropriate SMART goal for each asset. In each case the INFFER team recommended that drafts of section 1 of the PAF (detailing the asset and its significance), and also of the SMART goal, be written and submitted to them for further feedback. This recommendation was taken up in each case.

Subsequently, these CMA staff submitted a number of further drafts of their work on the PAF for further feedback (from the INFFER team and myself). The process of completing PAFs for these assets generally took substantially longer than the scheduled three months. In most cases, help-desk feedback from the INFFER team and myself on early PAF drafts identified a need for the drafts to be substantially revised in terms of defining the asset and a related ‘SMART’ goal and strengthening internal consistency between information provided throughout the form. Pressures of CMA staff members’ other commitments meant that responses to this help-desk feedback were often delayed considerably. A second meeting with the Northern Rivers CMA team was held in Coffs Harbour on 22 October 2009 to progress completion of those three PAFs. A teleconference involving the Border Rivers – Gwydir CMA team, the INFFER team and myself was held on 28 October 2009 to address issues that had arisen in completing those three PAFs. All but one of the eight PAFs that were commenced across the three CMAs have now been completed satisfactorily.

4.3 Trialling the PAF supplement

The process of completing the PAFs was sufficiently advanced for two of the CMAs that they were in a position to commence the subsequent process of completing PAF supplements before 2009 had ended. A half-day meeting with the Border Rivers – Gwydir CMA was held in Inverell on 14 December. All but one of the CMA staff attending the 23 September 2009 meeting were present at this meeting. The person not present, who had led the completion of the PAF for one of that CMA’s assets, was on extended leave. The Planning Officer, who was coordinating that CMA’s involvement in the trials, agreed to complete the PAF supplement for that asset. At my suggestion, an additional staff member with a broad overview of the CMA’s activities had been invited to the meeting to assist with identifying capacity spillovers from the projects developed for the three assets. This suggestion was made because the Project Officers leading completion of the PAFs may not necessarily have had a broad enough overview of their CMA’s activities to identify how capacity spillovers might flow from the project they had developed to the CMA’s other areas of investment.

A similar meeting with the Namoi CMA was held in Armidale on 16 December. The meeting was attended by both the staff members who had led completion of the PAFs for that CMA (and who had attended the meeting on 11 September), and also by the Program Manager who had attended the INFFER training. At my suggestion the CMA's Strategic Planning Officer also attended this meeting, again to ensure a broad enough overview of the CMA's activities was available to help identify capacity spillovers from the projects developed for the three assets.

A further similar meeting with the Northern Rivers CMA was held in Coffs Harbour on 14 January 2010. The meeting was attended by all three staff members who had led completion of the PAFs for that CMA (and who had attended the meeting on 26-27 August 2009). The member of this team at Program Manager level was confident he could bring to the table a broad enough view of that CMA's activities to help identify any capacity spillovers that might flow from the projects that had been developed in the PAF trial to the CMA's other areas of investment.

At each of these meetings the logic of the method developed to account for capacity spillovers was explained, and participants were taken through the PAF supplement form that had been developed to capture the data needed to apply this method. Feedback from this process contributed significantly to refining the form to make it more user friendly and remove possible sources of confusion. In each case, a start was made in completing the forms for each asset. Participants were provided also with an instruction manual that had been developed to assist them complete the PAF supplement.

Each CMA had been asked before its respective meeting to compile whatever data it would need to complete section S.1 of the form concerned with steps 1 and 2 of the method outlined in section 3.2.2 (i.e., predicting (a) the CMA's average annual budget for asset-focussed investments (other than the current project) over the next 10 years, and (b) how that budget would be apportioned on average over those 10 years. Each CMA commented on the difficulty of making such predictions with any confidence given the uncertainties they faced regarding future government funding programs and the priorities of these programs, and indeed about the longevity of the CMAs themselves. A common view among the three CMAs, however, was that their current funding levels, and apportionments between investment areas, provided their best basis for predictions. Hence, they started from their current funding levels and apportionments in making these predictions, in some cases modifying these current figures somewhat to reflect expectations of some changes in future funding levels and priorities. Some disquiet about the use of these predictions in the method was expressed. In response it was argued that the method would facilitate sensitivity testing for alternative predictions since the calculator for the Modified Benefit: Cost Index, into which the predictions would be transferred from the PAF supplement, would be in the form of a spreadsheet.

It was interesting to observe at the meetings the efforts by CMA participants to identify the capacity spillovers from their respective projects to their organisation's other areas of investment. Although all participants acknowledged the prevalence and importance of capacity spillovers, some found it more difficult than others to articulate any particular spillovers from their own project. The opportunity provided by the meeting format to 'bounce ideas around' on what capacity spillovers might be expected from one project for each other area of investment, and on what the strength of those spillovers might be, was valuable for those who found the process challenging.

The participants undertook to read the instruction manual subsequent to their respective meetings and then complete their respective PAF supplements more rigorously than had been possible during the meeting. I undertook to provide help-desk support to the officers in completing these forms, including by providing feedback on their drafts. At least one round of feedback was provided on the

PAF supplement forms for all eight assets evaluated across the three CMAs. All eight of these forms were completed satisfactorily.

5. SUMMARY OF RESULTS FROM TRIALLING THE SUPPLEMENTED PAF METHOD

The results of trialling the method on the assets chosen by the three regional NRM organisations participating in the project – Border Rivers–Gwydir CMA, Namoi CMA and Northern Rivers CMA – are summarised in Table 4. The three CMAs, and the eight assets on which they trialled the PAF and PAF supplement forms, are listed in the left-hand column. The ‘project benefit score’ entries in the second column of the table were calculated in accordance with the numerator of the BCI formula (equivalent to the numerator of the MBCI formula). The ‘project cost’ entries in the third column were calculated in accordance with the denominator of the BCI formula. The BCI entries in the fourth column were calculated using the BCI formula. It can be seen that the BCI for a given project is equal to the corresponding benefit score divided by the corresponding project cost.

The fifth column presents the $PV(Q)$ value for each project; i.e., the present value of the estimated annual budget the CMA will have available over the ensuing ten years for asset-focussed investments other than the project under current consideration. These values range from \$16.6 million to \$26.8 million.

The value of the R parameter for each project – a multiplier measuring the combined effect of capacity spillovers from the current project on the feasibility of the CMA’s other areas of asset-focussed investment – is presented in the sixth column. Note that the values of R for six of the eight projects exceed 1. This signifies that the effect of the capacity spillovers identified from each of these projects is to increase the overall feasibility of the same CMA’s other areas of investment. The largest value of R calculated is 1.043 for the project evaluated by the Northern Rivers CMA that targeted the asset ‘a complex of wetlands in a floodplain’. This value means that implementing this project is expected to increase the overall feasibility of that CMA’s other areas of asset-focussed investment by 4.3 per cent.

For one of the eight projects (targeting the asset ‘biodiversity of a particular landscape’) the estimated value of R is 1.000. In this case no capacity spillovers were expected to flow from the project, so that the overall feasibility of other areas of asset-focussed investment would be unaffected by implementing the project. For another of the projects (targeting the asset ‘a vegetation community focused on one part of this CMA’s region’), R is estimated at 0.974. This value means that implementing this project is expected to reduce the overall feasibility of the relevant CMA’s other area of asset-focused investment to 97.4 per cent of what it would otherwise have been.

The seventh column presents for each project the additional cost expected to be incurred in the CMA’s other area of asset-focussed investment as a result of capacity spillovers arising from the project. This additional cost is given by $PV(Q)/R - PV(Q)$ in the denominator of equation (2). For instance, the relevant parameter values for the project targeting the asset ‘a complex of wetlands in a floodplain’ are $PV(Q) = \$26.8$ million and $R = 1.043$. In this case, therefore, $PV(Q)/R - PV(Q) = 26.8/1.043 - 26.8 = 25.7 - 26.8 = -1.1$ (or -1.11 if the Q value had not be rounded to one decimal place). Hence; the project’s capacity spillovers in this case are estimated to generate a cost saving of \$1.11 million for the relevant CMA’s other areas of asset-focussed investment.

The eighth column (‘project cost after capacity spillovers accounted for’) presents for each project the net cost of the project after the effects of its capacity spillovers on the costs of other areas of investment are accounted for. The values in this column are obtained as the sum of the ‘project cost’ (column 3) and ‘added cost from capacity spillovers’ (column 7). For the project targeting the asset ‘a complex of wetlands in a floodplain’, for instance, the value in the eighth column is given by adding its ‘project cost’ of \$0.79 million to its ‘added cost from capacity spillovers’ of -\$1.11

Table 4: BCI and MBCI results for the projects on which trials were run

CMA and assets for which projects were developed	Project benefit score	Project cost \$m	Benefit: Cost Index	PV(Q) ^α \$m	R ^β	Added cost from capacity spillovers \$m	Project cost after capacity spillovers accounted for \$m	Modified Benefit: Cost Index
<i>Border Rivers – Gwydir CMA</i>								
A vegetation community focused on one part of this CMA's region	3.2	2.49	1.3	25.7	0.974	0.69	3.18	1.0
A vegetation community extending across this CMA's region	13.2	1.51	8.8	26.1	1.006	-0.14	1.37	9.7
Ramsar-listed wetlands.	7.7	0.64	12.0	26.6	1.029	-0.75	-0.10	-74.5
<i>Namoi CMA</i>								
Population of an endangered riparian fauna species	4.6	1.57	2.9	16.6	1.028	-0.46	1.11	4.1
A nature corridor	0.7	0.58	1.1	16.9	1.034	-0.56	0.02	27.5
<i>Northern Rivers CMA</i>								
Water quality in a designated catchment	49.9	2.54	19.7	25.5	1.036	-0.88	1.66	30.0
A complex of wetlands in a floodplain	18.8	0.79	23.9	26.8	1.043	-1.11	-0.33	-57.6
Biodiversity of a particular landscape	Not available ^γ	Not available ^γ	Not available ^γ	23.1	1.000	0.00	Not available ^γ	Not available ^γ

^α PV(Q) is the present value (PV) of the estimated annual budget the CMA will have available over the subsequent 10 years for asset-focussed investments other than the current project (Q).

^β R is a multiplier measuring the aggregate effect of capacity spillovers from the current project on the feasibility of the CMA's other areas of asset-focussed investment.

^γ The PAF for this asset was not completed to the stage where parameter values needed to calculate these measures could be obtained.

million, resulting in a ‘project cost after capacity spillovers accounted for’ of $0.79 - 1.11 = -\$0.33$ million.

The preceding case is one of two (the other being the project for the asset ‘Ramsar listed wetlands’) where the value of ‘added cost from capacity spillovers’ is negative and greater than ‘project cost’; i.e., where the cost-savings for other areas of asset-focussed investment due to the project’s capacity spillovers exceed the cost of the project itself. The net impact of implementing the projects in these cases is not to add to the costs of the relevant CMAs but rather to reduce their total costs in achieving the outcomes they seek across their asset-focussed investments.

The Modified Benefit: Cost Index (MBCI) for each project, calculated in accordance with equation (2), is presented in the rightmost column of the table. It can be seen that the Modified Benefit: Cost Index for a given project is equal to the corresponding ‘benefit score’ (column 2) divided by the corresponding ‘project cost after capacity spillovers accounted for’ (column 8). Note that the MBCI values for the two projects with a negative ‘project cost after capacity spillovers accounted for’ are also negative. This means these projects are highly attractive since positive benefits from the projects are being achieved for a net investment of ‘less than nothing’. Such projects should be ranked higher than all projects with positive MBCIs.

Project rankings by the BCI and the MBCI can be compared in Table 5. Although the BCI and MBCI values differ for each of the projects evaluated by the Border Rivers – Gwydir and Northern Rivers CMAs, it can be seen that accounting for capacity spillovers in the MBCI does not change the project rankings for these CMAs.

Table 5: Comparison of project rankings by the BCI and the MBCI

CMA and assets for which projects were developed	Benefit: Cost Index	Rank by Benefit: Cost Index	Modified Benefit: Cost Index	Rank by Modified Benefit: Cost Index
<i>Border Rivers – Gwydir CMA</i>				
A vegetation community focused on one part of this CMA’s region	1.3	3 rd	1.0	3 rd
A vegetation community extending across this CMA’s region	8.8	2 nd	9.7	2 nd
Ramsar-listed wetlands.	12.0	1 st	-74.5	1 st
<i>Namoi CMA</i>				
Population of an endangered riparian fauna species	2.9	1 st	4.1	2 nd
A nature corridor	1.1	2 nd	27.5	1 st
<i>Northern Rivers CMA</i>				
Water quality in a designated catchment	19.7	2 nd	30.0	2 nd
A complex of wetlands in a floodplain	23.9	1 st	-57.6	1 st
Biodiversity of a particular landscape	Not available	Not available	Not available	Not available

In contrast, accounting for capacity spillovers by using the MBCI instead of the BCI does reverse the rankings of the two projects evaluated by the Namoi CMA. We see from Table 4 that both of these projects are expected to generate beneficial capacity spillovers for that CMA's other area of asset-focussed investment (R values for both projects exceed 1), and thus to generate a negative 'added cost from capacity spillovers'. In the case of the project ranked 2nd by the BCI (targeting 'a nature corridor'), this negative added cost (-\$0.56 million) is very nearly as large in absolute terms as the cost of the project (\$0.58 million). The 'project cost after capacity spillovers accounted for' for this project is thus reduced to close to zero (to \$0.02 million), thus resulting in a MBCI value much higher than the BCI value. In the case of the project ranked 1st by the BCI (targeting 'population of an endangered riparian fauna species'), the negative added cost (-\$0.46 million) is less than one-third the size in absolute terms as the cost of the project (\$1.57 million). The 'project cost after capacity spillovers accounted for' for this project is therefore reduced, compared with the project cost, much less in proportionate terms than is the case for the other project. Hence, the MBCI for this project is increased proportionately much less than is the case for the other project. The outcome is that the MBCI for this project is less than that of the other project, despite its BCI having been higher.

6. REVIEWING THE TRIALS OF THE SUPPLEMENTED PAF METHOD

A workshop was held with each of the three regional NRM organisations – Border Rivers-Gwydir CMA, Namoi CMA and Northern Rivers CMA – to review the supplemented PAF method that had been trialled with them for economic evaluation of asset-focused investments. The Regional Working Group for each region was asked to invite not only the people who participated directly in the trials but also others (e.g., CMA board members, other CMA stakeholders, other CMA staff) who may be interested in learning from the experience gained in the trials and/or who may be in a position to provide feedback.

The workshop for the Northern Rivers region was held in Coffs Harbour on 18 March 2010, and was attended by the three CMA staff who had participated directly in the trials and also by the Chairperson of the CMA Board. The workshop for the Namoi region was held in Tamworth on 24 March 2010 and was attended by two of the three CMA staff who had participated directly in the trials and one member of the CMA board. The workshop for the Border Rivers – Gwydir region was held in Inverell on 13 April 2010 and was attended by three of the five CMA staff who had participated directly in the trials and also by five other CMA staff (including the Acting General Manager and an Acting Program Manager).

Each workshop ran from three to four hours. For the benefit of those who had not participated directly in the trials, each workshop commenced with a presentation on the INFFER method and of the supplementary method developed to account for the effects of capacity spillovers arising from a particular project. This presentation stimulated considerable discussion in each case which provided significant ‘informal’ feedback on the trials process. The subsequent ‘formal’ review part of each workshop was semi-structured in the sense that participants were asked to respond verbally to a series of pre-defined questions.

The set of questions asked regarding the trials of INFFER’s PAF process was as follows:

- P1: What are the strengths of the INFFER method compared with your CMA’s current practice?
- P2: What are its weaknesses compared with current practice?
- P3: Can you see the INFFER method, or elements of it, being applied by your CMA?
- P4: What are the obstacles to your CMA applying the INFFER method?
- P5: What could be done to alleviate these obstacles?
- P6: With practice, how self-sufficient could your CMA become in applying the INFFER method?

Each workshop included a teleconference (for around 45 minutes) with two members of the INFFER team. These were timed as far as possible to coincide with the discussion surrounding the foregoing six questions. After discussions had concluded the INFFER team was invited to comment on any of the points made. Participants also queried the INFFER team on any other issues that came to mind.

The set of questions asked regarding the trials of the supplementary method designed to account for capacity spillover effects from a project was as follows:

- C1: Is it important to account for capacity spillovers from projects when prioritising them?

- C2: Does your CMA currently account for them?
- C3: Is the PAF supplement useful in accounting for capacity spillovers from projects when evaluating them?
- C4: What difficulties did you encounter in completing the PAF supplement?
- C5: What might be done to alleviate these obstacles?
- C6: Can you see the PAF supplement method, or elements of it, being applied by your CMA?
- C7: If so, how self-sufficient could your CMA become in applying the PAF supplement?

Towards the conclusion of each workshop a short questionnaire was distributed to each participant. A copy of the questionnaire can be found in Appendix B of Marshall (2010a). The questionnaire includes three tables – A, B and C – of items requiring responses plus four further questions.

Table A lists 20 criteria identified as relevant to CMAs in choosing a method for evaluating asset-focused investments. For each criterion, respondents were asked to rate what they perceived to be its importance to their CMA in choosing such a method. This involved marking one box on a seven-point scale of importance from ‘very low’ to ‘very high’. Space was left at the bottom of the table for respondents to add further criteria which they considered important.

Table B lists the same set of criteria. Respondents are asked to rate the performance of INFFER’s PAF method against each of these criteria relative to their CMA’s current practice. This rating is on a seven-point scale of relative performance from ‘much worse’ (-3) to ‘much better’ (+3) including a scale midpoint of ‘about same’ (= 0).

Table C lists eight of the full set of criteria. This subset was chosen to rate the performance of the ‘supplemented PAF’ method for evaluating investments relative to their CMA’s current practice. (This supplemented PAF method entails completion of the PAF *plus* completion of the PAF supplement form that was developed to account for capacity spillover effects.) Again, this rating is on a seven-point scale of relative performance from ‘much worse’ (-3) to ‘much better’ (+3) including a scale midpoint of ‘about same’ (= 0).

Those directly involved in the trials were asked to respond to all items and questions in the questionnaire. Workshop participants who had not been involved in the trials were asked only to respond to the items in Table A (which require no experience with the PAF or PAF supplement).

Completed questionnaires were received from all workshop participants, except for one participant in the workshop for Border Rivers – Gwydir Region. In addition, each of the participating CMAs was requested to distribute the questionnaire to CMA Board members unable to attend the relevant workshop. These Board members were asked to respond only to the Table A items. The Board members of the Border Rivers – Gwydir CMA chose to complete a single questionnaire jointly. Aside from the one Namoi CMA Board member who attended the review workshop for that region, four other Board members returned questionnaires. Aside from the one Northern Rivers CMA Board member (i.e., the Chairperson) who attended the review workshop for that region, no other Board member returned a questionnaire.

7. REVIEW FINDINGS: BORDER RIVERS – GWYDIR REGION

Findings from the process of reviewing the trials of the supplemented PAF method with Border Rivers-Gwydir CMA are presented in this chapter. Workshop and questionnaire findings from reviewing the trials of the standard PAF method with this CMA are presented in section 7.1. Workshop and questionnaire findings from reviewing the trials of the PAF supplement are then presented in section 7.2.

7.1 Trials of the PAF

7.1.1 Workshop discussions

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

P1: What are the strengths of the INFFER method compared with your CMA's current practice?

Comment code	Who? (S=staff; B=Board)	Comment
BP1_1	S2	It makes you think more. It makes you think more about what you're actually trying to protect, what the asset is, like whether it's the vegetation community or the soils underneath it. And it looks more effectively at the sorts of information that you use to support your decision, whether you've got the appropriate information for that asset and how relevant your information is.
BP1_2	S1	I think it's quite a good process. It provides more transparency compared with what we've previously done. And it's a good upfront way of defining an asset and thinking about the feasibility of trying to protect it given your funding regulation and so on. It's a good justification tool for why you're funding a particular asset.
BP1_3	S3	It was very constructive to be able to send drafts of our PAF to the INFFER team for feedback as we proceeded. It was good having someone giving independent input into a project that I thought was a really good project, who could identify big holes in your project that you might not notice because you're passionate about it.
BP1_4	S3	It doesn't require you to start with a fixed budget. It allows you to be more hypothetical. So it's a bit outside the box compared with what we normally do.
BP1_5	S6	It's good that it captures the spin-offs from your project to other assets.
BP1_6	S9	We've spent 5 years trying to fill in the gaps in our knowledge, to be able to make more informed decisions, and that stuff is just starting to come through now. So this INFFER approach could be really timely for us.
BP1_7	S1	It's good because it makes you sit down and look at all the information gaps.

P2: What are its weaknesses compared with current practice?		
Comment code	Who? (S=staff; B=Board)	Comment
BP2_1	S2	<p>It's not exactly a weakness of it, but if we were to submit these to the NRC we'd have to convince them that we had used their Standard for Quality NRM. You'd have to incorporate that in your process somehow.</p> <p><i>INFFER team response: We've had this issue in a few states, in making the wording of our tool compatible with the local process. It's not a problem that can't be solved without goodwill. The actual content of the tool is very compatible with the Standard, it's just making it work within the system.</i></p>
BP2_1	S2	<p>Subjectivity is a bit of a weakness. But that may have been our fault in that we didn't go through Step 2, the filtering process, to confirm that the asset we'd selected would work for the PAF process. And if we'd had more input from other staff we may have got different answers.</p>
BP2_3	S1	<p>There were originally some concerns about the PAF not capturing a project's spinoffs in building capacities of value for other projects. But I guess that's been sort of addressed by the PAF supplement dealing with the capacity spillovers.</p>
BP2_4	S2	<p>We didn't apply the PAF to any cultural heritage assets, because we were told that might be difficult. But given CMAs are supposed to look at them, we're not sure how we would use the INFFER process for them.</p>
BP2_5	S2	<p>My issue with using INFFER for the CAP review is the time consuming nature of it. I can see its applicability for a CAP review, but it'd be pretty time consuming, so you would need assistance. So doing it would be more of a challenge.</p> <p><i>INFFER team response 1: INFFER does take additional time, so for it to be worth doing you would need institutional support, and you would need to feel that the better decision making, the better-designed projects that come out of this, are sufficient to outweigh that extra input of resources, and/or the institutions further up – NRC, DECCW – have to support the process sufficiently strongly to be worth putting that effort in. The selection criteria in the CfoC business plan are remarkably consistent with the criteria in INFFER, but where it breaks down is that I don't think DAFF apply those criteria very well when choosing what to fund. I think in the last round of funding that the groups that did use INFFER did not get much advantage out of that, because the DAFF process was so poor. But we're still working on them, trying to support them to improve their processes.</i></p> <p><i>INFFER team response 2: I've seen enormous resources consumed by the catchment planning processes in Victoria. So I'm not sure I agree that using INFFER for that process makes it more time consuming and resource intensive. What it does is make it more focussed and structured, which ultimately saves time and money.</i></p>

P3: Can you see the INFFER method, or elements of it, being applied by your CMA? How?		
Comment code	Who? (S=staff; B=Board)	Comment
BP3_1	S1	<p>Definitely it could be applied. It's harder to apply with Caring for our Country, since priorities are already designated, although it could have a role similar to writing a project plan for those ones. But where there's funding flexibility, it's useful there for deciding what to invest in.</p>
BP3_2	S2	<p>I think it's a better process than what we've been using for splitting up our funding between themes. The process we've used in the past is probably more subjective than INFFER. It would give more credibility about how you split the funds up at that initial stage. You mightn't do a full INFFER on a theme but you could look at some of the steps in INFFER in deciding how to split the money up. At the moment there's a rationale for doing that, but it's not really based on much.</p>

BP3_3	S2	For Caring for our Country, and how you might fund different areas, you could use it as a tool. You could use it to split the money between the priority subcatchments, or look at where the money will be more effective. We'll see what comes out of the current trials of INFFER in the CAP review process. If the information that comes out of the trials directs us to use it, then I suppose we'll use it then.
BP3_4	S6 & S2	<p>S6: For the CAP review it would help getting community feedback on specific issues. We've had feedback from some subcatchments that we're not paying attention to their issues.</p> <p>S2: Yes, in the Central West the community did say how pleased they were to be involved in the initial stages of their CAP review process.</p> <p><i>INFFER team response: One of the outcomes of the process is a long list of assets that include all the ones that came up out of the community workshops, and its understood by everyone that you'll only be able to fund a small minority of those, but at least they're all recognised, they feel that their input has been honoured, that the list is publicly available, they can see their own 'pet asset' on the list. That process really seems to have helped a lot.</i></p>

<i>P4: What are the obstacles to your CMA applying the INFFER method?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BP4_1	S2	Just making sure we've got the right people around the table, including people from other agencies and other organisations. The main obstacle is the time constraint, but it does get a lot easier once you get used to using the method. And getting the information you need to apply it, but that's faced in applying any method.
BP4_2	S7	Just general inertia in our organisation. I've been trying to get systems consistent across our organisation for a while now, and we've just gotten a bit of that now in our project management plans, and I'd really be loathe to turn around now and say there's something new coming along, because people would kill me.
BP4_3	S6	<p>There's the obstacle of most people in the organisation not having had experience with it to know its advantages, like Sally and Sara have had.</p> <p><i>INFFER team response: That's an issue we have in every region we work with. Geoff and April do a fantastic job with training and support, and we have an accredited training program, but it's a long slow process. Sometimes it involves some pretty difficult cultural change. You strike attitudes that are deeply ingrained about the best way to do things.</i></p>

<i>P5: What could be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BP5_1	S2	It's about getting the right people in the room and locking the door, having the people there with the information you need and having the costs information there. It's detailed like a project management plan, so you've got to be thinking upfront about all the information you'll need to complete the form.
BP5_2	S2	We need to keep gathering information as we can afford it.

BP5_3	S6 & S2	<p>There'd need to be INFFER training not only for staff but for board members, landcare groups, etc, so that got an appreciation of how the process works for ranking, so that when you feed the results back to the community there's no misunderstanding that could be a negative.</p> <p>We'd need to carefully structure our public meetings so that we know what we're talking about.</p> <p><i>INFFER team response: One thing that CW CMA did was send their project officer down to a meeting in North Central CMA, so he had a good sense of what was likely to happen, how the meeting could be facilitated etc. Another thing we've tried to do is 'buddy up' new CMAs with experienced CMAs and create support networks that way.</i></p>
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<i>P6: With practice, how self-sufficient could your CMA become in applying the INFFER method?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BP6_1	S1	I think once you'd been through the process a couple of times you'd become pretty self-sufficient, but the challenge would be to get that self-sufficiency across all staff. And to get consistency across the CMA so you can be confident about your rankings of projects.
BP6_2	S3	<p>It would be good to have some outside QA, even if you sent a random of selection of projects back out for QA, to make sure you're not getting off-track.</p> <p><i>INFFER team response: Even once a CMA is fairly self-sufficient, for its process to have credibility in the wider system there'd really need to be some outside system of QA. That's something to discuss with the NRC and DECCW.</i></p>

7.1.2 Questionnaire data

Eight Border Rivers – Gwydir CMA staff responded to the questionnaire. The Board of the CMA also provided joint responses to the criteria listed in Table A of the questionnaire. The responses from the Board were accounted for only in calculating average responses for the CMA to the criteria listed in Table A. The importance rating given by the Board to a criterion was weighted equally with each staff response in calculating an average CMA rating for that item.

Ratings of the importance of different criteria in choosing a method for evaluating investments

Summary statistics for the questionnaire responses by the eight staff and the Border Rivers – Gwydir CMA as a whole (including joint responses from the Board) are presented in Table 6. Recall that a score of 1 for a criterion denotes a rating of very low importance and a score of 7 denotes a rating of very high importance. The criteria are listed in the table in descending order of mean score for all respondents. Rankings of the various criteria according to their respective mean ratings of importance by all respondents are shown in Table 7. Hence, the three criteria ranked on average *highest* in importance by all respondents were:

- 1st 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes';
- 2nd 'is based on sound biophysical science'; and

Table 6: Summary statistics for the importance of various criteria in choosing an evaluation method: Border Rivers – Gwydir CMA

Criteria:	Respondent category	
	All (n = 9)	Staff (n = 8)
	Mean score for criterion importance	Mean score for criterion importance
The method ...		
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	6.22	6.13
Is based on sound biophysical science	6.11	6.13
Is practical to apply given the skills and time available to CMA staff	6.00	6.00
Makes transparent all the judgements and assumptions that need to be made	5.89	5.88
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5.78	5.63
Helps justify investment decisions to your CMA's regional community	5.67	5.63
Can incorporate local knowledge and values	5.56	5.50
Provides a quantitative basis for ranking investment options	5.33	5.50
Helps justify investment proposals to government investors	5.33	5.25
Avoids subjective judgments	5.22	5.25
Provides a quantitative basis for ranking investment options across different asset classes	5.22	5.38
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	5.22	5.00
Is based on sound economics	5.00	5.13
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	5.00	4.88
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	5.00	5.00
Accounts for the social, bureaucratic and political risks that investment options may face	5.00	4.88
Accounts for the technical risks that investment options may face	4.89	4.88
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	4.78	4.75
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	4.67	4.63
Is consistent with the philosophy of integrated catchment management	4.44	4.50

Table 7: Criteria ranked by mean importance scores: Border Rivers – Gwydir CMA

The method ...	Criteria:	Mean criterion importance score across all respondents (n = 9)	Rank by mean criterion importance score
	Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	6.22	1
	Is based on sound biophysical science	6.11	2
	Is practical to apply given the skills and time available to CMA staff	6.00	3
	Makes transparent all the judgements and assumptions that need to be made	5.89	4
	Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5.78	5
	Helps justify investment decisions to your CMA's regional community	5.67	6
	Can incorporate local knowledge and values	5.56	7
	Provides a quantitative basis for ranking investment options	5.33	8
	Helps justify investment proposals to government investors	5.33	8
	Avoids subjective judgments	5.22	10
	Provides a quantitative basis for ranking investment options across different asset classes	5.22	10
	Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	5.22	10
	Is based on sound economics	5.00	13
	Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	5.00	13
	Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	5.00	13
	Accounts for the social, bureaucratic and political risks that investment options may face	5.00	13
	Accounts for the technical risks that investment options may face	4.89	17
	Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	4.78	18
	Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	4.67	19
	Is consistent with the philosophy of integrated catchment management	4.44	20

3rd 'is practical to apply given the skills and time available to CMA staff'.

The three criteria ranked on average *lowest* in importance by all respondents were:

- 18th 'recognises the benefits from investing in important issues that nonetheless may be controversial or divisive';
- 19th 'recognises the benefits from investing in innovative investment options rather than just 'tried and true' options'; and
- 20th 'is consistent with the philosophy of integrated catchment management'.

The criterion 'strengthens your CMA's confidence that the prioritised investments represent 'value for money'' was ranked on average 5th in importance, while the criterion 'is based on sound economics' was ranked on average 13th in importance.

Aside from the criteria pre-specified in Table A, respondent S7 suggested three further criteria were relevant to their CMA in choosing an evaluation method. The first of these was 'accounts for cumulative benefits in an area'. This criterion was rated by this respondent equal sixth in importance with four of the pre-specified criteria and one other criterion he had nominated). It was rated by this respondent more important than 12 other criteria.

The second of these was 'accounts for multi-themed benefits of investments'. This criterion was rated by this respondent equal sixth in importance with four of the pre-specified criteria and one other nominated criterion). It was rated by this respondent more important than 12 other criteria.

The third of the additional criteria identified by respondent S7 was 'links to an MER [monitoring, evaluation and reporting] program'. This criterion was rated by this respondent equal first in importance alongside four of the pre-specified criteria.

Ratings of the performance of INFFER's PAF method relative to the CMA's current practice

Summary statistics for the questionnaire responses of the four Border Rivers – Gwydir CMA staff who participated directly in trialling the PAF method are presented in Table 8. Recall that a score of -3 for a criterion denotes a rating of very low performance of the PAF method relative to current practice, +3 denotes a rating a very high performance of the PAF method relative to current practice, and a score of 0 denotes a rating that the performance of the PAF is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of mean score for all respondents.

Table 8 reveals that the three criteria that the PAF method scored on average *highest* against were:

- Equal 1st 'provides a quantitative basis for ranking investment options';
- Equal 1st 'provides a quantitative basis for ranking investment options across different asset classes'; and
- 3rd 'helps justify investment proposals to government investors'.

Table 8: Summary statistics for performance of the standard PAF method against the various criteria: Border Rivers – Gwydir CMA

The method ...	Criteria:	Mean PAF performance score	Rank by mean PAF performance score
Provides a quantitative basis for ranking investment options		1.75	1
Provides a quantitative basis for ranking investment options across different asset classes		1.75	1
Helps justify investment proposals to government investors		1.50	3
Makes transparent all the judgements and assumptions that need to be made		1.25	4
Helps justify investment decisions to your CMA's regional community		1.25	4
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		1.25	4
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		1.00	7
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		1.00	7
Can incorporate local knowledge and values		0.75	9
Is based on sound biophysical science		0.75	9
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		0.75	9
Is based on sound economics		0.75	9
Accounts for the technical risks that investment options may face		0.75	9
Accounts for the social, bureaucratic and political risks that investment options may face		0.75	9
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		0.50	15
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		0.50	15
Is consistent with the philosophy of integrated catchment management		0.25	17
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		0.25	17
Avoids subjective judgments		-0.25	19
Is practical to apply given the skills and time available to CMA staff		-1.25	20

The four criteria that the PAF method scored on average *lowest* against were:

- 17th 'is consistent with the philosophy of integrated catchment management';
- 17th 'recognises the benefits from investing in important issues that nonetheless may be controversial or divisive;
- 19th 'avoids subjective judgments'; and
- 20th 'is practical to apply given the skills and time available to CMA staff'.

The mean scores against all but two of the criteria are positive, signifying that respondents on average rated the performance of the PAF method against 18 of the 20 criteria as superior to current practice. Respondents on average rated the performance of this method against the criteria 'avoids subjective judgments' and 'is practical to apply given the skills and time available to CMA staff' as inferior to current practice'.

In Table 9 the criteria are ranked in descending order of their mean importance scores, as in Table 7, with the mean score for the PAF method's relative performance against each criterion also presented. We can see from this table that the criterion 'is practical to apply given the skills and time available to CMA staff' was ranked 3rd in importance for this CMA. Hence, the fact that respondents on average rated the performance of the PAF method against this criterion as (substantially) inferior to current practice signals a real hurdle that needs to be addressed if this CMA is to adopt this method.

The two criteria against which the PAF method was perceived on average to perform equally best (compared with current practice) – 'provides a quantitative basis for ranking investment options' and 'provides a quantitative basis for ranking investment options across different asset classes' – were ranked 8th and 10th in importance for this CMA based on mean criterion importance scores.

Rating how worthwhile was the experience of trialling the standard PAF method

The four respondents participating directly in the trials of the PAF method were asked 'How worthwhile for you was the experience of completing INFFER's PAF?'. Of these respondents, one answered that their experience had been highly worthwhile, two answered it had been moderately worthwhile, and one answered it had been slightly worthwhile (the remaining unutilised option was 'not at all worthwhile'). Respondent S2 elaborated that 'Completing the PAF provided an opportunity to consider how and why we invest in certain areas and the impact it has across themes'.

Table 9: Criteria ranked by mean performance of the PAF method against each: Border Rivers – Gwydir CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean PAF performance score (n = 4)
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		1	0.75
Is based on sound biophysical science		2	0.75
Is practical to apply given the skills and time available to CMA staff		3	-1.25
Makes transparent all the judgements and assumptions that need to be made		4	1.25
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		5	1.25
Helps justify investment decisions to your CMA's regional community		6	1.25
Can incorporate local knowledge and values		7	0.75
Provides a quantitative basis for ranking investment options		8	1.75
Helps justify investment proposals to government investors		8	1.50
Avoids subjective judgments		10	-0.25
Provides a quantitative basis for ranking investment options across different asset classes		10	1.75
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		10	1.00
Is based on sound economics		13	0.75
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		13	1.00
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		13	0.50
Accounts for the social, bureaucratic and political risks that investment options may face		13	0.75
Accounts for the technical risks that investment options may face		17	0.75
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		18	0.25
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		19	0.50
Is consistent with the philosophy of integrated catchment management		20	0.25

7.2 Trials of the PAF supplement

7.2.1 Workshop feedback

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

<i>C1: Is it important to account for capacity spillovers from projects when prioritising them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC1_1	S1	I think it's important to take them into account.
BC1_2	S6	It's good to be able to look at the BCI for each project with and without the capacity spillovers accounted for, so you can see what difference the spillovers make.
BC1_3	S2 & S6	We don't really think about the capacity spillovers when we set up a project, about the impact we'll have on other areas of the catchment. It's never been measured and ranked like this. It's always been a subjective thing.

<i>C2: Does your CMA currently account for them? How?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC2_1	S2 & S6	Not very well. Just subjectively.
BC2_1	S5 & S6	The project management plans mention related projects. But those are projects that are already funded. It doesn't look at how a project may affect future projects. A lot of it depends on the experience of the people involved. Someone who has been there 10 years will be in a much better position to identify those kinds of spillovers, and account for them just intuitively when developing and choosing between projects.

<i>C3: Is the PAF supplement useful in accounting for capacity spillovers from projects when evaluating them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC3_1	S2	Yes, but we don't have a lot of information to base our responses on.
BC3_2	S1	Yes.
BC3_3	S6	It's a useful tool but you need to be aware of the errors, and use sensitivity testing accordingly.

<i>C4: What difficulties did you encounter in completing the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC4_1	S1	One thing I'm concerned about is that you're looking at capacity spillovers against the other asset projects that are listed, of which potentially some may not go ahead. So what you're assuming may not happen. You can only go on the information that you have now.
BC4_2	S1	To an extent we're making assumptions. At present we don't have a lot of evidence to support why we've identified particular spillovers, or rated how strong they will be.
BC4_3	S1	Identifying the capacity spillovers. I got plenty of comments [from feedback on draft PAF supplement forms] like "Is that really a capacity spillover from your project". You've got to really think whether that is really a spillover from this particular project or is it a spillover from something else happening in the area. Like there's a number of things I had in mind that affected negatively the capacities to implement various other investments, but they were really to do with their negative perceptions of government agencies. They weren't really negative capacity spillover effects of the project. There were a lot of things I was thinking about that really weren't direct effects of my project, but rather from something else.

<i>C5: What might be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC5_1	S6	You could draw up a standard list of capacity spillovers that people could draw from when completing the PAF supplement, but they'd need to provide a justification before listing each particular one.
BC5_2	S7 & S2	Is there any kind of way that you could standardise the general effects of different kinds of projects? I know that'd be rough as guts, but if you're doing on-ground works of this type, then they generally have a capacity spillover of a certain type of X per cent, or something like that. I think you'd have to do something like that if you were to use this approach on a CMA basis. You'd need some kind of standardised process. Yeah, because we run very similar sorts of projects.

<i>C6: Can you see the PAF supplement method, or elements of it, being applied by your CMA?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
BC6_1	S7	Yeah, I ready if there were a ready-reckoner for different kinds of projects it would get used all the time. It'd be a rougher way of doing it.
BC6_2	S2	We could use it but, yeah, I think we'd need to standardise it.

<i>C7: If so, how self-sufficient could your CMA become in applying the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
		Participants referred to their comments under Question P6 (section 7.1.1) as relevant here.

7.2.2 Questionnaire feedback

Summary statistics for the questionnaire responses of the staff from Border Rivers-Gwydir CMA who participated directly in trialling the supplementary PAF are presented in Table 10. Respondent S3 who participated directly in trialling the PAF method was on leave during the PAF supplement trials and so was not in a position to complete Table C of the survey form. Recall that a score of -3 for a criterion denotes a rating of very low performance of the ‘supplemented PAF method’ relative to current practice, +3 denotes a rating a very high performance of the supplemented PAF method relative to current practice, and a score of 0 denotes a rating that the performance of the supplemented PAF method is ‘about same’ as that of the CMA’s current practice. The criteria are listed in the table in descending order of mean score for all respondents.

The mean scores for the performance of the supplemented PAF method are positive against all of the eight criteria except ‘is practical to apply given the skills and time available to CMA staff’. In other words, the supplemented PAF method was perceived on average by respondents from the Border Rivers – Gwydir CMA as superior to the CMA’s current practice against seven of the eight criteria.

The criterion against which on average the supplemented PAF method performed best compared with current practice was ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’. Nevertheless, this criterion was ranked only (equal) 13th of the full set 20 criteria in terms of its perceived importance to this CMA for choosing an evaluation method.

Table 11 allows comparison of the mean performance score of the PAF method against each of the eight criteria with the mean performance score of the supplemented PAF method. The criteria are listed in the table in descending order of their mean importance score (based on the ordering in Table 7 of the full set of 20 criteria). The performance of the supplemented PAF method is perceived on average as superior to the standard PAF method against six of the eight criteria – the two exceptions being ‘strengthens your CMA’s confidence that the prioritised investments represent ‘value for money’’ and ‘helps justify investment proposals to government investors’.

The mean performance score of 2.00 for the supplemented PAF method against the criterion ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’ compares with the mean performance score of 1.00 for the standard PAF method against the same criterion. However, the relevance of the former method’s superiority against this criterion for the CMA’s choice of an evaluation method may have limited influence on its choice of method given its perception of this criterion as being of relatively low importance.

Rating how worthwhile was the experience of trialling the PAF supplement

The three respondents participating directly in the trials of the PAF supplement were asked ‘How worthwhile for you was the experience of completing the supplementary form to the PAF?’. Of these respondents, one answered that their experience had been highly worthwhile, and two answered it had been moderately worthwhile (the remaining unutilised options were ‘slightly worthwhile’ and ‘not at all worthwhile’).

Recall in respect of the equivalent question for the standard PAF form (answered by four respondents rather than the three that answered the question regarding the PAF supplement) that one respondent answered that their experience completing this form had been highly worthwhile,

Table 10: Mean performance of the supplemented PAF method against the different criteria: Border Rivers – Gwydir CMA

Criteria:	Mean performance score for supplemented PAF method (n = 3)	Rank by mean performance score
The method ...		
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	2.00	1
Makes transparent all the judgements and assumptions that need to be made	1.67	2
Helps justify investment decisions to your CMA's regional community	1.33	3
Avoids subjective judgments	1.00	4
Helps justify investment proposals to government investors	1.00	4
Is consistent with the philosophy of integrated catchment management	1.00	4
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	1.00	4
Is practical to apply given the skills and time available to CMA staff	-0.67	8

Table 11: Comparing performance of the standard PAF method and the supplemented PAF method against eight criteria: Border Rivers – Gwydir CMA

Criteria:	Mean importance score (n = 9)	Mean performance score for standard PAF method (n=4)	Mean performance score for supplemented method (n=3)
The method ...			
Is practical to apply given the skills and time available to CMA staff	6.00	-1.25	-0.67
Makes transparent all the judgements and assumptions that need to be made	5.89	1.25	1.67
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5.78	1.25	1.00
Helps justify investment decisions to your CMA's regional community	5.67	1.25	1.33
Helps justify investment proposals to government investors	5.33	1.50	1.00
Avoids subjective judgments	5.22	-0.25	1.00
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	5.00	1.00	2.00
Is consistent with the philosophy of integrated catchment management	4.44	0.25	1.00

two answered that the experience had been moderately worthwhile, and one answered that the experience had been slightly worthwhile. Overall, therefore, the experience of completing the PAF supplement was found to be a similarly worthwhile experience as that of completing the standard PAF form. Respondent S2 commented in respect of their experience in completing the PAF supplement that 'Considering and trying to quantify the impact of the decisions was good'.

8. REVIEW FINDINGS: NAMOI REGION

Findings from the process of reviewing the trials of the supplemented PAF method with Namoi CMA are presented in this chapter. Workshop and questionnaire findings from reviewing the trials of the standard PAF method with this CMA are presented in section 8.1. Workshop and questionnaire findings from reviewing the trials of the PAF supplement are then presented in section 8.2.

8.1 Trials of the PAF

8.1.1 Workshop feedback

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

<i>P1: What are the strengths of the INFFER method compared with your CMA's current practice?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NP1_1	S1	We look at investor priorities and say, OK, we can do something there, and we write a project to that. For one of the projects we evaluated, for example, we had the study, we had the spatial prioritisation, it was a nice easy thing to do with Catchment Action NSW money, so we just went ahead and did it. But we don't go and say, well, here's all the possible projects that we could do, and then actually assess them against each other. So we look at investors' priorities and we just write a project to that with the money we've got. And with those projects afterwards we don't actually compare their benefits between them. So, 'Did the project get a higher BCI than, say, a grasslands project?'. Or we don't look at a project and say, "Even though we've written a project for that, it's getting a low BCI, so should we be thinking about a different type of project, or one that's got more feasibility?" With our brigalow project, for instance, we did find we had strong barriers to adoption. So where I think INFFER can help out is, when we do the new CAP which is meant to have spatial priorities we could then run an INFFER process over the top of that. So we have all these spatial priorities in all these themes within the CAP and we know what we want to do over the next 10 years, so let's do an INFFER process on a 10 year scale and say let's rank all those projects that came out of that spatial prioritisation. And when it comes to our annual investment plans we can rank them all, then run them by the Board and say this is what we want to do in the annual investment plan. They can put other equity and political filters across that as well. That's where I think our gap is, in our processes at the moment, and where INFFER could possibly help out.
NP1_2	S3	The INFFER process is good in making you look at what's been done before in the area you intend to focus on. We've run into problems before because we didn't look at that kind of information.
NP1_3	S3	Certainly there's a lot of steps in it that we would do already, but there's obviously steps we don't already do. It would make you think about each step in each program in a similar way and tease out a bit more information that possibly doesn't get looked at as hard, like some of the adoption factors and things like that. As a step by step process that compares programs in a similar way, that's something that could be beneficial.

<i>P2: What are its weaknesses compared with current practice?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NP2_1	S1	<p>Weaknesses may be with overarching general type stuff, where low risk projects with returns in the short term may not necessarily be outcomes that the organisation actually wants. They may be easier to do and they're sound investments, but we really might want to go over here instead. But I recognise that the INFFER team advocates it as only a guide, and the Board or executive can come in and put other filters across that information.</p> <p><i>INFFER team response: The PAF process does favour projects that are less risky and that yield outcomes sooner rather than later, all else equal. This accords with economic logic. But if a CMA does want to focus some portion of its budget on higher-risk or longer-returning projects, then the PAF process could be used to rank alternative projects within these categories.</i></p>
NP2_2	S1	<p>The method also assumes there is a plethora of projects to assess. When we get investor priorities and other constraints, there's not always a hundred projects to put through the coarse filter and finally get 10. We might be starting with 10, then try to run them through INFFER.</p>
NP2_3	B1	<p>My understanding is that a program or theme may contain lots of projects. Is it possible to have the INFFER process overlay at a macro level, so you're talking about riparian projects as a whole rather than a project that is a 5 km stretch of river bank? If that's not possible, then it becomes a question of numbers, of how many micro projects you need to assess. You don't want to run through the PAF process 500 or 700 times.</p> <p><i>INFFER team response: Of those 700 projects, many will be quite small and you wouldn't justify doing a comprehensive assessment process on hundreds of very small projects. You'd want to have some sort of scale threshold for when it's worthwhile.</i></p>
NP2_4	S3	<p>There's a Caring for our Country goal relating to soil carbon that involves working with so many farmers. We have to pick a number of farmers to target within our catchment. Our program is to design 90 contracts. I don't see how the PAF process relates to that kind of program. That makes identifying the asset hard. The asset is soil carbon.</p> <p><i>INFFER team response: Yes, that is hard because it's a very poorly defined outcome. It's defined in terms of activity or involvements rather than in term of environmental outcomes. So the PAF won't be a comfortable fit for developing a project for a target like that. But you could look at what environmental outcomes you're trying to achieve by working with that number of farmers, focusing on specific assets of the kind relevant to the target.</i></p>
NP2_5	S3	<p>It is time consuming, that's one weakness of it.</p> <p><i>INFFER team response: We're very conscious that it's time consuming, and we've tried to keep it down to the simplest minimum set of information that is essential, and to make sure that the way the questions are asked are relatively simple as well. But all the information that's asked about now is quite crucial. Our process is certainly more time consuming than some other processes, but that probably reflects that those processes don't consider all the relevant information.</i></p>
NP2_6	S1	<p>With other CMAs, they may have substantial limitations regarding their data on assets and other things, which I'd reckon would increase the subjectiveness of the assessment.</p>
NP2_7	S3	<p>One of its weaknesses is that makes you make a stab at things that you mightn't feel comfortable with. Which is a strength I suppose, but it can also be a weakness. Sometimes quantifying things all the time mightn't be useful. You might be relatively good at it but you might be wrong in the first place.</p>

<i>P3: Can you see the INFFER method, or elements of it, being applied by your CMA? How?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NP3_1	B1	I think it's been very useful and we should continue stepping forward if we can.
NP3_2	B1	A role may be in modifying our monitoring and evaluation processes so that we're picking up extra feedback to strengthen the database for answering the questions in the PAF. For example, monitoring and reporting the capacity spillovers from our projects. But I think it's been very useful and we should continue stepping forward if we can.
NP3_3	S1	It would be a help for ranking projects within our annual investment cycle. We just write projects to the priorities without comparing whether we should go with this one or the other. So if we had 20 projects coming into an annual investment plans, and we could only fund five, the method would give us BCIs and other information we could use as a guide to decide which ones to fund. And that's relevant for funding from NSW Catchment Action, because there's no spatial prioritisation in that, and we've got some freedom in how to invest our funds across the different themes.
NP3_4	S1	It would help in thinking about the feasibility aspect of a particular project, like how hard or easy it will be to engage landholders with the delivery mechanisms we intend to use. It might tell us early that it's not going to run well and we need to think about another strategy to get the kind of outcome we want. So I can see how we could use it in the organisation.

<i>P4: What are the obstacles to your CMA applying the INFFER method?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NP4_1	S1	There are some obstacles with how some people view it within the organisations, in getting them to accept it for what it's worth.
NP4_2	S1	In the short term, time is an obstacle. By the time we do our CAP review, we'll already be in the next financial year. I would think that logically we'd do the CAP review, then with the spatial priorities in the CAP you'd possibly run an INFFER process over that during the middle of the next financial year, to take the CAP forward for those next 5 or 9 years.
NP4_3	S1	Deciding on values for the parameters in the PAF is intuitive sometimes, just backed up by experience. So if you had staff that were new onto the scene, you'd question whether they could really make those judgements.

<i>P5: What could be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NP5_1	S1	Perhaps some sort of protocol is needed on how you use the method, about how it gets reviewed, about what consultation should be required, so you start to filter out some of the subjectivity in it, and so that you do get consistency from year to year.
NP5_2	S1	[related to comment NP4_3] That's what could be part of the protocol, that you'd need say 5 years under your belt in an area before your intuition would be accepted in that process. Or that you ensure there's others with the experience to be consulted in the process.
NP5_3	S1	With the mindset problems, I guess you've just got to sell it to people, but at the end of the day it's up to the General Manager to tell the staff how to do the analysis. Which I think is not a big obstacle in this case.

NP5_4	S3 & S1	Go back to 5 year funding cycles, I suppose. Because that would automatically give you more time to do your planning. And that'd be more congruent with the change processes you need to run, where you run extension processes first, and training, and then you go into on-ground works and monitoring. That's at least 3 years to design a decent project and run that, so you're not rushing around and sending money to low-priority areas. We could all sit down and do a tremendous INFFER analysis, but we'd still be stuck with one-year funding cycles and we'd still be rushing stuff then. Or we'd start picking the very easy short-term stuff, so we're missing the critical 3 or 5 year projects.
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P6: With practice, how self-sufficient could your CMA become in applying the INFFER method?		
Comment code	Who? (S=staff; B=Board)	Comment
NP6_1	S3	I'd want to do another one or two and run them through the INFFER team so I was confident I'd got it down pat, at least. Because we've depended on you and the INFFER team a lot in doing the PAFs we did, so to turn around now and do some new ones ourselves would be risky.
NP6_2	S1	I would think we'd need a service where we could ask questions as we went through the forms, and that would review our PAFs. In this CMA, we do have staff who are skilled and experienced who could fill in the form. Other CMAs with high staff turnover, they'd probably need a fair bit of support to get up to a certain level.

8.1.2 Questionnaire feedback

Three staff of the Namoi CMA who had participated directly in the trials responded to the questionnaire. Five members of the CMA Board also responded to the questionnaire (including one who had attended the review workshop for this CMA on 24 March 2010).

Ratings of the importance of different criteria in choosing a method for evaluating investments

Summary statistics for responses by the three staff, five Board members, and the full group of eight respondents from Namoi CMA who responded to the questionnaire are presented in Table 12. Recall that a score of 1 for a criterion denotes a rating of very low importance and a score of 7 denotes a rating of very high importance. The criteria are listed in the table in descending order of mean score for all respondents. Rankings of the various criteria according to their respective mean ratings of importance by all respondents are shown in Table 13. The criteria are listed in this table in descending order of their mean score for the full set of eight respondents. The three criteria ranked on average *highest* in importance for choosing an evaluation method by the *full set of respondents* were:

- 1st 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes';
- 2nd 'can incorporate local knowledge and values'; and
- 3rd 'strengthens your CMA's confidence that the prioritised investments represent 'value for money''.

The two criteria ranked on average highest (equal 1st) in importance by the *staff respondents* were 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes' and 'makes transparent all the judgements and assumptions that need to be made'.

Table 12: Summary statistics for the importance of various criteria in choosing an evaluation method: Namoi CMA

Criteria:	Respondent category		
	All (n = 8)	Staff (n = 3)	Board (n = 5)
	Mean criterion importance score	Mean criterion importance score	Mean criterion importance score
The method ...			
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	6.13	6.33	6.00
Can incorporate local knowledge and values	6.00	6.00	6.00
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5.88	5.67	6.00
Makes transparent all the judgements and assumptions that need to be made	5.75	6.33	5.40
Is based on sound biophysical science	5.63	6.00	5.40
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	5.63	6.00	5.40
Helps justify investment proposals to government investors	5.50	6.00	5.20
Helps justify investment decisions to your CMA's regional community	5.50	6.00	5.20
Is practical to apply given the skills and time available to CMA staff	5.38	5.00	5.60
Is consistent with the philosophy of integrated catchment management	5.38	5.00	5.60
Is based on sound economics	5.38	5.67	5.20
Accounts for the technical risks that investment options may face	5.38	5.33	5.40
Provides a quantitative basis for ranking investment options	5.25	5.67	5.00
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	5.13	4.33	5.60
Accounts for the social, bureaucratic and political risks that investment options may face	5.13	5.00	5.20
Provides a quantitative basis for ranking investment options across different asset classes	4.88	5.00	4.80
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	4.75	4.67	4.80
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	4.63	4.67	4.60
Avoids subjective judgments	4.50	4.33	4.60
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	4.13	4.00	4.20

Table 13: Criteria ranked by mean importance scores: Namoi CMA

The method ...	Criteria:	Rank by mean importance score for respondent category		
		All (n = 8)	Staff (n = 3)	Board (n = 5)
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		1	1	1
Can incorporate local knowledge and values		2	3	1
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		3	8	1
Makes transparent all the judgements and assumptions that need to be made		4	1	7
Is based on sound biophysical science		5	3	7
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		5	3	7
Helps justify investment proposals to government investors		7	3	11
Helps justify investment decisions to your CMA's regional community		7	3	11
Is practical to apply given the skills and time available to CMA staff		9	12	4
Is consistent with the philosophy of integrated catchment management		9	12	4
Is based on sound economics		9	8	11
Accounts for the technical risks that investment options may face		9	11	7
Provides a quantitative basis for ranking investment options		13	8	15
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		14	18	4
Accounts for the social, bureaucratic and political risks that investment options may face		14	12	11
Provides a quantitative basis for ranking investment options across different asset classes		16	12	16
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		17	16	16
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		18	16	18
Avoids subjective judgments		19	18	18
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		20	20	20

The three criteria ranked on average highest (equal 1st) in importance by the Board respondents were ‘strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes’, ‘can incorporate local knowledge and values’ and ‘strengthens your CMA’s confidence that the prioritised investments represent value for money’.

Hence, the staff and Board respondents, as groups, both ranked the criterion ‘strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes’ as most important for choosing a method to evaluate investments in natural assets. Both groups also ranked the criterion ‘can incorporate local knowledge and values’ as highly important (the ranking for the staff group was equal 3rd).

Aside from the twenty criteria pre-specified in Table A, three of the respondents who completed this table suggested additional criteria relevant to their CMA in choosing an evaluation method. These were:

- ‘ensures assessment steps are comprehensive’ (respondent B1, who ranked this criterion equal seventh in importance with thirteen other criteria, ahead of two other criteria);
- ‘aligns with the core values of the CAP’ (respondent B2, who ranked this criterion equal first in importance with two of the pre-specified criteria and one other nominated criterion);
- ‘provides identified outcomes/tangible results that the community values’ (respondent B2, who ranked this criterion equal fifth in importance with eleven pre-specified criteria, ahead of seven other criteria);
- ‘provides a qualitative analysis of what happens if don’t invest’ (respondent B2, who ranked this criterion equal first in importance with two of the pre-specified criteria and one other nominated criterion);
- ‘the investment provides a logical path to an outcome. (Similar to second point [see the next criterion listed], however may make the path more explicit and therefore the next point becomes more valuable’ (respondent B5, who ranked this criterion equal fifth in importance with nine of the pre-specified criteria, after two of the pre-specified criteria and two other nominated criteria);
- ‘the investment can be effectively and efficiently monitored/evaluated over time’ (respondent B5, who ranked this criterion equal first in importance, with two of the pre-specified criteria and one other nominated criterion); and
- ‘the investment/s provide a sense of ‘proportion to the problem’. Investing in some activities may never change the outcome due to the magnitude of the investment needed. Should these investments be undertaken at all?’ (respondent B5, who ranked this criterion equal first in importance with two of the pre-specified criteria and one other nominated criterion).

Ratings of the performance of INFFER’s PAF method relative to the CMA’s current practice

Summary statistics are presented in Table 14. The criteria are listed in the table in descending order of mean score for all staff respondents from Namoi CMA participating directly in trialling the PAF method. The five criteria that the PAF method scored on average *highest* against were:

- 1st ‘provides a quantitative basis for ranking investment options across different asset classes’;

Table 14: Summary statistics for performance of the standard PAF method against the various criteria: Namoi CMA

The method ...	Criteria:	Mean PAF performance score	Rank by mean PAF performance score
Provides a quantitative basis for ranking investment options across different asset classes		1.33	1
Makes transparent all the judgements and assumptions that need to be made		1.00	2
Provides a quantitative basis for ranking investment options		1.00	2
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		1.00	2
Helps justify investment proposals to government investors		1.00	2
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		0.67	6
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		0.33	7
Is based on sound economics		0.33	7
Accounts for the social, bureaucratic and political risks that investment options may face		0.33	7
Can incorporate local knowledge and values		0.00	10
Helps justify investment decisions to your CMA's regional community		0.00	10
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		0.00	10
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		0.00	10
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		0.00	10
Is based on sound biophysical science		-0.33	15
Is consistent with the philosophy of integrated catchment management		-0.33	15
Accounts for the technical risks that investment options may face		-0.33	15
Avoids subjective judgments		-0.67	18
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		-1.00	19
Is practical to apply given the skills and time available to CMA staff		-1.67	20

- Equal 2nd 'makes transparent all the judgements and assumptions that need to be made';
- Equal 2nd 'provides a quantitative basis for ranking investment options';
- Equal 2nd 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes'; and
- Equal 2nd 'helps justify investment proposals to government investors'.

The mean scores against these five criteria are positive – as are the mean scores against the four further criteria 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments', 'accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment', 'is based on sound economics' and 'accounts for the social, bureaucratic and political risks that investment options may face'. On average, therefore, the three respondents from Namoi CMA rated the performance of the PAF method against these nine criteria as superior to their current practice.

The three criteria that the PAF method scored on average *lowest* against were:

- 18th 'avoids subjective judgments';
- 19th 'recognises the benefits from investing in innovative investment options rather than just 'tried and true' options'; and
- 20th 'is practical to apply given the skills and time available to CMA staff'.

The mean scores against these three criteria are negative – as are the mean scores against the three further criteria 'is based on sound biophysical science', 'is consistent with the philosophy of integrated catchment management' and 'accounts for the technical risks that investment options may face'. On average, therefore, the three respondents from Namoi CMA rated the performance of the PAF method against these six criteria as inferior to their current practice.

In Table 15 the criteria are ranked in descending order of their mean importance scores, as in Table 13, with the mean score for the PAF method's relative performance against each criterion also presented. We can see from this table that the criterion 'is practical to apply given the skills and time available to CMA staff' was ranked equal 9th in importance for this CMA. Hence, the fact that respondents on average rated the performance of the PAF method against this criterion as (substantially) inferior to current practice signals a hurdle that needs to be addressed if this CMA is to adopt this method (although less of a hurdle than in the Border Rivers – Gwydir case where this criterion was ranked 3rd in importance).

Rating how worthwhile was the experience of trialling the standard PAF method

The three Namoi CMA respondents participating directly in the trials of the PAF method were asked 'How worthwhile for you was the experience of completing INFFER's PAF?'. Of these respondents, one answered that their experience had been highly worthwhile and two answered it had been moderately worthwhile (the remaining unutilised options were 'slightly worthwhile' and 'not at all worthwhile'). Respondent S1 commented: 'Good, I learnt quite a bit from the process. I think it can be a useful tool as long as the limitations are understood and it is not followed blindly'. Respondent S3 commented: 'It highlighted some areas that we don't look at as closely under our current system'.

Table 15: Mean performance of the standard PAF method against the different criteria (ranked by their mean importance scores): Namoi CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean PAF performance score (n = 3)
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		1	1.00
Can incorporate local knowledge and values		2	0.00
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		3	0.00
Makes transparent all the judgements and assumptions that need to be made		4	1.00
Is based on sound biophysical science		5	-0.33
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		5	0.33
Helps justify investment proposals to government investors		7	1.00
Helps justify investment decisions to your CMA's regional community		7	0.00
Is practical to apply given the skills and time available to CMA staff		9	-1.67
Is consistent with the philosophy of integrated catchment management		9	-0.33
Is based on sound economics		9	0.33
Accounts for the technical risks that investment options may face		9	-0.33
Provides a quantitative basis for ranking investment options		13	1.00
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		14	-1.00
Accounts for the social, bureaucratic and political risks that investment options may face		14	0.33
Provides a quantitative basis for ranking investment options across different asset classes		16	1.33
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		17	0.67
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		18	0.00
Avoids subjective judgments		19	-0.67
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		20	0.00

8.2 Trials of the PAF supplement

8.2.1 Workshop feedback

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

<i>C1: Is it important to account for capacity spillovers from projects when prioritising them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC1_1	S3, S1 & B1	Yeah, for sure. Those spillovers are certainly there, so being able to account for them properly would be good.

<i>C2: Does your CMA currently account for them? How?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC2_1	S1	Our CMA doesn't account for those capacity spillovers currently. I guess we know that they happen, but that's about it.
NC2_2	S3	We look at what's happened in the relevant areas, we think about them to some extent, but we don't quantify them.

<i>C3: Is the PAF supplement useful in accounting for capacity spillovers from projects when evaluating them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC3_1	S1	It's definitely helpful in getting you to think about the capacity spillover effects from a project. It's something in the background that we do, bringing intuition to it. But it does get you thinking about if we do a project like this, how much extra benefits might we get. Doing the PAF supplement really makes you think about what are the extras that this project is going to deliver.

<i>C4: What difficulties did you encounter in completing the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC4_1	S1	Just the guessing, or relying on our own experience to put the numbers in, the subjectivity of it, but it's hard to get some of that data.
NC4_2	S3	It depends on who is being asked to fill it in. The PAF supplement asks for global budgets and other things that I don't deal with. Someone who can do the PAF alright mightn't be able to do the PAF supplement, because they lack the wider knowledge that is needed – although they can ask of course.

NC4_3	S1 & S3	<p>[after seeing how accounting for capacity spillovers from the projects affects their respective BCI and thus their rankings] I have to admit I am surprised by how much the capacity spillovers turn those projects around. I'd expected it might change the ranking between two fairly close projects, but it's really had a big effect on these two projects that weren't really close.</p> <p>I'm surprised too. It shows we really need to be careful about what we do put into that PAF supplement.</p> <p>Perhaps it just needs some sensitivity modelling to see what's happening, to see how small these measures can be and still turn things around.</p>
NC4_4	S3	I think that even getting this result here [the reversal of rankings of the two projects when capacity spillovers are accounted for] was a good result in its own right. That big a difference makes you think about what's the process again, and what really is counting, and why.

<i>C5: What might be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC5_1	S1	First and foremost, the CMA would need to commit to it. So you'd need some directive from the GM saying 'This is what we're doing', and then you'd need to make time to do it properly. So everyone would need to feel committed. Otherwise, if you try to do it in the background amongst other things it becomes a rush job and the value of it at the end of the day is questionable.
NC5_2	S1 & S3	<p>[relates to comment NC4_2] We might need cross-organisational teams for doing that [providing the breadth of knowledge needed to complete the PAF supplement].</p> <p>And that means the other people would need to be knowledgeable about the process, because you couldn't just walk up to them and say "Give me this information?" They'd say, "why?"</p>

<i>C6: Can you see the PAF supplement method, or elements of it, being applied by your CMA?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC6_2	S1	I think so, but we'd like to have it tested a bit to verify it before we take it on. The thinking it creates about the capacity spillover effects is all good.
NC6_1	B1	A role may be in modifying our monitoring and evaluation processes so that we're picking up extra feedback to strengthen the database for answering the questions in the PAF and PAF supplement. For example, monitoring and reporting the capacity spillovers from our projects.

<i>C7: If so, how self-sufficient could your CMA become in applying the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NC7_1	S1	I think we'd be right. There's limiting data, but we'd rely on the expertise and experience we've got. That increases the subjectivity of it, that's all.

8.2.2 Questionnaire feedback

Summary statistics for the responses of the three Namoi CMA staff who participated directly in trialling the supplementary PAF are presented in Table 16. Recall that a score of -3 for a criterion denotes a rating of very low performance of the 'supplemented PAF method' relative to current practice, +3 denotes a rating a very high performance of the supplemented PAF method relative to current practice, and a score of 0 denotes a rating that the performance of the supplemented PAF method is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of mean score for the three respondents. The mean scores for the performance of the supplemented PAF method are positive against all of the eight criteria except 'avoids subjective judgments' (for which the mean score is zero) and 'is practical to apply given the skills and time available to CMA staff' (for which the mean score is negative). In other words, the supplemented PAF method was perceived on average by respondents from the Namoi CMA as superior to the CMA's current practice against six of the eight criteria.

The criterion against which on average the supplemented PAF method performed best compared with current practice was 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments'. Nevertheless, we see from Table 13 that this criterion was ranked only 17th of the full set of 20 criteria in terms of its perceived importance on average to all respondents from this CMA for choosing an evaluation method.

Table 17 allows comparison of the mean performance score of the PAF method against each of the eight criteria with the mean performance score of the supplemented PAF method. The criteria are listed in the table in descending order of their mean importance score (based on the ordering in Table 13 of the full set of 20 criteria). The performance of the supplemented PAF method is perceived on average as superior to the standard PAF method against five of the eight criteria – the three exceptions being 'makes transparent all the judgements and assumptions that need to be made', 'helps justify investment proposals to government investors' and 'helps justify investment decisions to your CMA's regional community'.

The mean performance score of 1.67 for the supplemented PAF method against the criterion 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments' compares with the mean performance score of 0.67 for the standard PAF method against the same criterion. However, the relevance of the former method's superiority against this criterion for the CMA's choice of an evaluation method may have limited influence on its choice of method given its perception of this criterion as being of relatively low importance for its choice of evaluation method.

Rating how worthwhile was the experience of trialling the PAF supplement

The three respondents participating directly in the trials of the PAF supplement were asked 'How worthwhile for you was the experience of completing the supplementary form to the PAF?'. Of these respondents, two answered that their experience had been moderately worthwhile, and one answered it had been slightly worthwhile (the remaining unutilised options were 'highly worthwhile' and 'not at all worthwhile'). Recall that respect of the equivalent question for the standard PAF form that one respondent answered that their experience completing this form had been highly worthwhile, and two answered that the experience had been moderately worthwhile. Overall, therefore, the three respondents found the experience of completing the PAF supplement a less worthwhile experience than completing the standard PAF form.

Table 16: Mean performance of the supplemented PAF method against eight criteria: Namoi CMA

Criteria:	Mean performance score for supplemented PAF method (n = 3)	Rank by mean performance score
The method ...		
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	1.67	1
Makes transparent all the judgements and assumptions that need to be made	0.67	2
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	0.67	2
Helps justify investment proposals to government investors	0.33	4
Is consistent with the philosophy of integrated catchment management	0.33	4
Helps justify investment decisions to your CMA's regional community	0.33	4
Avoids subjective judgments	0.00	7
Is practical to apply given the skills and time available to CMA staff	-1.00	8

Table 17: Comparing performance of the standard PAF method and the supplemented PAF method against eight criteria: Namoi CMA

Criteria:	Mean importance score (n = 8)	Mean performance score for standard PAF method (n = 3)	Mean performance score for supplemented PAF method (n = 3)
The method ...			
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5.88	0.00	0.67
Makes transparent all the judgements and assumptions that need to be made	5.75	1.00	0.67
Helps justify investment proposals to government investors	5.50	1.00	0.33
Helps justify investment decisions to your CMA's regional community	5.50	0.00	0.33
Is practical to apply given the skills and time available to CMA staff	5.38	-1.67	-1.00
Is consistent with the philosophy of integrated catchment management	5.38	-0.33	0.33
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	4.75	0.67	1.67
Avoids subjective judgments	4.50	-0.67	0.00

Respondent S1 commented in respect of their experience in completing the PAF supplement: ‘Starts you thinking about how much flow on your projects have, but I think the quantifications at the end of the BCI have too much impact and may cause a perverse result. I will run some sensitivity analysis to explore this comment more’. Respondent S3 commented: ‘I found it difficult putting figures on the amount of spill over and until it is verified (or tested) I am not sure how much confidence I would put in the results’.

9. REVIEW FINDINGS: NORTHERN RIVERS REGION

Findings from the process of reviewing the trials of the supplemented PAF method with Northern Rivers CMA are presented in this chapter. Workshop and questionnaire findings from reviewing the trials of the standard PAF method with this CMA are presented in section 9.1. Workshop and questionnaire findings from reviewing the trials of the PAF supplement are then presented in section 9.2.

9.1 Trials of the PAF

9.1.1 Workshop feedback

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

<i>P1: What are the strengths of the INFFER method compared with your CMA's current practice?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP1_1	S1	INFFER is significantly different from our current approach. To develop a project now, we flow down from what the target is, the length of time involved in the target. That tells us what activities we should do. So it's not a single asset identification process as this is. And our process doesn't cover cost, including maintenance costs. And our process doesn't look at the risks, say, of not getting the local government input you need.
NRP1_2	S3	What's really good is that it forces us early in the process to nail down what the asset is and other levels of detail to ensure focus of project remains accurate and logical.
NRP1_3	S1	Getting all the parts of defining and costing a project consistent with each other is one of the method's benefits.
NRP1_4	S1	INFFER does make you have a SMART goal. It does make you test your assumptions and methodology all the way through. You do need to decide where you're going to work.
NRP1_5	S3	The need to define a SMART goal is a strength – to varying degrees we already do that, but the PAF tightens that up to ensure that is done.
NRP1_6	S2	INFFER requires you to decide where you're going to work. We currently tend to be very broad brush. We advertise for projects within a targeted area, and we get responses from the community. It doesn't matter to us which bit of river we fix first, as long as we begin somewhere.
NRP1_7	S2	INFFER has the advantage of being able to compare large and small projects. Our method ends up with large projects always out-competing the smaller ones.
NRP1_8	S2	The ability of INFFER to compare assets across different asset classes is also a strength.
NRP1_9	S2	When you're pushed for time, and INFFER is asking you all these questions, it's hard. But the benefit is that it documents all this stuff.
NRP1_10	S3	Consistency checks through form help to maintain the internal logic, so the project is on solid ground.
NRP1_11	S3	The process improves the 'sleep at night' factor in ensuring the project is well thought out.
NRP1_12	S2	The project development templates we've got now are designed around the NRC Standard. And no-one understands how they apply, that's just being honest about it. You go through the Standard and you go "Yeah, yeah, that's important" but ... The elements of the Standard are there in the PAF, but the PAF does it in a way that makes you consider it.

<i>P2: What are its weaknesses compared with current practice?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP2_1	S1	Resourcing and time factor are the main weaknesses.
NRP2_2	S1	We are driven by the NRC standards, so its probably a weakness of INFFER that we can't easily identify how it interweaves with that Standard. It's there, I know, but in terms of us responding to NRC Audits it would help if that were made clearer.
NRP2_3	S3	It's time consuming, so we'd reserve it for larger strategic projects rather than smaller scale projects. We'd need more resources to apply it to our investment strategy.

<i>P3: Can you see the INFFER method, or elements of it, being applied by your CMA? How?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP3_1	S2	In developing investments, we see that some of the questions in the PAF are very valuable. If someone came up with a project idea, we would ask 'make sure you cover these things in developing that project'.
NRP3_2	S1	We've got two programs. Each has a program plan which they adapt every 12 months. So it would be useful there for their program reviews in identifying the asset within their programs to be targeted. The PAF does ask some very good questions and we can certainly use a lot of that.
NRP3_3	S3	Certainly elements of form could be incorporated in what we're doing now, although much of it is already there. Section 3 that deals with choice of delivery mechanisms was really useful, and could be included in our processes. Other questions could be included as a reality check in our current project development. It's human nature sometimes to convince yourself of something, so the reality check would be good.
NRP3_4	S3	It could be used for major projects – would need to be worth \$500K or more to justify using the PAF in full.

<i>P4: What are the obstacles to your CMA applying the INFFER method?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP4_1	S1	It's the continued use factor. If we were as expert as Geoff and April [from the INFFER team] we'd have no trouble at all. But in reality there'd be a continuing requirement to understand, keep things moving, and have all of our staff on the same train.
NRP4_2	S1	Our difficulty is that we've got hundred's of assets in this region. Identifying the few to target using high significance and high threat as the criteria would be challenging.
NRP4_3	S1	At the moment we're at the mercy of our own community who have an expectation that we'll fix everything for them. We'd have difficulty concentrating our resources in a few areas, given our community up here. And community reactions to the asset identification and 'culling' process would be an issue – the "what about me" thing, if they happened to be left off the list.
NRP4_5	S1	These [comments NRP1_1, NRP4_2 & NRP4_3] aren't weaknesses of the process. I think it's very thorough. It's about us getting our heads around it and becoming more comfortable.

NRP4_6	B1	<p>My board would say that “community” is our greatest asset, ie, interests, motivation, professionalism to do NRM. It’s not clear how INFFER would integrate that. Our business model differs from other CMAs because we want to protect that.</p> <p><i>INFFER team response: We believe INFFER integrates information about community capacity and socio-economics in a way that provides a stronger case for why you would invest larger amounts of money in NRM in assets that the community really values and wants to work on. I reckon INFFER deals with community capacity much better and more seriously than anything else I’ve seen. It doesn’t give lip-service to community.</i></p>
NRP4_7	B1	<p>I imagine the biggest obstacle would be to get consistency across people and areas.</p> <p><i>INFFER team response: For it to work in a CMA, you really need one person, a “super user” within the organisation to provide help and critique. But you’ll have someone in your organisation who’d be very suited to doing that, to provide the internal quality assurance. That will be hard the first time around, but over time it will be easier as it becomes part of the routine.</i></p>
NRP4_8	S2	<p>It took us a while to get our heads around the CAP. A few years down the track our programs seem to be delivering on those targets. Applying INFFER is about moving from what you’ve got established to something new. We’d have to get rid of some of the existing processes to bring something in new. You don’t want to do INFFER extra, because you have trouble doing everything now.</p> <p><i>INFFER team response: Our view is that we’ll never be able to make a case for really significant investment in NRM without stronger business models. The amount of money that a region gets, and its flexibility in spending it, is very limited really. You can say then that INFFER hasn’t much point, but ultimately we need to get better business models in place to get serious funding.</i></p>
NRP4_9	S3	<p>We currently do stuff around the NRC standards, and we need to find alternatives or better understand what the NRC standards mean. At the moment its difficult for staff to grasp those standards conceptually. There are elements in the INFFER that might help in that respect, but some of the language in the PAF would need to be better aligned with the Standard.</p>
NRP4_10	S3	<p>Time management is the problem, given the time demands of applying the PAF. We’re currently putting a number of new systems in place, like for monitoring and evaluation. We’re in a transitionary stage, and some of those things will take a while to bed down before we can free up the time needed to spend on applying the INFFER method.</p>

<i>P5: What could be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP5_1	S1	More resources.
NRP5_2	S1	It’s also about developing the will within the CMA staff, the board, getting everyone on the same train, deciding this is where we’re going, this is what we’re going to use, and this is how we’re going to do it, and then bite the bullet and do it. They’re the decisions that we face now. Once you’ve made the decision, the obstacles are not insurmountable, but there’s that big one to get over in the first instance.

<i>P6: With practice, how self-sufficient could your CMA become in applying the INFFER method?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRP6_1	S1	Nailing the asset goal was the really hard part, which involved a lot of toing and froing with Graham and also Geoff and April [from the INFFER team]. There were a lot of iterations in doing the form to get it right, all consistent. But having done it once, it’d be easier to do next time.

NRP6_2	S3	Unless we were doing it quite regularly so we got in the swing of it, and my feedback today suggests we wouldn't be [doing it regularly], we'd always be looking for at least some intellectual input from those more familiar with the process.
NRP6_3	S1	We'd have to import the skills, or get a "super user". We could develop skills internally, but we don't have a super user at the moment. I wouldn't be confident that I was doing it right with other assets, even after having been through this trial. So you need to import someone, or get someone trained as a super user.
NRP6_4	B1	It's the newness of it. Once you got used to it, that would go away.

9.1.2 Questionnaire feedback

Three staff of the Northern Rivers CMA who had participated directly in the trials responded to the questionnaire. One member of the CMA Board, who attended the review workshop for this CMA on 18th March 2010, also completed Table A of the questionnaire.

Ratings of the importance of different criteria in choosing a method for evaluating investments

Summary statistics for the questionnaire responses by the three staff, one Board member, and the full set of four respondents are presented in Table 18. Recall that a score of 1 for a criterion denotes a rating of very low importance and a score of 7 denotes a rating of very high importance. The criteria are listed in the table in descending order of mean score for all respondents. Rankings of the various criteria according to their respective mean ratings of importance by all respondents are shown in Table 19. The criteria are listed in this table in descending order of their mean score for the full set of four respondents. The three criteria ranked on average *highest* in importance for choosing an evaluation method by the *full set of respondents* were:

- Equal 1st 'provides a quantitative basis for ranking investment options';
- Equal 1st 'provides a quantitative basis for ranking investment options across different asset classes';
- Equal 1st 'strengthens your CMA's confidence that the prioritised investments represent 'value for money''

The two criteria ranked on average highest in importance by the *staff respondents* were 'strengthens your CMA's confidence that the prioritised investments represent 'value for money' (ranked 1st), 'provides a quantitative basis for ranking investment options' (equal 2nd) and 'provides a quantitative basis for ranking investment options across different asset classes' (equal 2nd).

The ten criteria ranked on average highest (equal 1st) in importance by the *Board* respondent were 'provides a quantitative basis for ranking investment options', 'provides a quantitative basis for ranking investment options across different asset classes', 'is practical to apply given the skills and time available to CMA staff', 'helps justify investment proposals to government investors', 'can incorporate local knowledge and values', 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes', 'helps justify investment decisions to your CMA's regional community', 'makes transparent all the judgements and assumptions that need to be made', 'is consistent with the philosophy of integrated catchment management', and 'is based on sound biophysical science'.

Hence, the staff as a group and the Board respondent both ranked the criteria 'provides a quantitative basis for ranking investment options' and 'provides a quantitative basis for ranking investment options across different asset classes' either 1st or 2nd in importance for choosing a method to evaluate investments in natural assets. Both also ranked the criteria 'is practical to apply

Table 18: Summary statistics for the importance of various criteria in choosing an evaluation method: Northern Rivers CMA

Criteria:	Mean criterion importance score, by respondent category		
	All (n = 4)	Staff (n = 3)	Board (n = 1)
	Mean criterion importance score	Mean criterion importance score	Mean criterion importance score
The method ...			
Provides a quantitative basis for ranking investment options	6.00	5.67	7.00
Provides a quantitative basis for ranking investment options across different asset classes	6.00	5.67	7.00
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	6.00	6.00	6.00
Is practical to apply given the skills and time available to CMA staff	5.75	5.33	7.00
Helps justify investment proposals to government investors	5.75	5.33	7.00
Can incorporate local knowledge and values	5.50	5.00	7.00
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	5.50	5.00	7.00
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	5.50	5.33	6.00
Helps justify investment decisions to your CMA's regional community	5.50	5.00	7.00
Accounts for the technical risks that investment options may face	5.50	5.33	6.00
Makes transparent all the judgements and assumptions that need to be made	5.25	4.67	7.00
Is consistent with the philosophy of integrated catchment management	5.25	4.67	7.00
Accounts for the social, bureaucratic and political risks that investment options may face	5.25	5.00	6.00
Is based on sound biophysical science	5.00	4.33	7.00
Is based on sound economics	5.00	4.67	6.00
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	5.00	4.67	6.00
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	5.00	4.67	6.00
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	5.00	5.00	5.00
Avoids subjective judgments	4.50	4.00	6.00
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	4.50	4.00	6.00

Table 19: Criteria ranked by mean importance scores: Northern Rivers CMA

Criteria: The method ...	Rank by mean score for respondent category		
	All (n = 4)	Staff (n = 3)	Board (n = 1)
Provides a quantitative basis for ranking investment options	1	2	1
Provides a quantitative basis for ranking investment options across different asset classes	1	2	1
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	1	1	11
Is practical to apply given the skills and time available to CMA staff	4	4	1
Helps justify investment proposals to government investors	4	4	1
Can incorporate local knowledge and values	6	8	1
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	6	8	1
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	6	4	11
Helps justify investment decisions to your CMA's regional community	6	8	1
Accounts for the technical risks that investment options may face	6	4	11
Makes transparent all the judgements and assumptions that need to be made	11	13	1
Is consistent with the philosophy of integrated catchment management	11	13	1
Accounts for the social, bureaucratic and political risks that investment options may face	11	8	11
Is based on sound biophysical science	14	18	1
Is based on sound economics	14	13	11
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	14	13	11
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	14	13	11
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	14	8	20
Avoids subjective judgments	19	19	11
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	19	19	11

given the skills and time available to CMA staff’ and ‘helps justify investment proposals to government investors’ as highly important (both ranked equal 4th by the staff group and equal 1st by the Board respondent).

Ratings of the performance of INFFER’s PAF method relative to the CMA’s current practice

Summary statistics for the questionnaire responses of the three Northern Rivers CMA staff who participated directly in trialling the PAF method are presented in Table 20. Recall that a score of -3 for a criterion denotes a rating of very low performance of the PAF method relative to current practice, +3 denotes a rating a very high performance of the PAF method relative to current practice, and a score of 0 denotes a rating that the performance of the PAF is ‘about same’ as that of the CMA’s current practice. The criteria are listed in the table in descending order of mean performance score for all respondents. This table reveals that the eight criteria that the PAF method scored on average *highest* against were:

1 st	‘makes transparent all the judgements and assumptions that need to be made’;
2 nd	‘strengthens your CMA’s confidence that investments will achieve their intended biophysical outcomes’;
Equal 3 rd	‘provides a quantitative basis for ranking investment options’;
Equal 3 rd	‘provides a quantitative basis for ranking investment options across different asset classes’;
Equal 3 rd	‘helps justify investment proposals to government investors’;
Equal 3 rd	‘accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment’;
Equal 3 rd	‘helps justify investment decisions to your CMA’s regional community’; and
Equal 3 rd	‘strengthens your CMA’s confidence that the prioritised investments represent ‘value for money’.

The two criteria that the PAF method scored on average *lowest* against were:

19 th	‘can incorporate local knowledge and values’; and
20 th	‘is practical to apply given the skills and time available to CMA staff’.

The mean scores against all but two of the criteria are positive, signifying that respondents on average rated the performance of the PAF method against 18 of the 20 criteria as superior to current practice. Respondents on average rated the performance of this method against the criteria ‘can incorporate local knowledge and values’ as equal to current practice. Against the criteria ‘is practical to apply given the skills and time available to CMA staff’ they rated the performance of the PAF method as (substantially) inferior to current practice.

In Table 21 the criteria are ranked in descending order of their mean importance scores, as in Table 19, with the mean score for the PAF method’s relative performance against each criterion also presented. We can see from this table that the criterion ‘is practical to apply given the skills and time available to CMA staff’ was ranked equal 3rd in importance for this CMA. Hence, the fact that respondents on average rated the performance of the PAF method against this criterion as (substantially) inferior to current practice signals a real hurdle that needs to be addressed if this CMA is to adopt this method. The criterion against which the PAF method was perceived on average to perform best (compared with current practice) – ‘makes transparent all the judgements

Table 20: Summary statistics for performance of the standard PAF method against the various criteria: Northern Rivers CMA

The method ...	Criteria:	Mean PAF performance score	Rank by mean PAF performance score
Makes transparent all the judgements and assumptions that need to be made		2.00	1
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		1.67	2
Provides a quantitative basis for ranking investment options		1.33	3
Provides a quantitative basis for ranking investment options across different asset classes		1.33	3
Helps justify investment proposals to government investors		1.33	3
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		1.33	3
Helps justify investment decisions to your CMA's regional community		1.33	3
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		1.33	3
Is based on sound biophysical science		1.00	9
Avoids subjective judgments		1.00	9
Is based on sound economics		1.00	9
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		1.00	9
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		1.00	9
Accounts for the technical risks that investment options may face		0.67	14
Is consistent with the philosophy of integrated catchment management		0.33	15
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		0.33	15
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		0.33	15
Accounts for the social, bureaucratic and political risks that investment options may face		0.33	15
Can incorporate local knowledge and values		0.00	19
Is practical to apply given the skills and time available to CMA staff		-2.00	20

Table 21: Mean performance of the standard PAF method against the various criteria (listed in descending order of perceived importance): Northern Rivers CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean PAF performance score (n = 3)
Provides a quantitative basis for ranking investment options		1	1.33
Provides a quantitative basis for ranking investment options across different asset classes		1	1.33
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		1	1.33
Is practical to apply given the skills and time available to CMA staff		4	-2.00
Helps justify investment proposals to government investors		4	1.33
Can incorporate local knowledge and values		6	0.00
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		6	1.67
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		6	1.33
Helps justify investment decisions to your CMA's regional community		6	1.33
Accounts for the technical risks that investment options may face		6	0.67
Makes transparent all the judgements and assumptions that need to be made		11	2.00
Is consistent with the philosophy of integrated catchment management		11	0.33
Accounts for the social, bureaucratic and political risks that investment options may face		11	0.33
Is based on sound biophysical science		14	1.00
Is based on sound economics		14	1.00
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		14	0.33
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		14	0.33
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		14	1.00
Avoids subjective judgments		19	1.00
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		19	1.00

and assumptions that need to be made’ – was ranked equal 11th based on mean criterion importance scores for this CMA.

Aside from the 20 criteria pre-specified in Table A, respondent S3 from this CMA suggested that one further criterion was relevant to their CMA in choosing an evaluation method. This was ‘additionality – ensures outcomes invested in are over and above what would happen in the usual course of events. This criterion was ranked by this respondent equal first in importance with five of the pre-specified criteria.

Rating how worthwhile was the experience of trialling the standard PAF method

The three Northern Rivers CMA respondents participating directly in the trials of the PAF method were asked ‘How worthwhile for you was the experience of completing INFFER’s PAF?’. Of these respondents, one answered that their experience had been highly worthwhile and two answered it had been moderately worthwhile (the remaining unutilised options were ‘slightly worthwhile’ and ‘not at all worthwhile’).

Respondent S1 commented: ‘Although it was time consuming and we have probably given some negative feedback, the exercise was very worthwhile in terms of our learning, our options for the future of investment and being able to communicate with future investors on this method’.

Respondent S2 commented: ‘There were some very good project planning and review questions contained in the PAF’. Respondent S3 commented: ‘I liked the checks and balances with some questions rechecking the logic, and the section dealing with mechanisms appropriate to the problem (i.e., regulatory versus incentives, etc). Highly valuable in that there are some good elements for us to include, but not so great in terms of the time it takes. Could only justify for large projects’.

9.2 Trials of the PAF supplement

9.2.1 Workshop feedback

Comments from workshop participants in relation to each of the pre-defined questions for this phase of the trials are presented below.

<i>C1: Is it important to account for capacity spillovers from projects when prioritising them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC1_1	S2	Yes, conceptually it's important. You've got to invest in something that makes the job easier for the next project.

<i>C2: Does your CMA currently account for them? How?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC2_1	B1 & S2	<p>Our whole model is based on those capacity spillover effects. We haven't put numbers on them, but we do think about them. For instance, we deliberately work with the low-hanging fruit first, because that makes it easier to move on to other people.</p> <p>That's why we have a staged process of river planning. The first plans we do with landholders put them in a position to do other plans.</p> <p>But with our river reach approach there's also the 'looking over the fence' benefit, because activities are focused in particular areas rather than spread randomly across a wide landscape. It's easier to get new people onboard once you've already demonstrated what would happen.</p>

<i>C3: Is the PAF supplement useful in accounting for capacity spillovers from projects when evaluating them?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC3_1	S1	It was interesting to think about who we are affecting, who else is going to get the benefit, who is at risk. It adds another dimension to your project. Instead of just whacking a few lumps of timber in the river to fix it, it makes you think that if you do that then who else is affected.
NRC3_2	S2	The more you think about those effects, the more ideas you'd get about filling out the form. It definitely makes you think about the capacity legacies you might get from a project, and plan for projects that have those spillover effects.
NRC3_3	S2	Whether the dollar value of the capacity spillovers is what's important I'm not sure. I suppose it does help you gauge which project is better than another, and that is important. But whether that dollar value that you're saving is actually correct, there's lots of questions about that. The form uses quite coarse distinctions in the strength of capacity spillovers – 1 %, 3% and 5% - whether that actually makes any sense I'm not sure. My question is whether it's worth measuring in dollars, rather than just rating the value of the capacity spillovers as low, medium or high. It's whether there's enough rigour to measure them in dollars.
NRC3_4	S3	Completing the PAF supplement form certainly raised my awareness of capacity spillover effects and the kind of thinking that is need to account for them..

<i>C4: What difficulties did you encounter in completing the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC4_1	S1	I found it to be, because it was new, not an easy process.
NRC4_1	S1	Having to put figures on these capacity spillover effects wasn't easy.
NRC4_2	S2	I think it just takes time. Eventually they [capacity spillovers] come to you. You fill out the form, read it a couple of times, and then you realise there's something else you hadn't considered before. It's just we haven't done it before, we haven't valued these things.

<i>C5: What might be done to alleviate these obstacles?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC5_1	S1	It hasn't been done before. What can we do to alleviate the obstacles? It's building our confidence in our own predictions, in benchmarking.

<i>C6: Can you see the PAF supplement method, or elements of it, being applied by your CMA?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC6_1	B1	If you're going to do the first part, you'd be silly not to do the second part. It makes it a better outcome to take the capacity spillover effects into account.
NRC6_2	S1	Yes, we'd be silly not to. It'd get a better overall product for us. We have a very scrutinising community, so the more evidence and transparency we can show to them the better.

<i>C7: If so, how self-sufficient could your CMA become in applying the PAF supplement?</i>		
Comment code	Who? (S=staff; B=Board)	Comment
NRC7_1	S1	The same answer as before [see comments NRP6_3 and NRP6_4]. Once you're established and into it and you've got a hierarchy or structure that are going it, whether that's the "super user" model or whatever, we would be reasonably self-sufficient, but it's getting to that point.

9.2.2 Questionnaire feedback

Summary statistics for the responses of the three Northern Rivers CMA staff who participated directly in trialling the supplementary PAF are presented in Table 22. Recall that a score of -3 for a criterion denotes a rating of very low performance of the 'supplemented PAF method' relative to current practice, +3 denotes a rating a very high performance of the supplemented PAF method relative to current practice, and a score of 0 denotes a rating that the performance of the supplemented PAF method is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of the mean score for the three respondents. The mean scores for the performance of the supplemented PAF method are positive against all of the eight criteria except 'is practical to apply given the skills and time available to CMA staff' (for which the mean score is -2.0). In other words, the supplemented PAF method was perceived on average by respondents from the Northern Rivers CMA as superior to the CMA's current practice against seven of the eight criteria.

The criterion against which on average the supplemented PAF method performed best compared with current practice was 'makes transparent all the judgments and assumptions that need to be made'. We see from Table 19 that this criterion was ranked equal 11th of the full set of 20 criteria in terms of its perceived importance on average to all respondents from this CMA for choosing an evaluation method.

Table 23 allows comparison of the mean performance score of the PAF method against each of the eight criteria with the mean performance score of the supplemented PAF method. The criteria are listed in the table in descending order of their mean importance score (based on the ordering in Table 19 of the full set of 20 criteria). The performance of the supplemented PAF method was perceived on average as superior to the standard PAF method against one of the criteria – ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’. The performance of the supplemented PAF method was perceived on average as inferior against four of the eight criteria – ‘strengthens your CMA’s confidence that the prioritised investments represent ‘value for money’’, ‘helps justify investment decisions to your CMA’s regional community’, ‘makes transparent all the judgements and assumptions that need to be made’ and ‘avoids subjective judgments’. The two methods were perceived on average as performing equally well against the three criteria ‘helps justify investment proposals to government investors’, ‘is practical to apply given the skills and time available to CMA staff’ and ‘is consistent with the philosophy of integrated catchment management’.

The relevance of the PAF supplement method’s superiority against the criterion ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’ may have limited influence on this CMA’s choice of method given that this criterion was ranked on average by respondents from this CMA as only equal 14th (out of 20) in importance for choosing a method.

Rating how worthwhile was the experience of trialling the PAF supplement

The three respondents participating directly in the trials of the PAF supplement were asked ‘How worthwhile for you was the experience of completing the supplementary form to the PAF?’. Of these respondents, one answered that their experience had been highly worthwhile and two that it had been moderately worthwhile (the remaining unutilised options were ‘slightly worthwhile’ and ‘not at all worthwhile’). Recall that respect of the equivalent question for the standard PAF form that one respondent answered that their experience completing this form had been highly worthwhile, and two answered that the experience had been moderately worthwhile. Overall, therefore, the three respondents found the experience of completing the PAF supplement a less worthwhile experience than completing the standard PAF form.

Respondent S1 commented in respect of their experience in completing the PAF supplement: ‘The supplement is very useful for NRCMA as we place a very high emphasis on community’. Respondent S2 commented: ‘It made me realise the value of spill-over effects, but am still a bit sketchy on how they are being measured by this method’ Respondent S3 commented: ‘Less valuable [than the standard PAF process], but it’s a difficult concept to address. I think it is a difficult issue to address in this way (i.e., quantify), better I think to raise the issues and ensure people consider in structured way (a series of questions), but leave as qualitative. That’s my gut feel’.

Table 22: Mean performance of the supplemented PAF method (compared with current practice) against the various criteria: Northern Rivers CMA

Criteria:	Mean performance score for supplemented PAF (n = 3)	Rank by mean performance score
The method ...		
Makes transparent all the judgements and assumptions that need to be made	1.67	1
Helps justify investment proposals to government investors	1.33	2
Helps justify investment decisions to your CMA's regional community	1.00	3
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	1.00	3
Avoids subjective judgments	0.67	5
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	0.67	5
Is consistent with the philosophy of integrated catchment management	0.33	7
Is practical to apply given the skills and time available to CMA staff	-2.00	8

Table 23: Comparing performance of the standard PAF method and the supplemented PAF method against eight criteria: Northern Rivers CMA

Criteria:	Mean importance score (n = 4)	Mean performance score for standard PAF method (n = 3)	Mean performance score for supplemented PAF method (n = 3)
The method ...			
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	6.00	1.33	1.00
Helps justify investment proposals to government investors	5.75	1.33	1.33
Is practical to apply given the skills and time available to CMA staff	5.75	-2.00	-2.00
Helps justify investment decisions to your CMA's regional community	5.50	1.33	1.00
Makes transparent all the judgements and assumptions that need to be made	5.25	2.00	1.67
Is consistent with the philosophy of integrated catchment management	5.25	0.33	0.33
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	5.00	0.33	0.67
Avoids subjective judgments	4.50	1.00	0.67

10. THE SUPPLEMENTED PAF METHOD: OVERVIEW OF QUESTIONNAIRE FEEDBACK ACROSS THE THREE REGIONS

Questionnaire feedback on the performance of the trials of the supplemented PAF method was analysed in chapters 7, 8 and 9 for each of the three regional NRM organisations which participated in the trials. This feedback is brought together and summarised in this chapter to gain an overview of how the experience of applying the supplemented PAF method was perceived by these organisations. An overview across the three organisations of questionnaire feedback regarding the trials of the standard PAF method is provided in section 10.1. An overview of the questionnaire feedback regarding the trials of the PAF supplement is then presented in section 10.2.

10.1 Trials of the PAF

10.1.1 Ratings of the importance of different criteria in choosing a method for evaluating investments

Table 24 brings together the average scores from the three CMAs in respect of their respondents' perceptions of the importance of different criteria for choosing a method to evaluate investments in natural assets. It presents also the average scores across the three CMAs, calculated as the average of the three CMAs' average scores¹⁸. The criteria are listed in the table in descending order of average criterion score across the three CMAs. Table 25 presents the information in Table 24 in the form of ranks of criterion importance for each CMA and the three CMAs combined.

We see from Table 25 that the three criteria ranked on average as of *greatest* importance across the three CMAs are:

- 1st 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes';
- 2nd 'strengthens your CMA's confidence that the prioritised investments represent 'value for money''; and
- 3rd 'is practical to apply given the skills and time available to CMA staff'.

The high rankings for the first two of these criteria would be encouraging for the INFFER team given the focus in their method of achieving biophysical outcomes and value for money. The fact that the criterion 'strengthens your CMA's confidence that the prioritised investments represent 'value for money'' was ranked by the three CMAs combined considerably higher than the criterion 'is based on sound economics' (ranked equal 13th across the three CMAs) indicates perception that that sound economics is not needed for assessing value for money and/or the simplifications of the PAF method from sound economics (i.e., from the conventional approach to benefit-cost analysis) do not detract significantly from its ability to assess value for money. The third highest ranking for the criterion 'is practical to apply given the skills and time available to CMA staff' also coincides with the focus of the INFFER team, although they have had appreciably less success in achieving perceptions from respondents in the three CMAs that they have delivered on this focus.

The three criteria ranked on average as of *least* importance across the three CMAs are:

¹⁸ This is different from calculating average scores across the full set of 21 respondents (nine from Border Rivers – Gwydir CMA, eight from Namoi CMA and four from Northern Rivers CMA). Calculating the average scores in this way would have given greater weight to CMAs with larger numbers of respondents.

Table 24: Mean scores for criterion importance, for each CMA and the three CMAs combined

The method ...	Criteria:	Average score for criterion importance by CMA*			Average score for criterion importance across the 3 CMAs (n = 21)
		Border Rivers – Gwydir (n = 9)	Namoi (n = 8)	Northern Rivers (n = 4)	
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		6.22	6.13	5.50	5.95
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		5.78	5.88	6.00	5.89
Is practical to apply given the skills and time available to CMA staff		6.00	5.38	5.75	5.71
Can incorporate local knowledge and values		5.56	6.00	5.50	5.69
Makes transparent all the judgements and assumptions that need to be made		5.89	5.75	5.25	5.63
Is based on sound biophysical science		6.11	5.63	5.00	5.58
Helps justify investment decisions to your CMA's regional community		5.67	5.50	5.50	5.56
Provides a quantitative basis for ranking investment options		5.33	5.25	6.00	5.53
Helps justify investment proposals to government investors		5.33	5.50	5.75	5.53
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		5.22	5.63	5.50	5.45
Provides a quantitative basis for ranking investment options across different asset classes		5.22	4.88	6.00	5.37
Accounts for the technical risks that investment options may face		4.89	5.38	5.50	5.26
Is based on sound economics		5.00	5.38	5.00	5.13
Accounts for the social, bureaucratic and political risks that investment options may face		5.00	5.13	5.25	5.13
Is consistent with the philosophy of integrated catchment management		4.44	5.38	5.25	5.02
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		5.00	4.75	5.00	4.92
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		4.78	4.63	5.00	4.80
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		4.67	5.13	4.50	4.77
Avoids subjective judgments		5.22	4.50	4.50	4.74
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		5.00	4.13	5.00	4.71

Table 25: Rankings (in descending order) of mean criterion importance, for each CMA and the three CMAs combined

	Criterion ranking in descending order of mean importance			
	Border Rivers – Gwydir (n = 9)	Namoi (n = 8)	Northern Rivers (n = 4)	Combined (n = 21)
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes	1	1	6	1
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'	5	3	1	2
Is practical to apply given the skills and time available to CMA staff	3	9	4	3
Can incorporate local knowledge and values	7	2	6	4
Makes transparent all the judgements and assumptions that need to be made	4	4	11	5
Is based on sound biophysical science	2	5	14	6
Helps justify investment decisions to your CMA's regional community	6	7	6	7
Provides a quantitative basis for ranking investment options	8	13	1	8
Helps justify investment proposals to government investors	8	7	4	8
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment	10	5	6	10
Provides a quantitative basis for ranking investment options across different asset classes	10	16	1	11
Accounts for the technical risks that investment options may face	17	9	6	12
Is based on sound economics	13	9	14	13
Accounts for the social, bureaucratic and political risks that investment options may face	13	14	11	13
Is consistent with the philosophy of integrated catchment management	20	9	11	15
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments	13	17	14	16
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive	18	18	14	17
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options	19	14	19	18
Avoids subjective judgments	10	19	19	19
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals	13	20	14	20

- 18th ‘recognises the benefits from investing in innovative investment options rather than just ‘tried and true’ options’;
- 19th ‘avoids subjective judgments’; and
- 20th ‘identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals’.

The lowest importance ranking for the three CMAs combined of the criterion ‘identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals’ may be of some concern to the INFFER team given the central focus of their method on satisfying this criterion (particularly through embedding the Public: Private Benefits framework in this method (Pannell et al. 2009a).

Table 25 reveals also that:

- the criterion ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’ was ranked quite low (16th) in importance by the three CMAs combined, and by each of Border Rivers – Gwydir, Namoi and Northern Rivers CMAs (equal-13th, 17th and equal-14th, respectively);
- the criterion ‘helps justify investment decisions to your CMA’s regional community’ was ranked by the three CMAs combined and by each CMA similarly in importance to the criterion ‘helps justify investment proposals to government investors’ (8th and 10th, respectively, for the three CMAs combined).

10.1.2 Performance of INFFER’s PAF method relative to CMAs’ current practice

Table 26 brings together the average scores from the three CMAs in respect of their respondents’ perceptions of the performance of the PAF method compared with their current practice for evaluating investments in natural resource assets. It presents also the average performance scores across the three CMAs, calculated as the average of the three CMAs’ average scores¹⁹. The criteria are listed in the table in descending order of average performance score across the three CMAs against the criteria. Table 27 presents the information in Table 26 in the form of ranks of performance against criterion for each CMA and the three CMAs combined.

Table 27 reveals that the three criteria that the PAF method performed *best* against on average across the three CMAs, compared with the CMAs’ current evaluation practices, were:

- 1st ‘provides a quantitative basis for ranking investment options across different asset classes’;
- 2nd ‘makes transparent all the judgements and assumptions that need to be made’; and
- 3rd ‘provides a quantitative basis for ranking investment options’.

¹⁹ This is different from calculating average scores across the full set of 10 relevant respondents (four from Border Rivers – Gwydir CMA, three from Namoi CMA and three from Northern Rivers CMA). Calculating the average scores in this way would have given greater weight to CMAs with larger numbers of respondents.

Table 26: Mean performance scores (compared with current practice) for the standard PAF method against the various criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Average score for PAF method's relative performance against criteria, by CMA*			Average score for performance against criteria across the 3 CMAs (n = 10)
		Border Rivers – Gwydir (n = 4)	Namoi (n = 3)	Northern Rivers (n = 3)	
Provides a quantitative basis for ranking investment options across different asset classes		1.75	1.33	1.33	1.47
Makes transparent all the judgements and assumptions that need to be made		1.25	1.00	2.00	1.42
Provides a quantitative basis for ranking investment options		1.75	1.00	1.33	1.36
Helps justify investment proposals to government investors		1.50	1.00	1.33	1.28
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		0.75	1.00	1.67	1.14
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		1.00	0.33	1.33	0.89
Helps justify investment decisions to your CMA's regional community		1.25	0.00	1.33	0.86
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		1.25	0.00	1.33	0.86
Is based on sound economics		0.75	0.33	1.00	0.69
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		1.00	0.67	0.33	0.67
Is based on sound biophysical science		0.75	-0.33	1.00	0.47
Accounts for the social, bureaucratic and political risks that investment options may face		0.75	0.33	0.33	0.47
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		0.25	0.00	1.00	0.42
Accounts for the technical risks that investment options may face		0.75	-0.33	0.67	0.36
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		0.50	0.00	0.33	0.28
Can incorporate local knowledge and values		0.75	0.00	0.00	0.25
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		0.50	-1.00	1.00	0.17
Is consistent with the philosophy of integrated catchment management		0.25	-0.33	0.33	0.08
Avoids subjective judgments		-0.25	-0.67	1.00	0.03
Is practical to apply given the skills and time available to CMA staff		-1.25	-1.67	-2.00	-1.64

Each of these criteria was indeed emphasised strongly in developing the PAF method. The higher performance ranking against ‘provides a quantitative basis for ranking investment options across different asset classes’ than against ‘provides a quantitative basis for ranking investment options’ is consistent with the fact that the PAF method differs more from the CMAs’ current practice in terms of the first of these (the CMAs already apply environmental benefit indices or other tools to quantitatively rank investment options within asset classes, but they lack quantitative methods for ranking options across asset classes).

The three criteria that the PAF method performed *worst* against on average across the three CMAs, compared with the CMAs’ current evaluation practices, were:

- 18th ‘is consistent with the philosophy of integrated catchment management’;
- 19th ‘avoids subjective judgments’; and
- 20th ‘is practical to apply given the skills and time available to CMA staff’.

The criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the performance of the PAF method was rated lower on average by the three CMAs than their current practices. As observed above, this criterion was strongly emphasised in developing the PAF method. The PAF method’s bottom-ranking and inferior performance against this criterion across the three CMAs indicates a need to find ways for the CMAs to perform better against it (e.g., through greater resourcing, training and provision of outside support). The INFFER team is well aware of resistance by some regional NRM bodies to applying INFFER because the process is perceived as:

... too long and is too cumbersome ... The team has made a concerted effort to simplify the process in response to feedback, and have also entertained (briefly) the idea of ‘allowing’ a simpler INFFER (basically just key questions). ... The INFFER team is now inclined to take a hard line on requests to further simplify INFFER. Our view is that it has already been simplified to the point where it does not contain anything that should be considered optional, and in fact represents a basic level of due diligence for the expenditure of millions of dollars of public funds (Marsh et al. 2010 p. 16).

Table 27 reveals also that:

- the relative performance of the PAF method against the criterion ‘identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals’ was ranked quite low (15th) for the three CMAs combined. This perception from the CMAs runs against the considerable effort invested by the INFFER team in satisfying this criterion;
- the relative performance of the PAF method against the criterion ‘is consistent with the philosophy of integrated catchment management’ was also ranked lowly (18th) for the three CMAs combined;
- the relative performance of the PAF against the criteria ‘strengthens your CMA’s confidence that the prioritised investments represent ‘value for money’’ and ‘is based on sound economics’ was ranked similarly for the three CMAs combined (equal-7th and 9th, respectively); and
- the criteria ‘helps justify investment proposals to government investors’ was ranked slightly higher across the three CMAs than ‘helps justify investment decisions to your CMA’s regional community’ (4th and 7th, respectively).

Table 27: Rankings (in descending order) of mean performance of the standard PAF method against the various criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Criterion ranking in descending order of mean performance			
		Border Rivers – Gwydir (n = 4)	Namoi (n = 3)	Northern Rivers (n = 3)	Combined (n = 10)
Provides a quantitative basis for ranking investment options across different asset classes		1	1	3	1
Makes transparent all the judgements and assumptions that need to be made		4	2	1	2
Provides a quantitative basis for ranking investment options		1	2	3	3
Helps justify investment proposals to government investors		3	2	3	4
Strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes		9	2	2	5
Accounts for the likelihood of citizens (e.g., landholders) making the behaviour changes needed for success of an investment		7	7	3	6
Helps justify investment decisions to your CMA's regional community		4	10	3	7
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		4	10	3	7
Is based on sound economics		9	7	9	9
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		7	6	15	10
Is based on sound biophysical science		9	15	9	11
Accounts for the social, bureaucratic and political risks that investment options may face		9	7	15	12
Recognises the benefits from investing in important issues that nonetheless may be controversial or divisive		17	10	9	13
Accounts for the technical risks that investment options may face		9	15	14	14
Identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals		15	10	15	15
Can incorporate local knowledge and values		9	10	19	16
Recognises the benefits from investing in innovative investment options rather than just 'tried and true' options		15	19	9	17
Is consistent with the philosophy of integrated catchment management		17	15	15	18
Avoids subjective judgments		19	18	9	19
Is practical to apply given the skills and time available to CMA staff		20	20	20	20

10.1.3 Rating how worthwhile was the experience of trialling the PAF method

All ten respondents from the three CMAs participating directly in the trials of the PAF method were asked ‘How worthwhile for you was the experience of completing INFFER’s PAF?’ The distributions of responses to this question for each CMA and the three CMAs combined are presented in Table 28. We see that six of all 10 respondents across the three CMAs rated the experience as moderately worthwhile, three as highly worthwhile, one as slightly worthwhile, and none as not at all worthwhile. The proportionate distribution across the rating levels was similar across the three CMAs.

Table 28: Ratings from each CMA and overall in response to the question ‘How worthwhile for you was the experience of completing INFFER’s PAF?’

How worthwhile?	Ratings from respondents in each CMA			Total across the three CMAs
	Border Rivers - Gwydir	Namoi	Northern Rivers	
Highly	1	1	1	3
Moderately	2	2	2	6
Slightly	1	0	0	1
Not at all	0	0	0	0
Total	4	3	3	10

10.2 Trials of the PAF supplement

10.2.1 Performance of the supplemented PAF method relative to CMAs’ current practice

Table 29 brings together the average scores from the three CMAs in respect of their respondents’ perceptions of the performance of the *supplemented* PAF method compared with their current practice for evaluating investments in natural resource assets. It presents also the average performance scores across the three CMAs, calculated as the average of the three CMAs’ average scores²⁰. The criteria are listed in the table in descending order of average performance score across the three CMAs against the criteria. Table 30 presents the information in Table 29 in the form of ranks of performance against criterion for each CMA and the three CMAs combined.

Table 30 reveals that the five criteria that the supplemented PAF method performed *best* against on average across the three CMAs (i.e., ranked down to equal 3rd), compared with the CMAs’ current evaluation practices, were:

- 1st ‘accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments’;

²⁰ This is the same in this case as calculating average scores across the full set of nine relevant respondents (three from each of the CMAs), given that the number of respondents is the same for each CMA.

Table 29: Mean performance of the supplemented PAF method against eight criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Mean performance score for supplemented PAF method			
		Border Rivers – Gwydir (n = 3)	Namoi (n = 3)	Northern Rivers (n = 3)	Combined (n = 9)
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		2.00	1.67	0.67	1.45
Makes transparent all the judgements and assumptions that need to be made		1.67	0.67	1.67	1.34
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		1.00	0.67	1.00	0.89
Helps justify investment proposals to government investors		1.00	0.33	1.33	0.89
Helps justify investment decisions to your CMA's regional community		1.33	0.33	1.00	0.89
Avoids subjective judgments		1.00	0.00	0.67	0.56
Is consistent with the philosophy of integrated catchment management		1.00	0.33	0.33	0.55
Is practical to apply given the skills and time available to CMA staff		-0.67	-1.00	-2.00	-1.22

Table 30: Rankings (in descending order) of mean performance of the supplemented PAF method (relative to current practice) against eight criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Criterion ranking in descending order of mean performance			
		Border Rivers – Gwydir (n = 3)	Namoi (n = 3)	Northern Rivers (n = 3)	Combined (n = 9)
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		1	1	5	1
Makes transparent all the judgements and assumptions that need to be made		2	2	1	2
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		4	2	3	3
Helps justify investment proposals to government investors		4	4	2	3
Helps justify investment decisions to your CMA's regional community		3	4	3	3
Avoids subjective judgments		4	7	5	6
Is consistent with the philosophy of integrated catchment management		4	4	7	7
Is practical to apply given the skills and time available to CMA staff		8	8	8	8

- 2nd 'makes transparent all the judgements and assumptions that need to be made';
- Equal 3rd 'strengthens your CMA's confidence that the prioritised investments represent 'value for money'';
- Equal 3rd 'helps justify investment proposals to government investors'; and
- Equal 3rd 'helps justify investment decisions to your CMA's regional community'.

The finding that the supplemented PAF method was rated to perform best on average across the three CMAs against the criterion 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments' – compared with their current evaluation practices – is encouraging given that the supplementation of the standard PAF method was designed explicitly to satisfy this criterion.

The three criteria that the supplemented PAF method performed *worst* against on average across the three CMAs, compared with the CMAs' current evaluation practices, were:

- 18th 'avoids subjective judgments';
- 19th 'is consistent with the philosophy of integrated catchment management'; and
- 20th 'is practical to apply given the skills and time available to CMA staff'.

10.2.2 Performance of the supplemented PAF method relative to the standard PAF method

Table 31 allows comparison of the mean performance score of the PAF method against each of the eight criteria with the mean performance score of the supplemented PAF method. The criteria are listed in the table in descending order of their mean importance score (based on the ordering in Table 25 of the full set of 20 criteria). The performance of the supplemented PAF method was perceived on average across the three CMAs as *superior* to the standard PAF method against the following six of the eight criteria (although the superiority against the 1st and 3rd of the criteria listed below was negligible):

- 'strengthens your CMA's confidence that the prioritised investments represent 'value for money'';
- 'is practical to apply given the skills and time available to CMA staff';
- 'helps justify investment decisions to your CMA's regional community';
- 'is consistent with the philosophy of integrated catchment management';
- 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments'; and
- 'avoids subjective judgments'.

The superiority of the supplemented PAF method compared with the standard PAF method was greatest in absolute terms against the criterion 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments'. The mean performance scores for these two methods against this criterion were 1.45 and 0.67, respectively. This is again encouraging given that the supplementation to the PAF method was designed explicitly to improve its performance against this criterion. Nevertheless, the influence of this superiority on motivating adoption by the CMAs of the supplemented PAF method may be limited

Table 31: Comparing performance of the standard PAF method and the supplemented PAF method against eight criteria, all CMAs combined

The method ...	Criteria:	Mean criterion importance score (n = 21)	Mean performance score for standard PAF method (n= 10)	Mean performance score for supplemented PAF method (n = 9)
Strengthens your CMA's confidence that the prioritised investments represent 'value for money'		5.89	0.86	0.89
Is practical to apply given the skills and time available to CMA staff		5.71	-1.64	-1.22
Makes transparent all the judgements and assumptions that need to be made		5.63	1.42	1.34
Helps justify investment decisions to your CMA's regional community		5.56	0.86	0.89
Helps justify investment proposals to government investors		5.53	1.28	0.89
Is consistent with the philosophy of integrated catchment management		5.02	0.08	0.55
Accounts for the effects of investment options on the community & other capacities needed for your CMA's ongoing investments		4.92	0.67	1.45
Avoids subjective judgments		4.74	0.03	0.56

given that this criterion was ranked across the three CMAs only 16th in importance out of 20 criteria for choosing a method to evaluate investments in natural assets (see Table 27).

The second greatest superiority in absolute terms of the supplemented PAF method compared with the standard PAF method was against the criterion ‘avoids subjective judgments’ (mean performance scores 0.56 and 0.03, respectively), and the third greatest absolute superiority was against the criterion ‘is consistent with the philosophy of integrated catchment management’ (mean performance scores 0.55 and 0.08, respectively). As is the case against the criterion ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’, however, both these criteria were ranked across the three CMAs as low in importance for choosing an evaluation method. ‘Avoids subjective judgments’ was ranked 19th in importance out of the 20 criteria, and ‘is consistent with the philosophy of integrated catchment management’ was ranked 15th in importance. Hence, the marked superiority of the supplemented PAF method compared with the standard PAF method against the three criteria ‘accounts for the effects of investment options on the community and other capacities needed for your CMA’s ongoing investments’, ‘avoids subjective judgments’ and ‘is consistent with the philosophy of integrated catchment management’ may have limited positive influence on the motivations of the CMAs to adopt the supplemented PAF method.

The superiority of the supplemented PAF method compared with the standard PAF method was fourth greatest in absolute terms against the criterion ‘is practical to apply given the skills and time available to CMA staff’ (mean performance scores -1.22 and -1.64, respectively). Unlike the other three criteria against which the supplemented PAF method was rated across the three CMAs as markedly superior, this criterion was ranked high in importance (third out of 20) across these CMAs. This particular perceived superiority could therefore be expected to be a significant motivator for the CMAs to adopt the supplemented PAF method, at least compared with the standard PAF method. However, the mean performance score of this method against this criterion remains strongly negative, indicating that the task of motivating adoption of this method remains a formidable one.

The performance of the supplemented PAF method was perceived on average across the three CMAs as *inferior* to the standard PAF method against the following two of the eight criteria:

- ‘makes transparent all the judgements and assumptions that need to be made’; and
- ‘helps justify investment proposals to government investors’.

These two criteria were ranked across the three CMAs 5th and 8th, respectively, in importance out of the 20 criteria for choosing an evaluation method. Hence, the perceived inferiority on average of the supplemented PAF method against these two criteria, compared with the standard PAF method, may have a significant negative influence on the CMAs’ motivations to choose the former over the latter.

10.2.3 Rating how worthwhile was the experience of trialling the supplemented PAF method

All nine respondents from the three CMAs participating directly in the trials of the PAF supplement were asked ‘How worthwhile for you was the experience of completing the supplementary form to the PAF?’ The distributions of responses to this question for each CMA and the three CMAs combined are presented in Table 32. We see that five of the nine respondents across the three CMAs rated the experience as moderately worthwhile, two as highly worthwhile, two as slightly

Table 32: Ratings from each CMA and overall in response to the question ‘How worthwhile for you was the experience of completing the supplementary form to the PAF?’

How worthwhile was the experience of completing the PAF supplement?	No. of ratings from respondents in each CMA			Total
	Border Rivers - Gwydir	Namoi	Northern Rivers	
Highly	1	0	1	2
Moderately	2	2	1	5
Slightly	0	1	1	2
Not at all	0	0	0	0
Total	3	3	3	9

worthwhile, and none as not at all worthwhile. Overall, the respondents from the Border Rivers – Gwydir CMA found the experience most worthwhile (one rating of highly worthwhile and two of moderately worthwhile). Overall, respondents from the Namoi CMA (two ratings of moderately worthwhile and one of slightly worthwhile) and Northern Rivers CMA (one rating of highly worthwhile, one of moderately worthwhile and one of slightly worthwhile) found the experience similarly worthwhile.

Table 33 allows comparison of respondents’ ratings across the three CMAs of how worthwhile were their experiences of completing the standard PAF form and the PAF supplement, respectively. Overall, the respondents found the experience of completing the standard PAF form to be more worthwhile (three ratings of highly worthwhile, six of moderately worthwhile and one of slightly worthwhile) than of completing the PAF supplement (two ratings of highly worthwhile, five of moderately worthwhile and two of slightly worthwhile), although the difference was not large.

Table 33: Comparison of ratings from the three CMAs overall to the questions about how worthwhile were the experiences of completing the PAF and PAF supplement

How worthwhile was the experience of completing each form?	No. of ratings from the respondents across the three CMAs	
	Standard PAF	PAF supplement
Highly	3	2
Moderately	6	5
Slightly	1	2
Not at all	0	0
Total	10	9

**PART C: ECONOMIC ACCOUNTABILITY OF DECISIONS
TO INVEST IN BUILDING CAPACITIES FOR
COMMUNITY-BASED NRM**

11. RATIONALE FOR STRENGTHENING ECONOMIC ACCOUNTABILITY OF DECISIONS TO INVEST IN BUILDING CAPACITIES FOR NRM

Part C of this report documents the second of the two related methods for economic accountability that were developed in the present project. It draws from the working paper *Developing and testing a method for cost-effective investment in building capacities for community-based collaborative natural resource management* (Marshall 2011a) that was prepared earlier in this project to provide feedback to the three participating regional NRM organisations, and also the Project Steering Committee, on progress achieved in developing and trialling a method for developing cost-effective options for investing in the capacities required for successful community-based collaborative NRM. The reader is advised to refer to that working paper for details that could not be included in the present report due to space limitations.

Part C contains eight chapters (chapters 11 to 18). Presented here in chapter 11 is the rationale for the focus in the present project on devising a method for developing cost-effective NRM capacity-building projects. Chapter 12 provides details of the method that was developed for this purpose. Chapter 13 provides details of how this method was trialled with the three regional NRM organisations participating in the project. Chapter 14 discusses how the trials were reviewed by the participating regional organisations. Chapters 15, 16 and 17 proceed to present the review findings for the Border Rivers-Gwydir, Namoi and Northern Rivers CMAs, respectively. Chapter 18 presents an overview of the questionnaire findings from the review processes with these three bodies.

The present chapter is organised as follows. The need to invest in building capacities for Australia's regionalised community-based approach to NRM governance is considered in section 11.1. The importance of a strategic approach in undertaking these capacity-building investments is discussed in section 11.2. The case for such a strategic approach considering both 'project-specific' and 'general' capacity-building activities in an integrated manner is explored in section 11.3. Finally, the contributions of the present project towards developing a method for strengthening the economic accountability of investments in NRM capacity building are identified in section 11.4.

11.1 Building capacities for natural resource management

The importance of capacity-building investments for the success of Australia's regionalised approach to natural resource governance has been highlighted by authors including Paton et al. (2004), Broderick (2005), Robins (2008), Seymour et al. (2008) and Marshall (2008a, 2011b). Among the set of principles proposed recently by the Australian Regional Chairs Group to underpin the design of future changes in NRM governance was the following: 'Knowledge and innovation: equip the governance system with skills, capacity and knowledge, and encourage innovation' (Ryan et al. 2010 p. vi).

For Coutts et al. (2005), 'capacity' relates to the ability of individuals, communities or organisations to act or manage change, and this ability derives from various types of capital including natural, human, economic and social capital. A *National NRM Capacity Building Framework* for the 'regional delivery model' (comprising at that time the National Action Plan for Salinity and Water Quality (NAP) and the second phase of the Natural Heritage Trust (NHT2)) was endorsed by the Programs Committee of the NRM Ministerial Council (Australian Government 2002a). Capacity building was described in this framework as relating:

... to a range of activities by which individuals, groups and organisations improve their capacity to achieve sustainable natural resource management. Capacity in this context includes awareness, skills, knowledge, motivation, commitment and confidence. While regional bodies are a key target for capacity building, it is equally an issue for diverse players such as Landcare groups, indigenous communities, industry sectors, local government and State/Territory and Commonwealth Government agencies (ibid. p. 1).

The framework recognised that:

... in addition to the transfer of technology and technical capability, capacity building should foster social cohesion within communities, and build both human and social capital. For the purposes of this framework, human capital refers to the capability of individuals, and social capital refers to the level to which social networks, relationships and processes within a community support individuals to exercise their capabilities (ibid. p. 1).

The importance of investing in capacity-building activities was explained as follows:

To obtain on-ground improvement in our environment, those who live and work directly with it have a major role to play along with government and industry. It is well recognised that in order to achieve long-term environmental outcomes, investments in people are as critical as investments in on-ground works. ... Without this investment in people at all levels, including Government, there will be little chance of securing positive and long-lasting natural resource outcomes. In essence, long-term sustainable NRM depends largely on building human and social capital (ibid. pp. 1-2).

The Australian Government Natural Resource Management Team (2007) sought to demonstrate that the Australian Government had acknowledged this importance in practice by allocating about 30 per cent of the funds available through its current NRM programs to capacity building activities. More recently, the 2010–11 business plan for the Australian Government’s Caring for our Country program (which succeeded the NAP and NHT2 programs) ‘contains targets that specifically address the importance of building skills and knowledge about natural resource management and encouraging participation of individuals and groups in activities that result in a better managed and protected environment’ (Commonwealth of Australia 2010 p. 89). Other governments in Australia have also identified capacity building as a key element of successfully pursuing sustainable NRM. For instance, Priority E4 (concerned with NRM) of the New South Wales State Plan lists 13 targets, including: ‘There is an increase in the capacity of natural resource managers to contribute to regionally relevant natural resource management’ (Natural Resources Commission 2007 p. 3).

Despite the stated priorities of Australian governments, Robins (2008) noted how various commentators (e.g., Lane et al. 2004; Marshall 2008c; Paton et al. 2004) found these governments to be more adept at devolving responsibilities to regional NRM bodies than supporting them to develop the capacities needed to undertake them. She observed from the literature that the situation was similar in at least Canada, the European Union, New Zealand and the United States. Included in a report to the Australian Government’s Minister for Agriculture, Fisheries and Forestry was the comment that ‘the capacity of regional groups to achieve their objectives varies – for some it remains a significant problem’ (Agriculture and Food Policy Reference Group 2006 p. 145). Seymour et al. (2008 p. 220) found similarly that ‘the roles that regional bodies are expected to perform are very complex and the capacities of individual organisations to tackle the job of NRM decision-making vary greatly’.

11.2 Investing strategically in building capacities for NRM

The need to invest strategically in protecting or enhancing the condition of Australia's natural resources has been emphasised by various authors (e.g., Hajkowicz 2009; Marshall 2010b; Pannell et al. 2010a; 2009a). For instance, Pannell et al. (2010a p. 443) observed in respect of the NAP that:

There is a strong tendency for environmental programs to attempt to achieve too much, allocating too few resources to too many projects, and the NAP fell into this usual pattern. ... We judge that most of the small projects funded by the program would not have generated worthwhile outcomes – their costs would have exceed their benefits ... Given these considerations, there is clearly an imperative to target salinity funds to high-priority projects.

The importance of applying a strategic approach more specifically to NRM capacity-building has also been emphasised. One of the guiding principles of the *National NRM Capacity Building Framework* was that capacity building 'should ensure that the key stakeholders and priority issues are targeted to meet the priority NRM outcomes of the region' (Australian Government 2002a p. 3). Accompanying this framework was the document *NRM Capacity Building Program-Planning Logic* which:

... recognised that in order to have any discernible impact on resource condition, investments in capacity building must be strategically and purposefully targeted. ... [Given] the fact that many of the change targets may be non-biophysical and may appear somewhat removed from the 'on-the-ground' outcomes that investors are looking for, a sound program logic is particularly important in providing the arguments to support investment in these non-biophysical areas (Australian Government 2002b p. 1).

It continued:

Capacity building is not an end in itself, but is a mechanism for meeting resource condition targets. Although there are likely to be additional 'knock-on' effects from capacity-building investments – for example, enhanced social capital or community leadership capabilities – our core business is NRM. If we cannot demonstrate that capacity building investments are moving us towards our NRM outcomes, we will have a hard time convincing decision makers in the NRM sector to support this line of investment (ibid. p. 1).

The document explains that the proposed NRM capacity building program logic:

... provides a structure within which to set short-term change targets (expressed as 1-5 year management action targets), and subsequently make strategic decisions about what investments are going to be most effective in helping to achieve those targets.

In setting short-term change targets, consideration needs to be given to:

- *Where* within the catchment do we need to see change?
- Specifically *what* change is required?
- *Who* within the catchment (both in terms of individual landholders and institutions/organisations) needs to participate in that change? (ibid. pp. 1-2).

11.3 The need for both ‘project-specific’ and ‘general’ capacity building

Nevertheless, the value of such a strategic approach to prioritising capacity-building investment options depends on the confidence with which short-term change targets of this kind can meaningfully be set. Marshall (2010b) observed that investing strategically in building the capacities needed to implement the on-ground actions included in specific asset-focused projects has value to a regional NRM organisation and its stakeholders only to the extent that it feels confident those projects will actually occur. He continued:

The shift in recent years by Australian governments to shorter-term NRM funding commitments and to leaving regional NRM organisations less discretion in how funds are to be invested tends to work against this confidence. Indeed, uncertainty of such organisations regarding their own persistence, their future investment budgets and governments’ future investment priorities lessens their motivation to pursue any strategy of building community and socio-economic capacities that have value beyond the short term (ibid. p. 93).

This observation suggests that a strategic approach to investing in capacity building in such a situation of uncertainty needs to extend beyond targeting capacity-building investments at the *where, what* and *who* associated with specific asset-focused projects that can confidently be predicted to occur. It suggests that such an approach needs to target some significant share of capacity-building investments at developing the kinds of capacities that enable regional NRM organisations to cost-effectively adapt their investment programs (i.e. with transaction costs that are affordable not only to themselves but also to their stakeholders) as the outcomes of present uncertainties unfold. These uncertainties relate not only to future government decisions about funding levels and investment priorities but also to ecological uncertainties (e.g. regarding future climatic conditions and their effects on particular ecosystems) and social uncertainties (e.g. regarding future economic conditions and their consequences for landholders’ motivations to adopt conservation practices).

The importance of investing in such ‘adaptability’ or ‘adaptive capacity’ was acknowledged in the *National NRM Capacity Building Framework* which remarked on the need for capacities ‘that will enable key stakeholders to be pro-active about change, and direct it rather than being overtaken by it’ (Australian Government 2002a p. 2). This importance was recognised too by the Regional NRM Chairs Group when it advocated a ‘focus on long-term capacities and processes that enable societies to be learning and adaptive oriented’ (Ryan et al. 2010 p. 12). A recent report of progress achieved towards sustainability by NSW’s regionalised model of NRM governance found that many of the 13 regional NRM bodies in that state (i.e. CMAs) needed to strengthen their capacities for adaptively managing their investment portfolio (Natural Resources Commission 2010).

A comprehensive resilience-based assessment of sustainability in one of the 56 NRM regions defined for the regional delivery model – the Goulburn-Broken region within the southern Murray-Darling Basin - highlighted critical threats to that region’s sustainability arising from gaps in its adaptive capacity (Walker et al. 2009). Contributing to the debate in Australia about whether the regional model is an appropriate approach for delivering NRM outcomes, Robins et al. (2009 p. 12) recognised the importance for this model of adopting ‘approaches that better cope with uncertainties arising from rapid changes, such as in socio-economic conditions, global markets and climate ... Associated with this is a need for methods that develop participants’ critical capacity to enable adaptation to changing circumstances’.

None of the above denies the value of a strategic approach to investing in capacity building. However, it does identify the limitations of such an approach focusing entirely on building those capacities that are needed to deliver specific targets or projects that can be confidently defined now

given existing knowledge. Aside from a need to invest strategically in building ‘project-specific’ capacities of this kind, this discussion highlights the importance also of investing in adaptive capacities enabling a regional community-based organisation to adaptively pursue its goals as uncertainty unfolds.

Regional NRM organisations in Australia tend to refer to projects focused on such adaptive capacities as concerned with ‘general capacity building’. This phrase resonates with the term ‘general resilience’ used by Walker et al. (2009) in their resilience assessment of the Goulburn-Broken NRM region. This term relates to the capacity of a system to ‘cope, generally, with unidentified shocks’ (ibid. p. 3). Of relevance for capacity building as it is defined in the *National NRM Capacity Building Framework*, the options identified by these authors as potentially strengthening general resilience in this regional NRM context included ‘building and deploying human and social capital (including political influence)’ and ‘fostering experimentation and learning’ (ibid. p. 13).

11.4 Contributions of this project

In accordance with the foregoing observations, the present project aimed to contribute towards developing a method for investing strategically in building the capacities needed by community-based regional NRM organisations to fulfil their responsibilities. The method would need to encompass investments in both ‘project-specific’ and ‘general’ capacities. Given the particular focus of the present project, it would strengthen the economic accountability of such organisations by providing them with a structured process to develop cost-effective capacity-building projects.

INFFER was used as a starting point in pursuing this aim. The Project Assessment Form (PAF) to be completed in step 3 of this framework is designed to develop a feasible and cost-effective project for achieving a SMART goal set for the condition of a spatially-delineated natural asset. It prompts users to identify the on-ground actions and quantity of their implementation that are required to achieve this goal, and also to specify in detail the ‘policy tools’ that would be needed to motivate this quantity of implementation. Embedded in the PAF is the logic of the Public: Private Benefits framework (Pannell 2008) which, as discussed in section 2.2.3 of this report, is designed to identify the policy tools(s) most likely to be cost-effective in gaining the required level of adoption of on-ground actions by private citizens. This framework distinguishes the four classes of policy tools (as well as a ‘no action’ option) that were identified in Table 2.

It is apparent from the policy tools included in the ‘extension’ class that this class includes much of what would be regarded as capacity-building tools. Hence, the PAF offers a starting point for a method of identifying what, if any, capacity-building activities should be included in a particular asset-focused project to enhance its feasibility and cost-effectiveness.

This starting point is limited, however, to identifying what project-specific capacity-building activities will contribute to the cost-effectiveness of an organisation’s investment program. The PAF is not designed to contribute towards decision-making about investments in general capacity building. Hence, the method developed in the present project was designed in part to complement INFFER’s important contribution by encompassing both general and project-specific capacity-building activities in a broader framework for developing cost-effective capacity-building projects. In developing such projects the method explores how various capacity-building activities identified for investment might be coordinated to enhance their overall cost-effectiveness. Where a capacity-building project developed in this manner includes project-specific capacity-building activities (i.e. included in particular on-ground-action projects), the intention is not for these activities to be managed only as parts of the capacity-building project, independently of the on-ground projects that

depend on them. The intention is rather for these activities to be managed both as part of the relevant on-ground-action projects and concurrently as part of the capacity-building project.

This intention recognises, firstly, that the expertise required to successfully design and implement capacity-building activities is specialised. It is sometimes not held by managers of on-ground-action projects who tend to be technically trained.

Secondly, this intention recognises the benefits that can arise from coordinating the management of capacity-building activities included as part of different on-ground-action projects. Such benefits can arise from similarities in the resource demands of different capacity-building activities, which offer possibilities for either: (a) saving costs by spreading ‘overheads’ over a greater number of such activities (e.g. running two workshops targeting similar groups of landholders back-to-back on the same day at the same venue), and/or (b) increasing the capacity-building ‘outputs’ achieved for a given cost outlay (e.g. increasing landholders’ overall attendance at these two workshops because running them together makes it more worthwhile to travel to where they are held). Benefits from coordinating the management of capacity-building activities included in different on-ground-action projects can also arise from the greater opportunities to share the lessons gained in running these activities across the staff managing them.

Aside from the foregoing departure from the PAF starting point in order to explore how different capacity-building activities might be coordinated cost-effectively as projects, further departures from this starting point were required to arrive at a comprehensive method of developing cost-effective capacity-building projects. These were required to address the following issues:

(i) *Capacity building can be either a main policy tool or supplementary*

The PAF presumes that the choice of policy tools for motivating on-ground actions by private citizens is limited to positive incentives (‘payment mechanisms’) versus extension. The logic of the PPB framework is used to guide the user to one of these alternatives. This framework provides valuable guidance in identifying the most appropriate *main* policy tool for this purpose in a particular context. However, the effectiveness of a main policy tool (e.g. payments mechanism) depends not uncommonly on the application of supplementary policy tools (e.g. extension activities that make the target population aware of this mechanism and provide information on how to access it). The method developed in the present project prompts users, where payment mechanisms have been identified as the main policy tool for private citizens, to identify any extension (or other capacity-building) tools needed to support the main policy tool.

(ii) *Sometimes it may be appropriate to use capacity building as the main policy tool for motivating adoption of on-ground actions that currently are unattractive to the target population*

The logic of the PPB framework embedded in the PAF leads the user away from identifying extension as the appropriate main policy tool for a project unless the user has rated the on-ground actions included in the project as being already ‘slightly attractive’ to private citizens (i.e. in the absence of the project). Although extension *per se* is not appropriate as the main policy tool where this condition is not satisfied, this does not necessarily exclude from contention other capacity-building activities as the main policy tool. In particular, the on-ground actions included in a project may be rated as less than slightly attractive to individual citizens because the attractiveness of the actions is diminished by expectations that others will not cooperate as required to make those actions effective.

This can occur where citizens need to reciprocate each other's actions to solve a problem of collective action they share (e.g. outbreaks of insect pests in their locality due to losses of biodiversity on their properties) but lack trust that this reciprocation will occur, and thus come to conclude that acting themselves would be financially unattractive (Marshall 2004b, 2004a, 2009b; Pannell et al. 2006). The appropriate main policy tool in such a situation may be some intervention designed to build social capital and thus reverse the mistrust responsible for the perceptions of financial unattractiveness. However, capacity-building interventions of this kind are often overlooked by those in the NRM domain who tend to understand adoption issues through a rural extension lens (Marshall 2011b). Consequently, the method developed in the present project elaborates the logic of the PPB framework so that it does not inappropriately rule out capacity-building interventions of this kind as the main policy tool used in a project.

(iii) Capacity building for the lead organisation

The PAF prompts the user to identify what policy tools (or 'delivery mechanisms') the organisation developing the project would need to apply to motivate private citizens and 'other organisations' (i.e. organisations other than the one developing the project) to successfully implement the on-ground actions and any other measures included in the project for which they are responsible. Included in these policy tools may be capacity-building activities designed to enable these other organisations to fulfil their responsibilities. The PAF also prompts the user to identify the works and actions and investigations that the organisation developing the project ('lead organisation') would itself be responsible for.

The PAF also requires the user to specify what management arrangements would be applied by the lead organisation to ensure that it successfully implements the works, actions, investigations and policy tools it is responsible for. This is the closest the PAF gets to prompting the user to identify any capacity-building activities that need to be included in the project to enable the lead organisation to fulfil its own responsibilities in the project. Representatives from the partner CMAs attending early meetings about the method for capacity-building projects observed that it should not be taken for granted that their organisations already possess all the capacities they need to deliver upon their own project responsibilities. Hence, the method developed in the present project builds on the PAF by explicitly asking the user to identify any such capacity-building activities required to enable the lead organisation to fulfil its own responsibilities in a project.

(iv) Risk of the lead organisation failing to fulfil its responsibilities in a project

The PAF prompts the user to rate the 'socio-political risk' of the project failing to achieve its stated goals due to one or more of (a) non-cooperation by other organisations responsible for natural resource management, and (b) social, administrative or political constraints. Included in the risk of (a) are the risks of others organisations failing to undertake the on-ground actions and other measures identified in the project as their responsibilities. Included in the risk of (b) are the risks of the lead organisation, due to the social, administrative and political constraints it faces, failing to fulfil its own responsibilities in the project. Given that the user has not been explicitly prompted by the PAF to identify whether the lead organisation lacks any of the capacities it requires to fulfil its own responsibilities (see (iii) above), risks arising from such capacity shortfalls may not be adequately accounted for by the PAF when the user rates the overall socio-political risk faced by the project.

As noted in (iii) above, the method for capacity-building projects developed in the present project does explicitly prompt the user to identify any capacity shortfalls likely to be

experienced by the lead organisation. Building on this elaboration, this method asks the user to rate the risk of (a) – non-cooperation by other organisations with responsibilities in achieving a project’s goal – separately from the risk of (b) – social, administrative or political constraints faced by the lead organisation in striving to fulfil its own responsibilities within a project. Rating these different aspects of socio-political risk separately enables the user to consider more clearly for a particular project how each aspect of risk is affected by the capacity-building activities included in the project that are targeted at other organisations and/or the lead organisation.

(v) *Constraints on an organisation’s ability and willingness to plan future on-ground investments using INFFER*

For INFFER to provide a means of identifying the project-specific capacity-building activities into which investment in the coming period should occur, the lead organisation (i.e. the organisation developing the investment program) needs to be: (a) able and willing to apply this framework, and (b) sufficiently informed about future funding of its investment program to be able to prioritise how that funding should be allocated between different asset-focused projects.

Lack of ability of willingness to apply INFFER

In respect of (a), there are various reasons for why an organisation may not be able or willing to apply INFFER. Two reasons for why it may not be *able* to do so are highlighted by two questions in the ‘Pre Assessment Checklist’ included in step 2 (‘Filtering significant assets prior to detailed assessment’) of the INFFER process (Pannell et al. undated). These questions are:

- Can you clearly identify the environmental or natural resource asset? (The asset needs to be identified spatially).
- Will it be possible to define a goal for the asset that is ‘SMART’?

The documentation for INFFER’s step 2 states that ‘if you cannot answer ‘yes’ to both these questions, it is likely that the project is not suited to being assessed by INFFER’ (ibid. p. 4). Some regional NRM organisations in Australia lack the databases and mapping capabilities needed to spatially identify natural assets within their regions. Even where these capabilities exist it may not be possible to define a SMART goal.

Even where an organisation is able to apply INFFER in developing its investment program, it may not be *willing* to do so for various reasons. The INFFER team itself recognises that some regional NRM organisations have found the process time-consuming and cumbersome (Marsh et al. 2010; Pannell et al. 2010b) and this was corroborated by feedback from trials of step 3 of the INFFER process (‘INFFER Project Assessment Form’) earlier in the present project (Marshall 2010a). Another reason is that the institutional and policy environment surrounding an organisation may provide it with little or no incentive to make the extra effort, compared with current practice, involved in applying a more rigorous planning process for on-ground investments like INFFER (Pannell et al. 2010a). Regional NRM organisations are unlikely to adopt a more resource- and skill- intensive process unless they expect that doing so will significantly increase their access to public funding or engender greater trust and cooperation from those (e.g. private landholders) they depend on for implementation of their investment plans. Some regional NRM organisations find INFFER to offer little additional rigour compared with what their existing planning practices for on-ground investments already offer (Marshall 2010a).

Recognising that not all regional NRM organisations are currently able or willing to apply INFFER in developing their investment programs, it was decided in the present project to devise a method of

developing cost-effective capacity-building projects that can be applied by such organisations irrespective of their ability or willingness to apply INFFER in developing their programs of on-ground investments. The method complements the use of INFFER where this has occurred, but does not depend on the ability of a regional organisation to spatially define specific natural assets or to define SMART goals for the assets that have been defined. Development of the method in this way also recognised that organisations unwilling to apply INFFER, because they do not perceive it to be sufficiently superior to their existing methods for on-ground investments, may nonetheless perceive a need to improve their existing methods for capacity-building investments and consequently be willing to try a new method for this purpose.

The part of the method concerned with project-specific capacity-building activities (i.e. the part which is adapted from the INFFER approach) focuses on how capacities built via such activities contribute towards implementation of the on-ground actions and other measures that are required to achieve desired outcomes for natural asset condition – rather than on the contribution to those outcomes *per se*. Hence, this part of the method requires specification of goals for on-ground actions rather than for natural asset condition. An organisation that is unable to spatially define natural assets or to specify SMART goals for those assets will nonetheless be able to apply this method if it knows enough about the context of the required on-ground actions (e.g. concerning the availability of the various capacities that will be needed) to enable it to develop a project through which those actions can feasibly be delivered. Given that most regional NRM organisations have identified, when developing their regional NRM strategies or shorter-term investment programs, priority subcatchments in respect of certain categories of on-ground actions, it can reasonably be expected that most such organisations will have the contextual information they need to apply this part of the method.

Lack of information about future investment funding

It was observed above that the ability of INFFER to provide a means of identifying the project-specific capacity-building activities into which investment in the coming period should occur depends on two conditions. The preceding paragraphs addressed the first of these (‘the lead organisation needs to be: (a) able and willing to apply this framework’) and now we turn to the second (‘the lead organisation needs to be: ... (b) sufficiently informed about future funding of its investment program to be able to prioritise how that funding should be allocated between different asset-focused projects’).

The shift in recent years to Australian governments funding regional NRM organisations on a shorter-term basis than previously (i.e. under NHT2 and the NAP), and leaving them less discretion in deciding how to allocate the funds they do receive, was noted above. As noted in section 1.1.2, Australia’s regionalised approach to NRM delivery was originally envisaged as moving as it matured towards a ‘block funding’ model. Longer-term regional strategies developed by regional NRM organisations would be accredited by investing governments if they fulfilled specified criteria. This accreditation would enable each organisation, once it had matured, to receive a quantum of funding into the medium term which it would be able to allocate with considerable autonomy between alternative investment opportunities. The main constraint on this autonomy was to be that a regional organisation’s investment allocation decisions needed to be consistent with its accredited regional strategy.

Progress towards a block funding model stalled, however, when the NHT2 and NAP programs ended and were replaced by the Australian Government’s Caring for our Country (CfoC) program. The ‘core funding’ of regional NRM organisations, which they could previously allocate between investment options into the medium term with reasonable autonomy, was reduced substantially under the new program. Their autonomy in deciding how to allocate this core funding was also

reduced substantially by requiring them to align these allocation decisions with priorities specified in the current CfoC Business Plan. A key implication of these changes has been that the confidence with which regional NRM organisations could apply INFFER as a self-contained process of prioritising what alternative on-ground investment options to invest in, and thus in planning their on-ground investment programs, diminished considerably when CfoC was introduced.

The method developed in the present project for developing cost-effective capacity-building projects recognises this reality. It starts by asking the following question: ‘Is your organisation sufficiently informed about future funding of its investment program to plan at least part of that program for at least one year ahead?’ If the answer to this question is negative then the organisation is not in a position to confidently identify any on-ground investments it will be undertaking, and thus it is unable to identify what project-specific capacity-building activities will be required to service its ongoing on-ground investment program. Where this is the case, scope remains nevertheless for the organisation to develop general capacity-building projects to be submitted for funding, and the method developed in the present project is designed to support it in doing so.

12. A METHOD TO STRENGTHEN ECONOMIC ACCOUNTABILITY OF DECISIONS TO INVEST IN BUILDING CAPACITIES FOR COMMUNITY-BASED NRM

The method devised and trialled in the present project for developing cost-effective projects for developing the capacities needed for sustainable community-based NRM is discussed in this section. Section 12.1 presents an overview of this method, which hereafter is referred to as the Capacity-Building Project Development Framework. Details of this framework are provided in section 12.2.

12.1 Overview of the method

The method developed in this project for strengthening the economic accountability of capacity-building investment decisions by community-based NRM organisations consists of the four forms – A, B, C and D – comprising the Capacity Building Project Development Framework (CBPDF). Accompanying each form is a user manual containing further instructions than was possible, for space reasons, to include in the form, and also examples that illustrate to the user how particular questions might appropriately be answered. Excel spreadsheet calculators have also been developed for each of Forms B and C to automate some of the more demanding calculations required in completing these forms, and also to automate some of the data transfers between questions that are required when completing these forms. Use of each calculator is explained in the relevant manual. These forms, manuals and calculators, as well as an introduction for users, are available from <http://www.ruralfutures.une.edu.au/projects/3.php?nav=Environmental%20Impacts%20of%20Change&page=117>

Forms A, B and C of the framework deal with situations where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead. Form D applies to other situations; i.e. where an organisation is not sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead. Question A1 in Form A (the first question of the framework) identifies whether the user should continue with that form or proceed directly to Form D.

Where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead, it is able to identify (a) the project-specific capacities that need to be developed for those plans to be successfully implemented, and (b) other general capacity-building activities to be undertaken with the available funding. General capacity-building activities are not focused on capacities needed for individual projects, but rather on capacities that a variety of unspecified projects may benefit from.

It may be useful here to describe briefly the respective roles of Forms A, B and C. One purpose of Form A is to identify sets of on-ground actions that the user's organisation expects to invest in and that depend for their successful implementation on capacity-building activities that need to be resourced from the organisation's investment funding for the coming year. The other purpose is to identify the value of investments in general capacity-building activities that need to be resourced from the organisation's investment funding for the coming year.

'On-ground action' is defined for the purposes of the CBPDF as any behaviour undertaken by an individual, organisation or agency that directly affects the condition of natural resources or how they are used. In some cases this behaviour involves adoption of 'on-ground actions' as they tend to be conventionally understood, like planting trees or building fences. In other cases the behaviour

may be more management-oriented, like more sparing use of water. Examples of ‘non-on-ground’ actions include attendance at training events like field days, monitoring, reporting, distributing information sheets, etc.

Subsequent to completing Form A, Form B (adapted from INFFER’s PAF) is completed for each set of on-ground actions identified in pursuing the first purpose of Form A in order to develop cost-effective projects for implementing them. Form C is then used to:

- (a) compile the details of the capacity-building activities included in the ‘on-ground-action’ projects that were developed using Form B;
- (b) detail how the organisation’s investment budget for general capacity-building activities over the coming year (identified in Form A) will be allocated between activities of this kind; and
- (c) consider how to manage all these capacity-building activities cost effectively as projects.

The four forms comprising the CBPDF are designed to provide a structured comprehensive process for developing cost-effective capacity-building projects. Such a process is required to ensure that those developing such projects consider all key considerations in a logical and accountable manner, including by making explicit the evidence, assumptions and judgements on which their responses to questions in the forms are based. Systematic recording of these assumptions, judgements and evidence contributes to adaptive management by enabling subsequent diagnosis at the project monitoring and evaluation stage of how these tallied with what actually occurred – thereby contributing to more realistic project designs thereafter.

The CBPDF is not meant as simply a form-filling exercise. Answers to many of the questions in the framework will benefit considerably from discussion among organisational staff and other stakeholders with the requisite knowledge and experience. Group discussion of this kind is commonly employed by regional NRM organisations when developing their investment programs. The CBPDF is meant to add value to such group discussions by providing a logical structure for them and a mechanism for ‘surfacing’ and recording the assumptions and judgements underlying the discussions that often remain unstated and are sometimes not supported by the best available evidence.

Moreover, the CBPDF is not meant to be applied as a linear process, starting with the first question of Form A and proceeding ever-onwards to the final question (of Form C or Form D, whichever is applicable). Answering one question will not uncommonly identify weaknesses in one or more of the answers provided earlier, and thus prompt reconsideration of those answers. Although users can find it frustrating to have their initial judgements challenged in this way, the iterative process prompted by the CBPDF is essential for ensuring that the capacity-building projects which are developed are indeed cost effective.

12.2 Details of the Capacity-Building Project Development Framework

The main elements of each of the forms comprising the CBPDF are identified and explained in this chapter.

12.2.1 Form A

One purpose of the CBPDF’s Form A is to identify sets of on-ground actions that your organisation expects to invest in and which depend on capacity-building activities that need to be resourced from the investment funding for the users’ organisation for the coming year (i.e. the next financial or

calendar year, depending on how the investment funding cycle is administered). The other purpose is to identify the budget this organisation expects to allocate in the coming year to general capacity-building activities.

As indicated previously, Question A1 (the first question) of Form A asks users of the form: 'Is your organisation sufficiently informed about future funding of its investment program to plan at least part of that program for at least one year ahead?'. An affirmative answer here means that the remainder of Form A, as well as Forms B and C, are relevant for these users. The users in this case are in a position to plan how the available investment funding will be allocated to different sets of on-ground actions and also to general capacity-building activities. A negative response signifies that the users are not in such a position, so that these forms are not relevant to them, and that they should therefore proceed directly to Form D.

Question A2 asks the users to identify the future years over which her organisation is sufficiently informed about funding of its investment program to be able to plan at least part of that program. It proceeds to ask: 'What level of investment funding is your organisation sufficiently sure of having available in each of these years that it can now plan with reasonable confidence how it will be invested?'. The sum of these annual levels of investment funding is referred to henceforth as the organisations 'total investment budget'.

Question A3 requires the users to identify how her organisation's total investment budget will be allocated between achieving implementation of on-ground actions and implementing general capacity-building projects. It requires further that the users identify how the allocation to implementing on-ground actions will be allocated between particular groups of 'similar on-ground actions'. Fencing native vegetation is given as an example of one such group of similar on-ground actions – a group of similar actions by multiple parties. The users are asked to quantify the on-ground actions to be undertaken within each group, and to specify what the sub-allocation from the previously-identified allocation to implementing on-ground actions will be for each particular group of on-ground actions. The foregoing information for Question A3 will be available from the INFFER process if it has been applied. Finally, Question A3 asks the users to identify which of the groups of on-ground actions depend for their successful implementation on capacity-building activities undertaken during the coming year.

Question A4 asks the users to 'explain how the total investment budget was allocated between achieving on-ground actions and undertaking general capacity-building activities'. The users are thus required to make transparent the logic and evidence underpinning this allocation decision.

Question A5 asks: 'For which sets of on-ground actions is it appropriate to develop distinct projects?'. Some of the groups of on-ground actions that were identified in Question A3 as depending for their implementation on capacity-building activities undertaken in the coming year may include subgroups which differ sufficiently in their capacity-building needs that it may be appropriate to develop separate projects for them. These subgroups may be distinguished in various ways; for instance, according to the district or subcatchment where they would be implemented, or according to who would be doing the implementation (e.g. private versus public landholders). The groups and subgroups of on-ground actions for which it is appropriate to develop distinct projects are referred to henceforth as 'sets' of on-ground actions. In answering Question A5 the users are required to quantify the level of actions to be implemented with each set and to identify what allocations from her organisation's investment budget will be required to implement each set of actions. The responses are inserted into a table.

Question A6 asks: ‘What capacity constraints need to be alleviated for successful implementation of each of the sets of on-ground actions listed in the table above?’. The users are asked more specifically to identify:

- ‘the capacity constraints that need to be alleviated for successful implementation of these on-ground actions at the specified scale;
- the available evidence that these constraints exist and are serious enough to be worth alleviating; and
- why it is timely to alleviate these capacity constraints during the coming year (i.e. why it is not too early or too late to alleviate these constraints given the timeframe within which implementation of the on-ground actions is required)’.

This question provides a check to confirm it is appropriate to proceed to completing Form B for each of the sets of on-ground actions identified in response to Question A5. If no capacity constraints can be identified for a particular set, or if the available evidence does not suggest that any constraints identified for that set are serious enough to be worth alleviating, or if it is not timely during the coming year to alleviate any capacity constraints identified for that set, then this set should be removed from the responses to Questions A3 and A5 and consequently it should not proceed to the Form B stage. Where it is appropriate for a set of on-ground actions to proceed to the Form B stage, responses to Question A6 provide useful background information for answering those questions in Form B that require identification of the capacity-building activities that are needed to ensure successful implementation of a particular set of on-ground actions.

Question A7 asks: ‘What amount from your organisation’s allocation to general capacity building is available for the coming year?’. The organisation’s allocation to general capacity-building activities from its total investment budget was specified when answering Question A3. That allocation covers all the years covered by that budget. Answering this question requires the users to specify what amount from that allocation is allocated for general capacity-building activities to be undertaken during the coming year. The response to this question is transferred as the answer to Question C3(a) when that point of the CBPDF process is reached.

12.2.2 Form B

The purpose of Form B is to help develop a cost-effective project for each of the sets of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year. Completion of Form B for each of these sets of on-ground actions serves to identify the range of ‘project-specific’ capacity-building activities to be undertaken as part of a cost-effective program of implementing those sets of actions. It also identifies any general capacity-building activities that, despite not targeting any particular sets of on-ground actions, would contribute towards successful implementation of the set of actions focused upon in a copy of Form B.

Section 1

The focus of section 1 of Form B is on (a) the goal(s) of the project to be developed for a particular set of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year, and (b) obtaining information on other projects, past and current, that are relevant to the goal(s) set for the project. Question B1.1 (the first question in section 1) nominates (i) which of the sets of on-ground actions identified in Form A is to be addressed in that particular copy of Form B, (ii) the quantity of those actions to be implemented (as identified in Form A), and (iii) the estimated allocation required from the lead organisation’s

investment budget in order to implement this quantity of on-ground actions (also as identified in Form A).

Question B1.2 asks users of the form to specify one or more SMART goals for the project. As previously explained when discussing issue (v) within section 11.4, the goal(s) to be specified are for implementation of on-ground actions rather than, as is the case with INFFER's PAF, for the condition of the natural asset(s) at which the on-ground actions are targeted. Each goal identifies who will be responsible for ensuring implementation of the on-ground actions (private citizens, the lead organisation, or some other organisation).

In section 12.1 of this report the point was made that completing the CBPDF involves more than a form-filling exercise, and normally will rely heavily on deliberation among staff and other stakeholders with the requisite knowledge and experience. Deliberation of this kind will be important in answering Question B1.2, involving as it does the translation of the type and quantity of on-ground actions listed in Form A into more specific project goals (i.e. assigning responsibility for specified shares of those actions). This step of defining one or more project goals requires at least a preliminary sense of what the project will involve, which in many cases cannot be determined by individuals in isolation. These goals defined at this initial step may subsequently need to be revised if responses to subsequent questions raise doubts about the feasibility of these goals, but group discussion at this point is nonetheless important as a way of ensuring that the goals initially set are reasonably feasible (thus reducing the need for subsequent iterations in completing the form).

Question B1.3 asks the users to identify what other projects, past or present, are relevant for achieving the goal(s) specified in response to Question B1.2. Experiences with other projects may offer insight into the kinds of challenges that may be faced in the present project, and thus into the feasibility of achieving the goal(s) set for the project given the budget available to it (as identified for Question B1.1). Identifying other related projects is also important to ensure that the present project will build on those other projects rather than duplicate or compete with them.

Section 2

Section 2 of Form B focuses on those on-ground actions included in the project, if any, for which implementation responsibility resides with private citizens (whether landholders or other citizens). Question B2.1 checks whether any of the on-ground actions included in the project do need to be implemented by private citizens. An affirmative answer to this question leads the users to proceed to subsequent questions in the section. A negative answer leads the users directly to the start of section 3.

Question B2.2 asks whether the aim of the project in respect of on-ground actions by private citizens is to encourage beneficial actions, or discourage adverse actions, by these citizens. A beneficial action is one that enhances the condition of the natural asset(s) of concern, whereas an adverse action is one which degrades their condition. If the focus is on encouraging beneficial actions, the users are led to Question B2.2. If the focus is on discouraging adverse actions, the users are led to Question B2.4. If the aim is both to encourage beneficial actions and discourage adverse actions, the users are led to both Questions B2.3 and B2.4.

Question B2.3 focuses on assessing the feasibility of achieving full adoption by private citizens of the beneficial actions that the project requires from them, as specified in the project goal(s). Similar to INFFER's PAF, part (a) of this question asks the users: 'In the absence of this project, how attractive would full adoption of these on-ground actions be to the relevant private citizens if they were fully informed about them?'. The users can choose between 'highly attractive', 'slightly

attractive’, ‘neutral’, ‘slightly negative’ or ‘highly negative’. Also similar to INFFER’s PAF, part (b) of Question B2.3 asks the users: ‘How favourable are the circumstances of this project for adoption of the desired on-ground actions by the relevant private citizens?’. The users can choose between ‘very favourable’ and ‘less favourable’. Part (c) of the question then asks the users to assign a score for the parameter A based the responses to parts (a) and (b). The matrix below, transferred from the PAF, is presented in the form as a guide, although the users have scope to choose a customised value (e.g. where the available categories are considered to be too coarse). The parameter A measures the probability that the beneficial actions specified in the project will actually be adopted by private citizens assuming the project is fully funded and the policy tools included in the project to motivate this adoption are implemented. For instance, a score for A of 0.8 signifies an 80 per cent probability that the beneficial on-ground actions required from private citizens will actually be adopted.

Average score	Very favourable adoption circumstances	Less favourable adoption circumstances
Highly attractive	1.0	0.9
Slightly attractive	1.0	0.8
Neutral	1.0	0.7
Slightly negative	0.8	0.6
Highly negative	0.6	0.4
Question not relevant	1.0: No private adoption required.	1.0: No private adoption required.

Question B2.4 focuses on assessing the feasibility of avoiding adoption by private citizens of the adverse actions that the project seeks to discourage them from adopting, as specified in the project goal(s). Part (a) of this question asks the users to assess how attractive the relevant adverse practices are to the private citizens of concern. A score for the parameter B is to be assigned depending on the assessed level of attractiveness. This parameter measures the probability that the project will not fail due to the adverse actions actually being adopted. The options and their corresponding B scores are ‘highly attractive’ ($B = 0.4$), ‘slightly attractive’ (0.7), ‘neutral’ (0.9), ‘slightly negative’ (0.95), ‘highly negative’ (1.0) or ‘enter a customised value for B ’.

Question B2.5 asks whether payment mechanisms (e.g. incentive payments, stewardship payments and conservation tenders) are intended to be used as the main policy tool for encouraging private citizens to adopt the on-ground actions that the project requires from them. If the response is affirmative the users proceed to answer the remaining parts of the question. If the response is negative, the users are led directly to Question B2.6.

Part (a) of Question B2.5 (answered only if payments mechanisms are intended as the main policy tool) asks for an estimate of the average level of payments (per ha, km, etc.) that would be required to achieve the project goal relevant to on-ground actions by private citizens. Parts (b) and (c) seek details of the particular payment mechanism(s) to be used. Part (d) recognises that even though payment mechanisms may be the main policy tool there may be value in using capacity-building activities as a supplementary policy tool. Part (e) asks ‘what types of capacity-building activities specific to this particular project will be used in this way?’. Part (f) asks ‘which of these project-specific capacity-building activities would be undertaken during the coming year?’. The focus here

is on ‘the coming year’ because the focus of the Capacity-Building Project Development Framework is on developing the next round of capacity-building projects.

Part (g) of Question B2.5 starts by asking ‘what types of general capacity-building activities will be used to support financial payments as the main delivery mechanism?’. This recognises that the effectiveness of payments mechanisms in motivating adoption of on-ground actions by private citizens can sometimes be enhanced by capacity-building activities focused more broadly than those particular actions (e.g. engagement with the payments mechanism may be improved by activities that strengthen private citizens’ general awareness of the lead organisation and/or NRM issues generally).

Part (g) continues by asking: ‘What, if any, additional cost will be incurred in these activities due to implementing this project?’. This question relates to the wider one of establishing what additional costs will be incurred as a result of undertaking the project. It recognises that the costs of general capacity-building activities are often unaffected by whether particular on-ground-action projects benefiting from them are undertaken or not. In some cases, however, a decision to undertake a particular on-ground-action project may require some upscaling of one or more general capacity-building activities that contribute to their effectiveness. In these cases the additional costs due to upscaling these activities should be included as costs of the project. Part (h) asks ‘which of the general capacity-building activities identified in (g) would be undertaken during the coming year?’. Again, the focus here is on ‘the coming year’ because the focus of the Capacity-Building Project Development Framework is on developing the next round of capacity-building projects.

Question B2.6 is relevant where the response to Question B2.5 was negative. It asks whether capacity-building activities will be relied upon as the main policy tool for encouraging private citizens to adopt the on-ground actions that the project requires from them. (The answer should be ‘yes’ here if it was ‘no’ to Question B2.5.) Given an affirmative response to this question, the process of answering the remaining parts of the question is similar to that of answering the corresponding parts of Question B2.5. Over parts (a) to (d) of Question B2.6, the users are led to identify (i) those project-specific and general capacity-building activities comprising the main policy tool(s) for encouraging adoption by private citizens of the on-ground actions required from them in the project, and (ii) the subsets of these activities that would be undertaken during the coming year. Part (e) of the question asks whether there is an intention to use payment mechanisms as a supplementary policy tool supporting capacity-building activities as the main policy tool (e.g. offering small temporary payments as a means of broadening participation in these activities). Given an affirmative answer the users are led to parts (f) to (h) which require specification of the average level of payments to be offered and how these payments will be administered.

Within the process of answering Questions B2.5 and B2.6 is embedded the logic of the Public: Private Benefits framework. Thus after being asked in Question B2.5 part (a) to estimate the average level of payments required to sufficiently motivate private citizens to adopt the nominated on-ground actions, the users face Consistency Check B3 where they is asked whether this average level of payments is consistent with the attractiveness of these actions to the citizens as specified in Question B2.3. If the users indicate in response to Question B2.6 that their intention is to rely on capacity-building activities as the main policy tool for motivating private citizens, they are prompted to complete Consistency Check B4 which explores whether capacity building is indeed the appropriate policy tool. This consistency check is adapted from one in INFFER’s PAF as explained when discussing issue (ii) in section 11.4.

Section 3

Section 3 of Form B focuses on those actions included in the project, if any, for which implementation responsibility resides with organisations other than the lead organisation. The lead organisation is defined here as including external parties (e.g. private contractors) whose implementation of on-ground actions is directly supervised by the lead organisation. Hence, section 3 is concerned with other organisations responsible for implementing project actions without direct supervision by the lead organisation (e.g. government agencies, local governments, local NRM groups, subcatchment groups, etc.).

Question B3.1 asks whether any of the *on-ground* actions specified in the goal(s) of the project are to be implemented by such ‘other organisations’. Question B3.2 then asks whether achieving the goal(s) of the project depends on any *non-on-ground* actions by these other organisations. Examples of such non-on-ground actions include: monitoring and enforcing compliance with regulation, releasing environmental water flows, running field days, providing reports to the lead organisation, etc. An affirmative answer to this question leads the users to Question B3.3 which asks for a description of the non-on-ground actions to be undertaken by other organisations. A negative answer leads her directly to section 4 if the answer to Question B3.1 was also negative (meaning that other organisations have no significant roles to play in the project).

Question B3.4 asks for details of the policy tools to be used to motivate the organisations to undertake the on-ground and non-on-ground actions required from them. Part (a) asks users to identify what project-specific capacity-building activities will be used to motivate other organisations to undertake these actions, and part (b) asks them to identify which of these activities would be undertaken during the coming year. Part (c) asks users to identify what general capacity-building activities will be applied to motivate other organisations to undertake the project activities they are responsible for, and part (d) asks them to identify which of these activities will be undertaken during the coming year. Part (e) asks users to detail any other policy tools to be used in the project (e.g. financial payments, memoranda or understanding, meetings, etc.) to motivate the other organisations to fulfil their responsibilities in the project.

Like Question B2.3, the focus of Question B3.4(f) is on assessing the feasibility of achieving implementation of actions comprising the project – the difference here is that the focus is on actions by other organisation rather than by private citizens. Based on Question 4.4 of INFFER’s PAF, Question B3.4(f) states: ‘Presuming that the delivery mechanisms identified under (a), (c) and (e) are applied, estimate the probability that these other organisations will fail to fully implement the on-ground actions and other actions they are responsible for’. Based on the response a value is assigned for the parameter P which measures the probability that implementation failure by other organisation will *not* prevent the project from achieving its goals. Users can choose between ‘0-5% (very low probability of other organisations failing to implement the actions they are responsible for, $P = 0.97$), ‘6-25%’ ($P = 0.85$), ‘26-50%’ ($P = 0.62$), ‘51-75%’ ($P = 0.37$), ‘76-100% (very high risk of other organisations failing to fully implement the actions they are responsible for, $P = 0.12$), and ‘Enter a customised value for P ’. The option of users entering a customised value provides flexibility when the scoring categories provided are regarded as too coarse. To illustrate, a score for P of 0.62 signifies a 62 per cent probability that implementation failure by other organisations will *not* prevent the project from achieving its goals.

Section 4

Section 4 of Form B focuses on those on-ground actions included in the project, if any, for which implementation responsibility resides with the lead organisation. As explained above, the lead

organisation is defined as including external parties (e.g. private contractors) whose implementation of on-ground actions is directly supervised by the lead organisation.

Question B4.1 asks whether any of the on-ground actions included in the goals of the project are to be implemented by the lead organisation. A negative answer here lead the users directly to section 5, while an affirmative response leads them to proceed to Question B4.2 which asks them to identify what policy tools will be employed to motivate members of the lead organisation to undertake the on-ground actions they are responsible for. Part (a) of this question asks for details of the capacity-building activities (e.g. awareness-raising, training, etc.) that will be employed in the project to support members of the lead organisation to undertake the on-ground actions they are responsible for. Part (b) asks users to identify which of these capacity-building activities will be undertaken in the coming year. Part (c) asks them to identify any other policy tools (e.g. payments to subcontractors, contract conditions, etc.) to be used in the project to encourage members of the lead organisation to undertake the on-ground actions they are responsible for.

Section 5

The focus in Section 5 of Form B is on actions *other than* on-ground actions that the lead organisation needs to undertake to ensure project success. These actions were identified in earlier sections:

- Section 2 identified various activities (e.g. payment mechanisms, capacity-building activities, monitoring, enforcement, etc.) that the lead organisation needs to undertake to motivate the on-ground actions required from *private citizens*;
- Section 3 identified various activities (e.g. capacity-building activities and other delivery mechanisms) that the lead organisation needs to undertake to motivate the actions required from *other organisations*; and
- Section 4 identified various activities (e.g. capacity-building activities and other policy tools) that the lead organisation needs to undertake to motivate the on-ground actions required from *its own members* for the project to succeed.

Question B5.1 identifies the capacity-building activities and management arrangements that the lead organisation needs to undertake to enable it to complete the non-on-ground actions required from it to ensure project success. Part (a) of this question seeks details of the capacity-building activities to be undertaken to ensure the lead organisation can complete these actions. Part (b) asks ‘which of the capacity-building activities identified in (a) would be undertaken during the coming year?’. Part (c) asks for details of the management arrangements for the project.

Like Question B3.4(f) the focus of Question B5.2 is on assessing the feasibility of achieving implementation of actions comprising the project – the difference here is that the focus is on actions by the lead organisation rather than by other organisations. Question B5.2 asks users to consider all the project activities (on-ground and non-on-ground) that the lead organisation is responsible for implementing and estimate the probability that it will fail to fully implement these activities. Based on the response a value is assigned to the parameter Q which measures the probability that implementation failure by the lead organisation will *not* prevent the project from achieving its goals. Users can choose between ‘0-5%’ (very low probability of the lead organisation failing to implement the actions it is responsible for, $Q = 0.97$), ‘6-25%’ ($Q = 0.85$), ‘26-50%’ ($Q = 0.62$), ‘51-75%’ ($Q = 0.37$), ‘76-100%’ (very high risk of the lead organisation failing to fully implement the actions it is responsible for’ ($Q = 0.12$), and ‘Enter a customised value for Q ’. The option of users entering a customised value provides flexibility when the scoring categories provided are regarded as too coarse. To illustrate, a score for Q of 0.0.85 signifies an 85 per cent probability that

implementation failure by the lead organisation will *not* prevent the project from achieving its goals.

Section 6

The focus in section 6 of Form B is on estimating the costs of the various activities comprising the project, its total cost, and its cost-effectiveness compared with alternative project designs for achieving the same goal(s). Question B6.1 is concerned with estimating the costs. The cost estimates are inserted into a table that is broken into three parts. Part A is concerned with estimated costs in delivering project tasks by private citizens. Part B is concerned with estimated costs in delivering project tasks by organisations other than the lead organisation. Part C is concerned with estimated costs in delivering project tasks by the lead organisation. Users are prompted to return to answers to relevant earlier questions in order to remind themselves of the details of the various actions to be undertaken and of the policy tools identified for motivating implementation of these actions. The focus in the tables is not only on the project costs to be covered from the lead organisation's investment budget. Users are also prompted to estimate costs to be covered by cash from other sources (e.g. contributions from local governments or other agencies) and costs incurred in the form of in-kind contributions to the project (e.g. uncompensated contributions by landholders of their labour or knowledge).

Question B6.2 is concerned with comparing the cost-effectiveness of the project design as developed in one Form B process with the cost-effectiveness of alternative project designs for achieving the same goal(s). It does so by calculating the 'feasibility-adjusted cost' (FAC) of the project design in order that this FAC can be compared with the FACs of alternative project designs intended to deliver the same goal(s). The rationale for this step is explained under Question B6.2 as follows:

This form seeks to help design a project that achieves its goal(s) as cost-effectively as possible (i.e. at least cost). The project design developed in preceding sections may not be the only one that could feasibly achieve the goal(s) defined in Question B1.2(d). Hence, it is important at this point to explore whether the project developed in this form is in fact the most cost-effective of the project designs that might be tried. This exploration involves completing a separate Form B for each project design 'candidate' and comparing the FACs of the candidates to identify which one is most cost effective. Of course, cost-effectiveness may not be the only criterion your organisation ultimately applies in selecting a particular project design.

Calculation of the FAC for a project design takes into account not only the costs of implementing that design (i.e. the costs estimated when answering Question B6.1) but also the probability of fully achieving its SMART goal(s) for on-ground action (i.e. the probability of the project being fully feasible).

A simple example may help to illustrate the underlying logic. Suppose that the estimated total cost for a project design is \$100,000 and it is estimated that there is an 85 per cent probability of this design fully achieving the goal(s) of the project. How much would it cost to implement this project design with a 100 per cent probability of fully achieving the goal(s) of the project (i.e. so that the project is expected to be fully feasible)? One way to estimate this 'feasibility-adjusted cost' of the project design is to reason that the project design would need to be scaled up by a factor of $100 \div 85 = 1.176$ to increase the probability of fully achieving its goals from 85 per cent to 100 per cent, and to assume that this would require the total cost of the project design to be increased by the same factor. Hence, the feasibility-adjusted cost of the project design would be estimated as $\$100,000 \times 1.176 = \$117,600$. This 'back of an envelope' approach assumes that (i) the probability of fully

achieving the goal(s) of a project design is proportional to the scale at which the design is implemented, and (ii) the total cost of a project design changes in direct proportion to its scale. Although ‘rough and ready’, these assumptions provide a transparent basis for comparing the cost-effectiveness of project designs with different probabilities of fully achieving a common goal(s) (i.e. with different feasibilities) that is sufficiently user-friendly to include in the Capacity-Building Project Development Framework (CBPDF).

The approach to estimating the FAC of a project design that is operationalised in Question B6.2 of Form B is a little more involved than illustrated by the foregoing example. This approach actually estimates feasibility-adjusted costs for three different components of a project’s total cost:

- (i) the cost of delivering project tasks by private citizens (as calculated in part A of the table under Question B6.1);
- (ii) the cost of delivering project tasks by organisations other than the lead organisation (as calculated in part B of that table); and
- (iii) the cost of delivering project tasks by the lead organisation (as calculated in part C of that table).

Estimating the feasibility-adjusted cost from the cost for each component involves dividing the unadjusted cost for that component by the relevant feasibility factor.

- For component (i) the relevant feasibility factor is the product of the values assigned when answering Questions B2.3 and B2.4 for parameters *A* (measuring the feasibility of the project achieving full adoption by private citizens of the beneficial on-ground actions required from them) and *B* (measuring the feasibility of the project avoiding adoption by private citizens of the adverse on-ground actions that the project seeks to prevent), respectively. To illustrate, suppose that the cost of delivering project tasks by private citizens is calculated to be \$50,000, the value assigned to *A* is 0.7 and the value assigned to *B* is 0.9. Hence, the product of *A* and *B* is $0.7 \times 0.9 = 0.63$, which indicates a 63 per cent probability of private citizens doing everything required from them for the project to achieve its goal(s). In this example, therefore, the feasibility-adjusted cost for this cost component is obtained dividing \$50,000 by 0.63 which gives \$79,365.
- For component (ii) the relevant feasibility factor is the value assigned when answering Question B3.4(f) for parameter *P* (measuring the feasibility of the project achieving full implementation by organisations other than the lead organisation of the actions required from them). To illustrate, suppose that the cost of delivering project tasks by ‘other organisations’ is calculated to be \$30,000 and the value assigned to *P* is 0.97. This indicates a 97 per cent probability of other organisations doing everything required from them for the project to achieve its goal(s). In this example, therefore, the feasibility-adjusted cost for this cost component is obtained dividing \$30,000 by 0.85 which gives \$35,294.
- For component (iii) the relevant feasibility factor is the value assigned when answering Question B5.2 for parameter *Q* (measuring the feasibility of the project achieving full implementation by the lead organisation of the actions required from it). To illustrate, suppose that the cost of delivering project tasks by the lead organisation is calculated to be \$20,000 and the value assigned to *Q* is 0.85. This indicates an 85 per cent probability of the lead organisation doing everything required from it for the project to achieve its goal(s). In this example, therefore, the feasibility-adjusted cost for this cost component is obtained dividing \$20,000 by 0.85 which gives \$23,529.

The total feasibility-adjusted cost of the project design referred to in the foregoing example (i.e. the FAC for this project design) is thus \$138,188 (= \$79,365 + \$35,294 + \$23,529), which compares with the unadjusted cost for the project design of \$100,000 (= \$50,000 + \$30,000 + \$20,000).

The FAC calculated for a particular project design can be compared the FACs for one or more alternative project designs pursuing the same goal(s). One alternative design, for instance, may involve a different mix of project activities that cost more in total than the first project design that was developed but which confer higher feasibility.

Continuing the foregoing example, suppose that the amounts calculated for each of the cost components of this alternative project design are \$52,000 (cost component (i)), \$33,000 (cost component (ii)), and \$22,500 (cost component (iii)). Hence, the total unadjusted cost for this alternative project design is \$107,500, which is \$7,500 greater than that of the earlier project design. Suppose also that the values assigned to the feasibility parameters for this alternative project design are higher than those for the first project design, with $A = 0.8$, $B = 1.0$, $P = 0.97$ and $Q = 0.97$. The feasibility-adjusted cost for component (i) is thus given by $\$52,000 \div (0.8 \times 1.0) = \$65,000$. The feasibility-adjusted cost for component (ii) of this alternative project design is given by $\$33,000 \div 0.97 = \$34,021$. The feasibility-adjusted cost for component (iii) of the alternative project design is given by $\$22,500 \div 0.97 = \$23,196$. Hence, the total feasibility-adjusted cost (FAC) of the alternative project design is $\$65,000 + \$34,021 + \$23,196 = \$122,217$. Although the unadjusted total cost of the alternative project design is \$7,500 higher than that of the earlier project design, the FAC for the alternative design is \$15,971 lower than that of the earlier design (\$122,217 versus \$138,188). The higher unadjusted cost of the alternative project design is more than compensated by the higher values of its feasibility parameters, so that its FAC is lower. We can thus conclude that the alternative project design is more cost-effective in achieving the relevant goal(s) than is the earlier project design.

The step in Form B of calculating the FAC of a particular project design for pursuing a set of goals is thus valuable as a way of resolving trade-offs between the cost of a project design and its feasibility when deciding whether that project design is more cost-effective in pursuing that set of goals than alternatives to, or variations on, that design. *It is important to note, however, that the FACs of different project designs can only be used to compare their cost-effectiveness when the goal(s) of these alternatives are identical.*

Section 7

The process of completing Form B involved, among other tasks, identifying the capacity-building activities needed to ensure successful implementation of the project and that would need to be undertaken during the coming year. The focus of section 7 in Form B is to bring together in one table details of these capacity-building activities, to facilitate the process of transferring these details into Form C (together with equivalent details for the other projects developed using Form B). These capacity-building activities include those specific to the project (project-specific capacity-building activities) and those focused more generally than the project (general capacity-building activities).

The project-specific activities include those for:

- private citizens (identified in answering Questions B2.5(f) and B2.6(b) and that were budgeted in section A3a of part A of the table under Question B6.1);
- organisations other than the lead organisation (Question B3.3(b), and section B2a of part B of the table under Question B6.1);

- the lead organisation – to support its on-ground actions (Question B4.2(b), and section C2a of part C of the table under Question B6.1); and
- the lead organisation – to support its non-on-ground actions (Question B5.1(b) and section C4a of Part C of the table under Question B6.1).

The general capacity-building activities include those for:

- private citizens (Questions B2.5(h) and B2.6(d), and section A3c of part A of the table under Question B6.1); and
- organisations other than the lead organisations (Question B3.3(d), and section B2c of part B of the table under Question B6.1).

Section 8

Section 8 of Form B provides a snapshot of the project developed using the form, including details of: the project title; the project goals; a project summary (less than 150 words); names of people who completed the form; date of when the form was last updated; values of feasibility parameters; the feasibility-adjusted cost (FAC) of the project design developed using the form; knowledge gaps encountered in completing the form; and the quality of information used to complete sections 1 to 5 of the form. (The last question in each of these sections asks the user to identify key knowledge gaps encountered in completing the section and to score – on a five-point scale from ‘very poor’ to ‘very good’ – the quality of information used to complete the section).

Compatibility with INFFER

Completing Form B for each of the relevant sets of on-ground actions that were identified in Form A clearly involves a significant time commitment. Where these sets of on-ground actions were identified using the INFFER process, however, the Project Assessment Forms (PAFs) completed as part of this process for the projects including these sets of actions will already contain much of the information needed to complete Form B, and will also have prompted much of the discussion and thinking needed to provide the other information that is required. Hence, the time commitment needed to complete Form B for the various sets of on-ground actions will not be great in these circumstances. Where the INFFER process has not already been applied, the time commitment required to complete Form B for these sets of actions does remain an issue. However, this time commitment may be less than required for the INFFER process since the Form B process does not involve the significant challenges in completing a PAF of spatially defining specific natural assets and setting one or more SMART goals for each of these assets.

12.2.3 Form C

Once Form B is completed for each of the sets of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year, Form C is then used to:

- (i) pull together details of the capacity-building activities included in the on-ground-action projects developed with Form B;
- (ii) detail how the lead organisation’s budget for general capacity-building activities in the coming year will be allocated between activities of this kind; and
- (iii) prompt consideration of how to manage these capacity-building activities cost effectively as projects.

Answering Question C1 of Form C involves completing a table that is designed to summarise the expenditures during the coming year that the lead organisation would undertake to ensure implementation of the capacity-building activities included in the on-ground-action projects that have been developed using Form B. Each row of the table refers to a different on-ground-action project. The 2nd to 6th columns of the table for a particular on-ground-action project identify what expenditures from the lead organisation's investment budget for the coming year are required to ensure implementation of the different categories of capacity-building activities that were distinguished in the table accompanying Question B6.1 of Form B.

In the rightmost column of the table is entered the allocation from the lead organisation's investment budget for the coming year that would be required to undertake all the relevant capacity-building activities identified in the copy of Form B completed for the on-ground-action project. Finally, to be inserted in the rightmost bottom cell of the table is the total allocation from the lead organisation's investment budget for the coming year that is required to undertake all the capacity-building activities identified for all of the on-ground-action projects developed using Form B.

Answering Question C2 involves identifying all those capacity-building activities that (i) support the on-ground-action projects developed using Form B, and (ii) will be undertaken during the coming year. The information required to answer this question will have already been compiled when filling in section 7 of the copies of Form B that were completed for the on-ground-action projects developed using that form. At this point the users of Form C need to copy each of the equivalent tables completed in a copy of Form B and paste the tables under Question C2 in ascending order of their project codes.

Question C3 asks users of Form C to detail the general capacity-building activities to be undertaken during the coming year. Part (a) of the question asks them to transfer to this point of Form C their response to Question A7 of Form A ('What amount from your organisation's allocation to general capacity building is available for the coming year?'). Part (d) asks them to insert into the table provided details of each general capacity-building activity to be funded from the budget allocation specified in response to (a), as well as the budget allocations to each of these activities. It prompts them to include in this list of activities those general capacity-building activities that were identified in Questions B2.5(h), B2.6(d) and B3.3(d) of the various completed Forms B as contributing to the feasibility of the on-ground-action projects developed in those forms.

Question C4 asks for a cost breakdown for each of the general capacity-building activities identified when answering Question C3. Costs are required to be broken down into different cost items, as well as according to whether the costs will be covered from the lead organisation's investment budget, from cash contributions from other sources, or from in-kind contributions.

Question C5 asks for rationale to be provided for the total budget allocation to general capacity-building and for each of the general capacity-building activities to be funded from this total budget. Part (a) of this question asks for one or more rationale to be provided for each of the budget allocations to general capacity-building activities that were identified when answering Question C3. Part of the rationale for investing in a particular general capacity-building activity may be that the activity contributes to the feasibility of one or more of the on-ground-action projects developed using Form B. Where this is the case, users of Form C are prompted to list as part of the justification for a general capacity-building activity the codes of the on-ground-action projects the feasibility of which is enhanced by it. However, the rationale for investing in some, or perhaps most, of the general capacity-building activities listed may have little or nothing to do with contributing to the feasibility of the on-ground-action projects developed using Form B. The rationale for these general capacity-building activities will mostly or entirely revolve around developing capacities of value in strengthening the feasibility of on-ground and other NRM actions

beyond the term of the on-ground-action projects presently under consideration. The following questions are included under Question C5 to guide users of Form C in articulating their rationale for investing in such general capacity-building activities:

- what ‘capacity constraint(s)’ limiting your organisation’s ability to protect the natural resources it is responsible for would be alleviated by undertaking this activity?
- what reasoning and evidence indicates that these constraints exist and are serious enough to be worth alleviating?
- what reasoning and evidence offers confidence that the particular general capacity-building activity can succeed in cost effectively alleviating these capacity constraints?
- what other rationale are there for investing this activity? (e.g. matches investor priorities, aligned with your organisation’s strategic targets, contributes to government strategic targets, etc.).

Part (b) of Question C5 asks for a rationale to be provided for how the total investment budget for general capacity-building will be allocated between the various general capacity-building activities that the response to Question C3(b) indicated will be funded in the coming year. The focus here is on justifying the relative sizes of the allocation to these different activities.

Question C6 prompts users of Form C to consider how the various capacity-building activities (project-specific and general) listed in response to Questions C2 and C3 should be organised into capacity-building *projects*. Part (a) of this question asks: ‘How should the activities listed in response to Questions C2 and C3 be organised into capacity-building projects?’. Users are advised that:

Benefits can arise from coordinated management of complementary capacity-building activities; i.e. by combining them into designated capacity-building projects. In the tables below, group the capacity-building activities listed in Questions C2 and C3 into sets that would appropriately and cost-effectively be managed together as capacity-building projects. Complete a separate table for each set of capacity-building activities so identified. ... Each of the activities listed in Questions C2 and C3 should be assigned to one capacity-building project.

They are then instructed as follows:

Assign at the top of each table a unique name for the corresponding project. In the 2nd row of the table the code *CBP1* is assigned to the first of capacity-building projects that has been distinguished. In the tables added for other such projects, assign the codes *CBP2*, *CBP3* and so forth consecutively to these projects. Insert in the 2nd column of the body of the table the code for each listed capacity-building activity as it was identified in response to either Question C2 or Question C3. In the 3rd column insert the allocations from your organisation’s investment budget that you previously estimated (when answering Questions C2 and C3) would be needed to undertake each capacity-building activity.

Some of the capacity-building projects identified in this step will include capacity-building activities included in on-ground-action projects that were developed using Form B. Clearly it is not appropriate to manage these activities only as parts of capacity-building projects, independently of the on-ground projects that depend on them. The intention (as stated previously in section 11.4) is rather for these activities to be managed, in a coordinated manner, both as part of an on-ground-action project and as part of a capacity-building project.

Part (b) of Question C6 asks users: ‘What allocation from your organisation’s investment budget is required to undertake each of these capacity-building projects?’. They are instructed as follows:

In the rightmost column of each table below estimate what allocation from your organisation’s investment budget is required to undertake each capacity-building activity as part of the project defined in that table. This estimate may be the same as previously identified for the activity and inserted in the column to the left. In some cases, cost-savings may be available from including an activity as part of a wider project. In these cases the budget-allocation estimate for an activity in the rightmost column should reflect these cost-savings. ...

Estimated allocations from your organisation’s investment budget towards managing the various capacity-building projects should be inserted in the bottom row of each of the tables below. (This estimated allocation will be zero where the costs of project management would be fully covered from your organisation’s recurrent budget.) Finally, the total allocation from your organisation’s investment budget to undertake each capacity-building project needs to be calculated and inserted in the bottom right cell of each table.

A ‘notes’ section at the bottom of each table provides an opportunity to explain why capacity-building activities have been combined into a capacity-building project, including any consequences of the combination for your organisation’s investment funding budget.

Question C7 asks: ‘What total allocation from your organisation’s investment budget for the coming year is required for your organisation to undertake all the capacity-building projects developed above?’. Users are required to transfer (from the various tables completed in response to Question C6(a)) details of each capacity-building project (name of project, project code, and total allocation to the project from the investment budget for the coming year) to a row of the table provided. They are required also to sum the budget allocations to the various capacity-building projects.

Question C8 asks: ‘What total allocation to capacity-building activities from the coming year’s investment budget was originally budgeted?’. A table is provided into which users are required to enter in the first row the ‘total allocation to *project-specific* capacity-building activities from your organisation’s investment budget for the coming year, as calculated for Question C1’. In the second row they are required to enter the ‘total allocation to *general* capacity-building activities from your organisation’s investment budget for the coming year, as calculated for Question C3(a)’. In the third row they are required to sum the budget allocations entered into the preceding two rows to obtain the ‘total allocation to both project-specific and general capacity-building activities from your organisation’s investment for the coming year’. Note that this is the total of the allocations that were originally budgeted, prior to any cost-savings identified from combining capacity-building activities into coordinated projects.

Form C ends with Consistency Check C1, which checks whether the total allocation to capacity-building projects from the lead organisation’s investment budget for the coming year, as calculated for Question C7, does not exceed what was originally allocated to capacity-building activities from the coming year’s investment budget, as calculated for Question C8. Provided that the allocation calculated for Question C7 does not exceed that calculated for Question C8, the process of completing Form C is complete. Otherwise, users are advised that a data entry error or miscalculation has occurred, and they are instructed to identify where this problem has arisen and remedy this problem before completing the Form C process.

12.2.4 Form D

Question A1 in Form A steers users of the CBPDF directly to Form D in those situations where their organisation is not sufficiently informed about future funding of its investment program that it can plan at least part of that program for at least one year ahead. This lack of information constrains the organisation from developing project-specific capacity-building activities. Nevertheless, scope remains in these circumstances for the organisation to develop general capacity-building projects to be submitted for funding. The purpose of Form D is to identify, justify and budget the general capacity-building activities for which the organisation intends to apply for funding in order to undertake them in the coming year. Once completed, this form provides a sound information base upon which the organisation can apply for the funding it requires to invest in the general capacity-building activities identified in Form D.

Question D1 (the first of Form D) asks: ‘Does your organisation intend to seek funding to undertake general capacity-building activities in the coming year?’. An affirmative answer leads users to continue with the form. A negative response means they are instructed to ‘not continue with the Capacity-Building Project Development Framework’.

Question D2 asks: ‘For what general capacity-building activities in the coming year does your organisation intend to seek funding?’. A table is provided in which these activities can be listed.

Question D3 instructs users to ‘justify investments in the general capacity-building activities that were identified for Question D2’. Users are instructed to provide at least one justification for each activity, and that justifications for a particular general capacity-building activity relate to the following questions:

- what ‘capacity constraint(s)’ limiting your organisation’s ability to protect the natural resources it is responsible for would be alleviated by undertaking this activity?
- what reasoning and evidence indicates that these constraints exist and are serious enough to be worth alleviating?
- what reasoning and evidence offers confidence that the particular general capacity-building activity can succeed in cost effectively alleviating these capacity constraints?
- what other rationale are there for investing this activity? (e.g. matches investor priorities, aligned with your organisation’s strategic targets, contributes to government strategic targets, etc.).

Question D4 requires users to provide a cost breakdown using the table provided for each of the general capacity-building activities listed in response to Question D2. Costs are required to be broken down into different cost items, as well as according to whether the costs will be covered from the lead organisation’s investment budget, from cash contributions from other sources, or from in-kind contributions.

Question D5 enquires about the quality of the information used in completing Form D (rated on a five-point scale from ‘very poor’ to ‘very good’) and on any key knowledge gaps encountered in completing the form that may require additional research, analysis or investigation.

13. TRIALLING THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK

The process of trialling the Capacity-Building Project Development Framework is discussed in this chapter. The steps taken in preparation for the trials are detailed in section 13.1. Details of how the trials occurred with each of the three regional NRM organisations participating in the project – Border Rivers-Gwydir CMA, Namoi CMA and Northern Rivers CMA – are presented in section 13.2.

13.1 Preparatory steps

The trial process commenced by convening initial meetings with staff from each of the three CMA partners in the project – Border Rivers - Gwydir CMA, Namoi CMA and Northern Rivers CMA – at which the purpose of the method was explained, the staff were led through draft versions of Forms A, B and C of the CBPDF, and they were asked to provide feedback.

The meeting for Border Rivers – Gwydir CMA was held on 23rd August 2010 at the CMA’s office in Armidale, and was attended by the project leader (Marshall) as well as the Catchment Coordinator (Community) and the Planning Officer from that CMA. The meeting for Northern Rivers CMA was held on 26th August 2010 and was attended by the project leader as well as the Catchment Coordinator (Aquatic) and the Community Program Coordinator (also the Coordinator for the CMA’s northern zone) from that CMA. The meeting for the Namoi CMA was held on 27th August 2010 and was attended by the project leader as well as by the Program Manager (Operations) from that CMA. A subsequent preparatory meeting was held for the Namoi CMA on 16th September 2010, which was attended by the project leader as well as by the CMA’s Program Manager (Operations) and two members of its Community team.

It was agreed as a result of these initial meetings that the trial for each CMA would involve:

- completing Form A;
- completing Form B for two of the sets of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year;
- completing Form C based on the information contained in the completed copies of Form B.

Form D was not relevant to the three participating CMAs since they were each in a position to plan their investment programs for at least one year ahead; hence Form D was not included in the trial process.

The number of copies of Form B to be completed was limited to two in response to the CMA’s limited availability of staff time to participate in the trials. Despite the trials being partial in this sense, the CMAs agreed that proceeding with the trials in this form would be sufficient for them to assess the value of the CBPDF to them and provide feedback on how it might be improved. Based on the information presented at these meetings, the three CMAs agreed to proceed to a trial of the CBPDF on this basis.

The draft versions of Forms A, B and C presented at these meetings were substantially revised prior to commencing the trials on the basis of feedback obtained from the meetings. For instance, staff from the Namoi CMA’s Community team expressed concern about the focus of the CBPDF on building capacities for strengthening the feasibility of implementing on-ground actions. Their concern was particularly with the term ‘on-ground actions’ which they perceived to exclude many of the kinds of behaviour changes that general capacity-building activities tend to be ultimately

concerned with. They perceived this term to refer narrowly to traditional kinds of landholder conservation practices like weed-control practices, fencing off remnant vegetation, etc., whereas the kinds of general capacity-building activities commonly undertaken by their CMA are often focused more broadly than this (e.g. focused on motivating adoption of management-oriented changes contributing towards water- or energy- efficiency). They were concerned that the CBPDF would come to be applied in a way biased against investing in general capacity-building activities unless the term ‘on-ground action’ was clearly defined to include not only traditional actions of this kind but also the more ‘behavioural’ or management-oriented actions that general capacity-building activities often seek to support. These concerns were addressed by coming to define ‘on-ground action’ as it was in section 12.1.

One of the staff present at the initial meeting with Border Rivers – Gwydir CMA raised a concern about the time required to carry out the various calculations required in the forms and to transfer data from one form to another, and suggested that such calculations and data transfers be automated in some way. The spreadsheet calculators mentioned in section 12.1 were developed in response to this concern. Although considerable potential exists to automate the process further, further work along these lines was outside the scope of the present project.

13.2 The trials

The three CMA partners chose different ways of participating in the trials, as detailed below. Note that although the staff participating in the trials completed the forms to the best of their ability given the limited time available, the trials were entered into as an illustrative exercise rather than with the intention of actually deciding investment priorities. Hence the excerpts from completed forms presented below were included only to illustrate how the CBPDF may be applied. They do not necessarily indicate the actual investment intentions of the participating CMAs.

13.2.1 Trials by Border Rivers – Gwydir CMA

Border Rivers – Gwydir CMA (BRGCMA) chose to complete Forms A, B and C in a series of three separate meetings. A common group of staff was nominated to participate in each of these meetings, which were all held in Inverell.

The meeting with BRGCMA to trial Form A occurred from 10am to 3pm on 22nd October 2010. It was attended by the Acting Program Manager (Landscapes and Community), the Catchment Action Plan (CAP) Review Officer, the Catchment Coordinator (Community), the Catchment Officer (Property Planning), and two Catchment Officers (Projects). These individuals constituted the regional working group for this CMA’s trial process.

The response to Question A2 of Form A from this CMA was that it is sufficiently informed about funding of its investment program over the two-year period July 2011 to June 2013 to be able to plan at least part of that program. A copy of the 2 completed in response to Question A5, which identifies the sets of on-ground actions in this investment program that depend on capacity-building activities to be funded in the coming year (2011-12) is presented below as Table 34. The figures inserted in the table were illustrative for the purposes of the trial, and should not be construed as reflecting this CMA’s actual investment intentions.

Form B was trialled by this CMA at a meeting held from 10am to 3.30 pm on 7th November 2010. This meeting was attended by each of those who attended the Form A meeting. This trial focused on two of the seven sets of on-ground actions that were listed in Table 34.

Table 34: Sets of on-ground actions identified in response to Question A5 of Form A as depending on capacity-building activities to be funded in the coming year: Border Rivers – Gwydir CMA*

<i>Set code</i>	<i>Set of on-ground behaviour changes</i>	<i>Quantity of actions</i>	<i>Estimated allocation from investment budget (\$)</i>	<i>Project already developed using INFFER? (Tick if 'yes')</i>
og1	Riparian fencing and revegetation	70 km	728,000	
og2	Native vegetation protection and enhancement	700 ha	728,000	
og3_1	Control of weeds	1000 ha	139,000	
og3_2	Control of feral animals	1000 ha	139,000	
og4	Protection of Indigenous Cultural Heritage	6 sites	278,000	
og5	Water-use efficiency	20 ha	728,000	
og6	Fencing to land capability	6,000 ha	278,000	
<i>Total estimated allocation from your organisation's investment budget</i>			\$3,022,000	

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

The first of these sets was 'control of weeds'. The on-ground-action project goal specified under Question B1.2 of Form B for this set was:

By June 2013 local councils will have undertaken weed-control practices over 1,000 hectares of private and public land infested with St Johns Wort (with private and public landholders will be responsible for the non-on-ground actions of helping to identify the areas in need of control and allowing access to their lands).

The second of the sets was 'protection of Indigenous Cultural Heritage'. The on-ground-action project goal specified under Question B1.2 of Form B for this set was:

By June 20013, six Indigenous Cultural Heritage sites will be protected by the relevant landholders with management actions put in place to maintain and improve the condition of each site.

The meeting with this CMA to trial Form C occurred from 11am to 3.30pm on 11th November 2010. Those present at the prior two meetings attended except for the CAP Review Officer. The table completed in response to Question C2 for the 'control of weeds' project is copied below as Table 35 to illustrate the range of capacity-building activities that may be identified in a copy of Form B as contributing to the feasibility of an on-ground-action project developed using that form. Since the code assigned to this project was *og3*, the capacity-building activities were coded consecutively as *og3_1*, *og3_2*, *og3_3*, etc. The entries in the 'Est. allocation from investment budget' column are zero for a number of capacity-building activities because the costs of these activities were intended to be covered from outside the CMA's investment budget (e.g., from its recurrent budget, or from cash or in-kind contributions from other organisations).

The table completed by BRG CMA in response to Question C3 of Form C is copied below as Table 36 to illustrate the range of general capacity-building activities that may be funded within a CMA's investment program.

Question C5 of Form C prompts users of the form to organise the capacity-building activities identified in Questions C2 and C3 of the form into cost-effective capacity-building projects to be funded from their organisation's investment budget for the coming year. One of the tables completed by BRG CMA in response to Question C5 is copied below as Table 37 to illustrate a response to this question.

For space reasons, and because the responses by the CMA to questions in the CBPDF are illustrative only, it is sufficient to include in this report excerpts of responses to Form C from only one of the participating CMAs (i.e., BRG CMA).

13.2.2 Trials by Namoi CMA

In the case of Namoi CMA (NCMA), it was decided that a meeting with the project leader was not required to complete Form A. The CMA's Program Manager (Operations) agreed to complete a draft of Form A in consultation with his colleagues and to present this draft to the project leader for feedback. Forms B and C were then to be completed in two separate meetings in Tamworth attended by the Program Manager (Operations) and the project leader. This staff member consulted colleagues as required between meetings to obtain the information and judgements he required to complete the forms. The regional working group for this CMA's trial process consisted of this staff member.

Table 35: Capacity-building activities identified in response to Question C2 of Form C as contributing to the ‘control of weeds’ project developed by the BRG CMA*

Category of capacity-building activity		Capacity-building activities included in project	Activity code	Est. allocation from investment budget (\$)
Project-specific capacity-building activities for on-ground behaviour changes by:	Private landholders and other citizens	Two field days on demonstration farms	og3_1	4,000
		Two weed identification workshop	og3_2	4,000
		Four catchment planning workshops	og3_3	8,000
	Organisations other than your own	Training of LHPA and Council staff in mapping and reporting St John’s Wort	og3_4	0
		Staff training in vehicle hygiene	og3_5	0
		Facilitation of planning	og3_6	0
	Your own organisation	Training in vehicle hygiene	og3_7	2,000
		Staff training in recognising and reporting St John’s Wort	og3_8	6,000
General capacity-building activities for:	Private landholders and other citizens	Support from the Farming Management Systems project	og3_9	0
		General media awareness by Council, LHPA, Landcare newsletter, radio shows, Landcare group meetings, CMA newsletter.	og3_10	2,000
		Continued support of the Northern Inland Weeds Advisory Committee.	og3_11	0
	Organisations other than your own	Stands at shows to deliver information on St John’s Wort e.g. distribution of brochures	og3_12	1,000
		GPS training to identify location of treated/untreated areas.	og3_13	1,000
		Training for the weed tracer program	og3_14	0
Total estimated allocation from investment budget				28,000

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA’s actual investment intentions.

Table 36: General capacity-building activities identified in response to Question C3 of Form C as to be undertaken in the coming year by the BRG CMA*

General capacity-building activities to be undertaken with the budget allocation to such activities that was specified in response to (a)	Activity code	Estimated allocation from investment budget (\$)
Property Management Planning	gcb1	350,000
Landcare Community Support Officer	gcb2	560,000
Media promotion	gcb3	40,000
Schools education programs	gcb4	39,000
Water watch	gcb5	39,000
Support for the Aboriginal Reference Advisory Group	gcb6	80,000
Indigenous community support	gcb7	200,000
Promotion at events	gcb8	1,000
Website	gcb9	1,000
Information distribution	gcb10	40,000
Total		1,350,000

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

Table 37: Composition of one capacity-building project as identified in response to Question C6 of Form C: Border Rivers – Gwydir CMA*

Name of capacity-building project:	Capacity building through property management planning
Project code:	CBP1

Capacity-building activities included in project	Activity code	Est. allocation from investment budget as estimated for Qu. C3 or Qu. C4 (\$)	Est. allocation from investment budget when activity included in this project (\$)
Property Management Planning	gcb1	350,000	350,000
Field days on demonstration farms	og3_1	4,000	0
Catchment planning workshops	og3_3	8,000	0
Support from Farm Management Systems project	og3_9	0	0
Facilitation of planning	og3_6	0	0
Project management			
Total estimated allocation to the project from your organisation's investment budget			350,000
Notes: The Property Management Planning activity (gcb1) will be able to accommodate the other four activities included in this project with no additional cost, provided this activity is funded.			

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

A draft of Form A was submitted to the project leader in late September 2010, and was finalised after feedback from the project leader. The response to Question A2 of Form A from this CMA was that it is sufficiently informed about funding of its investment program over the three-year period July 2011 to June 2014 to be able to plan at least part of that program. A copy of the table completed in response to Question A5, which identifies the sets of on-ground actions in this investment program that depend on capacity-building activities to be funded in the coming year (2011-12) is presented below as Table 38. The figures inserted in the table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

Two of the three sets of actions listed in Table 38 were chosen for the trials with Form B:

- increase or maintain native vegetation in extent in priority zones; and
- protection of Indigenous Cultural Heritage.

The meeting to complete Form B for these sets of on-ground actions occurred on 29th October 2010 from 9.30am to 1pm. Form B was completed for the first of these sets in this time. After completing Form B for this set, the CMA's Program Manager (Operations) felt confident to complete Form B for the other set in the absence of the project leader, consulting his colleagues as required. A completed copy of Form B for the second set of on-ground actions was submitted to the project leader a few days later.

The on-ground-action project goals specified under Question B1.2 of Form B for the set of actions 'increase or maintain native vegetation in extent in priority zones' were:

By June 2014

- 2,813 ha of native vegetation canopy will be increased by private landholders.
- 937 ha of native vegetation canopy will be increased by Livestock Health and Pest Authorities and the Department of Lands.

The on-ground-action project goal specified under Question B1.2 of Form B for the set of actions 'protection of Indigenous Cultural Heritage' was:

By June 2013, six Indigenous Cultural Heritage sites will be protected by the relevant landholders with management actions put in place to maintain and improve the condition of each site.

The meeting with NCMA to complete Form C occurred from 9.30am to 1pm on 10th November 2010.

13.2.3 Trials by Northern Rivers CMA

Northern Rivers CMA (NRCMA) chose to complete the forms in a single meeting run in Grafton from 12 noon on 19th October to 3pm on 20th October. This meeting was attended by three staff from that CMA – the Catchment Coordinator (Terrestrial and Native Vegetation), the Catchment Coordinator (Aquatic), and the Community Program Coordinator. Each of the meetings was also attended by the project leader. These individuals constituted the regional working group for this CMA's trial process.

Table 38: Sets of on-ground actions depending on capacity-building activities to be funded in the coming year: Namoi CMA*

<i>Set code</i>	<i>Set of on-ground behaviour changes</i>	<i>Quantity of actions</i>	<i>Estimated allocation from investment budget (\$)</i>	<i>Project already developed using INFFER? (Tick if 'yes')</i>
og2	Conserve key aquatic habitat refugia	6 sites	300,000	
og4	Maintain or recover geomorphic condition on high priority river reaches	75 km	1,500,000	
og1	Increase or maintain native vegetation extent in priority zones	3,750 ha	2,400,00	
Total estimated allocation from your organisation's investment budget			4,200,000	

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

The response to Question A2 of Form A from this CMA was that it is sufficiently informed about funding of its investment program over the two-year period July 2011 to June 2013 to be able to plan at least part of that program. A copy of the table completed in response to Question A5 of Form A, which identifies the sets of on-ground actions in that investment program that depend on capacity-building activities to be funded in the coming year (2011-12) is presented below as Table 39. The figures inserted in the table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

Two of the 11 sets of on-ground actions listed in Table 39 were chosen for the trials with Form B:

- reducing the impact of WoNS - Terrestrial; and
- protecting High Conservation Value Aquatic Ecosystems.

The on-ground-action project goal specified under Question B1.2 of Form B for the set of actions 'reducing the impact of WoNS – Terrestrial' was:

By 30 June 2013, private landholders and contractors will have conducted primary weed control of Lantana over 180 ha in the NR CMA region.

Due to lack of time during the meeting, it was not possible to complete Form B for the second of the two sets of on-ground actions chosen for trialling this form. Given that completing the second copy of Form B would have left insufficient time to trial Form C satisfactorily, the NR CMA staff at the meeting elected to bypass this step and proceed directly to trialling Form C. With Form B completed for only one set of on-ground actions, it was necessary to complete the trial of Form C with less data than was available for the other two CMAs.

Table 39: Sets of on-ground actions depending on capacity-building activities to be funded in the coming year: Northern Rivers CMA*

<i>Set code</i>	<i>Set of on-ground behaviour changes</i>	<i>Quantity of actions</i>	<i>Estimated allocation from investment budget (\$)</i>	<i>Project already developed using INFFER? (Tick if 'yes')</i>
og1.1	Increasing native habitat within littoral rainforest	140 ha	300,000	
og1.2	Increasing native habitat within endangered ecological communities in the New England Tablelands	100 ha	275,000	
og2	Reduce the impact of vertebrate pest animals	430 ha	215,000	
og3.1	Reducing the impact of WoNS (Weeds of National Significance) - Terrestrial	180	210,000	
og3.2	Reducing the impact of WoNS - Aquatic	180	350,000	
og4.1	Managing World Heritage Areas- Terrestrial	200	275,000	
og4.2	Managing World Heritage Areas- Aquatic (Lord Howe Island)	50	170,000	
og5	Protecting High Conservation Value Aquatic Ecosystems	650	575,000	
og6.1	Improving management practices - cropping (farmers)	38 farms 1125 ha	120,000	
og6.2	Improving management practices - grazing	113 farmers 1125 ha	355,000	
og7	Increasing landscape scale conservation	270 ha	700,000	
Total estimated allocation from your organisation's investment budget			3,545,000	

* The figures inserted in this table were illustrative for the purposes of the trial, and should not be taken as reflecting this CMA's actual investment intentions.

14. REVIEWING THE TRIALS OF THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK

At the end of each of the meetings held as part of the process of trialling the CBPDF, participants (i.e. members of the regional working group for that trial process) were asked to provide oral feedback. Towards the end of the closing meeting of the trial process for each CMA, a workshop was run in which members of the regional working group for that process were asked to provide oral feedback regarding the whole process. Feedback at each point was recorded with their permission. The discussion was guided by the following three guiding questions:

1. What are the strengths of the CBPDF compared with your CMA's current practice for developing capacity-building projects?
2. What are the weaknesses of the CBPDF compared with your CMA's current practice for developing capacity-building projects?
3. Can you see the CBPDF, or elements of it, being applied by your CMA? How might it be made more useable and useful for your CMA?

Towards the conclusion of each of the end-of-trial review workshops, a short questionnaire was distributed to each participant. Completed questionnaires were received from all workshop participants. A copy of this questionnaire can be found in Appendix A of Marshall (2011a). The questionnaire includes two tables – A and B – plus three additional questions.

Table A in the questionnaire lists 13 criteria identified as relevant to CMAs in choosing a method for developing cost-effective capacity-focused investments. For each criterion, respondents were asked to rate what they perceived to be its importance to their CMA in choosing such a method. This involved marking one box on a seven-point scale of importance from 'very low' to 'very high'. Space was left at the bottom of the table for respondents to add further criteria which they considered important.

Table B in the questionnaire lists the same set of criteria. Respondents are asked to rate the performance of the CBPDF against each of these criteria relative to their CMA's current practice. This rating is on a seven-point scale of relative performance from 'much worse' (-3) to 'much better' (+3) including a scale midpoint of 'about same' (= 0).

15. REVIEW FINDINGS: BORDER RIVERS – GWYDIR REGION

Findings from the process of reviewing the trials of the Capacity-Building Project Development Framework with Border Rivers-Gwydir CMA are presented in this chapter. Workshop feedback from the review process with this CMA is presented in section 15.1. Questionnaire feedback from this process is presented and discussed in section 15.2.

15.1 Workshop feedback

Comments from Border Rivers – Gwydir CMA in relation to each of the guiding questions listed in chapter 14 are presented below.

<i>1: What are the strengths of the CBPDF compared with your CMA's current practice for developing capacity-building projects?</i>		
Comment code	Who?	Comment
B1_1	S1	Capacity building activities are at present developed usually using a 'many heads' approach during project planning exercises. Professional experience and past experiences with similar projects are used to plan for the future. Needs are discussed and options for community capacity building projects are developed. Often this works well, as the right people are in the room at the right time and there is enough understanding that the right path is chosen. Sometimes it is not done well though; often things are missed as you cannot really measure the value of different options (usually done fairly subjectively). In general, the pattern of discussion and planning is very similar to that provided in the framework we trialled [the CBPDF], but it is not a written process like in that framework.
B1_2	S2	It [the CBPDF] is probably a bit more formalised as a process. I think we've captured similar stuff before, but not at the same depth as in this exercise.
B1_3	S2	You do capture a lot [using the CBPDF]. And you capture it in a structured way, especially with the recording and justification of why you're actually doing that activity. It's a very structured process, and if that's how it was meant to come out, it's done.
B1_4	S1	The process leads you through a series of set steps, so nothing is overlooked.
B1_5	S4	I think it [Form B] is a good mechanism, especially when you get to the end and you can compare one project design against another project design for achieving the same goal.
B1_6	S1	Because it is a written process, reasons for undertaking community capacity-building activities are recorded more comprehensively.
B1_7	S2	When we develop up our projects, I guess we think about capacity in terms of our projects, but not on a broader scale. So I guess this method is a good way of broadening that focus, and capturing where those common elements are between projects for capacity-building activities, where there are similarities and where those things can be streamlined.
B1_8	S1	[The method is] a good way of testing a few of our assumptions, looking at the different capacities, and what stops people doing things. We make assumptions that something will work, but maybe don't take into account what else needs to be done first.
B1_9	S3	In the past we've always reviewed our projects, or mostly always, and said: "What worked well, what didn't work well? Let's keep going with what worked well". We haven't actually sat down and said: "What are the options?" This is one way of doing that.

1: What are the strengths of the CBPDF compared with your CMA's current practice for developing capacity-building projects? (continued)

Comment code	Who?	Comment
B1_10	S2	The best part about Form B for me was the formula at the end [for the Feasibility Adjusted Cost] where you come up with the figure, and if you wanted to go back in and readjust some of the activities or some of the money you're spending, where you're spending it, and also the risk within the project by knowing what the risks are, and covering your tracks better, then you'll come up with a better result so that you can actually work the project around to get a better response as long as everything's okay in that.
B1_11	S3	There's plenty of scope in there for testing your assumptions as you go through the process, which probably reduces the risks involved in the project being developed.
B1_12	S1	The [CBPDF] process is similar to what we use, except we use a much more informal process, and the record-keeping is not as good as it probably should be. So I like the idea of having the record-keeping in this specific format. But you need to do a bit of planning before you get to this stage [of completing the CBPDF], so that it becomes easier to fill in the answers. If you're planning and then come to the stage of thinking about, say, whether capacity-building is the focus, or extension is the focus, and you haven't thought of that yet, then it's good because it's triggering you to plan better.

2: What are the weaknesses of the CBPDF compared with your CMA's current practice for developing capacity-building projects?

Comment code	Who?	Comment
B3_1	S1	It is repetitive, with many iterations of the same information from sheet to sheet.
B3_2	SI	It is a structured process, but there are still a number of subjective judgements that have to be made – therefore you still need the professional knowledge and expert experience based on past projects and evaluation of their success or failure.
B3_3	SI	Since it does not replace the need for the many heads approach (i.e. you probably need the same people in the room at the same time as if you did it the old way), then the CBPDF needs to be very easy to use (hence my suggestion for the Excel sheet that carries data over), otherwise professionals in the field will just revert to the more informal process with the knowledge that often the decisions they make will be the same as if they used the CBPDF anyway.
B3_4	S1	There's a potential bias in how users might use the framework, towards kinds of general capacity-building activities that support upcoming on-ground actions and away from kinds with a broader or longer-term focus. I don't think it's a bias in the process itself, just that users might pay more attention to general capacity-building activities with benefits for upcoming on-ground projects because those kinds of activities are easier to justify.

3: Can you see the CBPDF, or elements of it, being applied by your CMA? How might it be made more useable and useful for your CMA?		
Comment code	Who?	Comment
B4_1	S1	My suggestion is to put the information into a Excel sheet that does the automatic carry over of figures from one sheet to another.
B4_2	S4 Project leader S1	It would help to come into the using the framework having developed up all the answers through group activity, or a brainstorming thing, or a project planning process, coming into that with a good idea of how you're going to do it, and what you're going to do, and what your risks are, what the actions are that you are going to take. And otherwise it's going to be a drawn-out process answering every question with: "Oh, I haven't thought of that one ..." It is true it is a step-by-step process. Which is great, because then you can do capture everything that maybe you'd leave out if you were just throwing it out on the table, informally. But maybe the framework needs to include some tools like brainstorming to help you think about all the things you'll need before you get to the form.
B4_3	S1	Perhaps you could make the forms web-based; so answers to earlier questions automatically carry forward as required for completing later questions. So step-by-step the project builds up. That way I think you'd have a lot less risk of losing integration; like when you carry forward codes, then carry forward budgets.
B4_4	S4	If I had something in mind, like a project I'm doing out at ... I know what activities I have in mind to do capacity-building. It seems to be a long process to get those listed, and then the budget allocated to them. In reality you should know that earlier on. ... It seems to be a long, slow process, where in reality we should be coming in with a project in mind and knowing what sort of capacity activities you were looking at other stages. So it seems for me to be sort of a roundabout way of getting that down.
B4_5	S2	Drop-down boxes in a web-based form would make filling out the forms quicker. So to make it quicker you can use the drop-down box and pick the code GCB1 or whatever it is out of the group of ten or twelve that you've got in there that you put in earlier.

15.2 Questionnaire feedback

Five staff of Border Rivers – Gwydir CMA who had participated in the trials of the CBPDF responded to the questionnaire.

Ratings of the importance of different criteria in choosing a method for developing cost-effective capacity-building projects

The mean of the importance ratings assigned by the five staff to each of the 13 criteria are presented in Table 40. Recall that a rating (score) of 1 for a criterion denotes a very low importance, and a rating of 7 denotes very high importance. The criteria are listed in the table in descending order of mean importance rating for all respondents. Rankings of the various criteria according to their respective mean importance ratings are also shown in the table.

Table 40: Relative importance of various criteria in choosing a method for developing capacity-building projects: Border Rivers – Gwydir CMA

The method ...	Criteria:	Mean score for criterion importance (n = 5)	Rank by mean importance score
Keeps a record of all the judgements and assumptions that need to be made		6.00	1
Makes transparent all the judgements and assumptions that need to be made		5.80	2
Ensures that capacity-building projects are based on sound logic and evidence		5.80	2
Helps justify investment decisions to your CMA's regional community		5.60	4
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		5.40	5
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		5.40	5
Helps justify investment proposals to government investors		5.00	7
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		5.00	7
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		4.80	9
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		4.80	9
Is practical to apply given the skills and time available to CMA staff		4.80	9
Can incorporate local knowledge and values		4.80	9
Avoids subjective judgments		4.40	13

The three criteria ranked on average highest in importance by these staff were:

- | | |
|-----------------------|--|
| 1st | keeps a record of all the judgements and assumptions that need to be made; |
| Equal 2 nd | makes transparent all the judgements and assumptions that need to be made; and |
| Equal 2 nd | ensures that capacity-building projects are based on sound logic and evidence. |

The five criteria ranked on average *lowest* in importance by the five respondents were:

- | | |
|-----------------------|--|
| Equal 9 th | strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'; |
| Equal 9 th | helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects; |
| Equal 9 th | is practical to apply given the skills and time available to CMA staff; |
| Equal 9 th | can incorporate local knowledge and values; and |
| 13 th | avoids subjective judgments. |

Given the workshop responses from three staff to the effect that the CBPDF could be made more useable for them by making it less cumbersome and time-intensive, it is interesting that the criterion '[the method] is practical to apply given the skills and time available to CMA staff' was ranked on average of one of the lowest-importance criteria for choosing a method for developing cost-effective capacity-building projects. Two of the staff did rate this criterion as of 'very high importance' (ratings of 7 in each case), but the other three staff rated this criterion as of moderate importance (ratings of 3 or 4 in each case).

Aside from the criteria pre-specified in Table A, respondent S1 suggested three further criteria were relevant to their CMA in choosing a method for developing cost-effective capacity-building projects. These criteria were: [the method] ...

- is an experience that provides social opportunities and opportunities for staff to learn from each other;
- is enjoyable and fun; and
- is visual (using diagrams, brainstorming, active participation).

This respondent rated the importance of these three suggested criteria as 7 in each case, or equal 1st in importance alongside five of the pre-specified criteria.

Ratings of the performance of the CBPDF relative to the CMA's current practice

The means of the performance ratings assigned by the five Rivers – Gwydir CMA staff to each of the 13 criteria are presented in Table 41. Recall that a score of -3 for a criterion denotes a rating of very low performance of the CBPDF relative to current practice, +3 denotes a rating of very high performance of the CBPDF relative to current practice, and a score of 0 denotes a rating that the performance of the CBPDF is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of mean performance rating for all respondents. Rankings of the various criteria according to their respective mean performance ratings are also shown in the table.

Table 41: Relative performance of the CBPDF against the various criteria: Border Rivers – Gwydir CMA

The method ...	Criteria:	Mean CBPDF performance score (n =5)	Rank by mean performance score
Keeps a record of all the judgements and assumptions that need to be made		2.00	1
Makes transparent all the judgements and assumptions that need to be made		1.80	2
Helps justify investment proposals to government investors		1.40	3
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		1.20	4
Ensures that capacity-building projects are based on sound logic and evidence		1.20	4
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		1.20	4
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		0.60	7
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		0.60	7
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		0.40	9
Avoids subjective judgments		0.20	10
Helps justify investment decisions to your CMA's regional community		0.20	10
Can incorporate local knowledge and values		0.00	12
Is practical to apply given the skills and time available to CMA staff		-1.20	13

Table 41 reveals that the three criteria that the CBPDF method scored on average *highest* against in terms of its performance were: The method ...

- | | |
|-----------------|---|
| 1 st | keeps a record of all the judgements and assumptions that need to be made; |
| 2 nd | makes transparent all the judgements and assumptions that need to be made;
and |
| 3 rd | helps justify investment proposals to government investors. |

The four criteria that the CBPDF method scored on average *lowest* against in terms of its performance were: The method ...

- | | |
|------------------------|---|
| Equal 10 th | avoids subjective judgments; |
| Equal 10 th | helps justify investment decisions to your CMA's regional community; |
| 12 th | can incorporate local knowledge and values; and |
| 13 th | is practical to apply given the skills and time available to CMA staff. |

The mean scores against all but two of the criteria are positive, signifying that the respondents on average rated the performance of the CBPDF against 11 of the 13 criteria as superior to their CMA's current practice. The mean score for the criterion 'can incorporate local knowledge and values' was zero, indicating that the respondents on average rated the performance of the CBPDF against this criterion equally with that of their CMA's current practice. The mean score for the criterion 'is practical to apply given the skills and time available to CMA staff' was -1.2, indicating that the respondents on average rated the performance of the CBPDF against this criterion as markedly less than that of their CMA's current practice.

In Table 42 the criteria are ranked in descending order of their mean importance scores, as in Table 40, with the mean score for the CBPDF's relative performance against each criterion also presented.

We can see from this table that the two criteria against which the CBPDF was perceived on average to perform best (compared with current practice) – 'keeps a record of all the judgements and assumptions that need to be made' and 'makes transparent all the judgements and assumptions that need to be made' – were also rated highest on average in terms of their importance to this CMA in choosing a method for developing cost-effective capacity-building projects. This table reveals also that the criterion 'is practical to apply given the skills and time available to CMA staff' was ranked equal 9th in importance for this CMA. Hence, the fact that respondents on average rated the performance of the CBPDF against this criterion as (markedly) inferior to current practice seems not to be a major hurdle to be addressed for this CMA to adopt this method. Overall, therefore, these results indicate that conditions are reasonably favourable for this CMA coming to apply the CBPDF.

However, recall from above that respondent S1 suggested three additional criteria were relevant to their CMA in choosing a method for developing cost-effective capacity-building projects. These criteria were: [the method] ...

- is an experience that provides social opportunities and opportunities for staff to learn from each other;
- is enjoyable and fun; and
- is visual (using diagrams, brainstorming, active participation).

This respondent rated the performance of the CBPDF against these criteria as -3 in each case (i.e. very low performance relative to their current approach). Hence, at least this respondent may have

Table 42: Criteria ranked by mean performance of the CBPDF against each: Border Rivers – Gwydir CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean CBPDF performance score (n = 5)
Keeps a record of all the judgements and assumptions that need to be made		1	2.00
Makes transparent all the judgements and assumptions that need to be made		2	1.80
Ensures that capacity-building projects are based on sound logic and evidence		2	1.20
Helps justify investment decisions to your CMA's regional community		4	0.20
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		5	1.20
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		5	0.60
Helps justify investment proposals to government investors		7	1.40
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		7	0.40
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		9	0.60
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		9	1.20
Is practical to apply given the skills and time available to CMA staff		9	-1.20
Can incorporate local knowledge and values		9	0.00
Avoids subjective judgments		13	0.20

significant reservations about their CMA moving towards applying the CBPDF more routinely, especially since the importance of each of these three criteria was rated 'very high' by this respondent.

User-friendliness of the forms comprising the CBPDF

The questionnaire asked: 'How 'user-friendly' did you find the forms?'. Of the five respondents for this CMA, one chose the response option 'moderately' and four chose 'slightly' (the remaining unutilised option was 'not user-friendly at all').

Three of the five respondents provided written elaboration of their ratings. Respondent S1 commented: 'Instructions and descriptions of what to do was very good. Need to continually refer back and forth and copy information across, which is not user friendly'. Respondent S4: 'Form C needs automating'. Respondent S5: 'Would work better if fully automated'.

Helpfulness of the manuals

The questionnaire also asked: 'How much did the manuals for the method trialled help you when completing the forms?'. Of the five respondents for this CMA, one chose the response option 'considerably', three chose 'moderately', and one chose 'no help - I didn't get around to consulting the manuals'.

One of the five respondents provided written elaboration of their rating. Respondent S2 commented: 'I liked the examples given for clarification of questions'.

Rating how worthwhile was the experience of trialling the CBPDF

One of the questions in the questionnaire asked: 'How worthwhile for you was the experience of trialling the method?'. Of the five respondents for this CMA, one answered that their experience had been 'highly' worthwhile, one that it had been somewhere between 'highly' and 'moderately' worthwhile, two that it had been 'moderately' worthwhile, and one that it had been 'slightly' worthwhile (the remaining unutilised option was 'not at all worthwhile').

Two of the five respondents provided written elaboration of their ratings. Respondent S1 commented: 'Very time intensive - i.e. used a good block of 3 days when there is always more to do back at the office! Otherwise an interesting process to change our current method and bring in some record keeping / justification process'. Respondent S4 observed: 'Overall, the process promotes consistency, using sequential pathways'.

16. REVIEW FINDINGS: NAMOI REGION

Findings from the process of reviewing the trials of the Capacity-Building Project Development Framework with Namoi CMA are presented in this chapter. Workshop feedback from the review process with this CMA is presented in section 16.1. Questionnaire feedback from this process is presented and discussed in section 16.2.

16.1 Workshop feedback

Comments from Namoi CMA in relation to each of the guiding questions listed in chapter 14 are presented below.

<i>1: What are the strengths of the CBPDF compared with your CMA's current practice for developing capacity-building projects?</i>		
Comment code	Who?	Comment
N1_1	S1	Capacity-building activities to get the behavioural changes are going to become more and more important. I think what the framework does is it really makes you think about what that capacity-building is going to deliver at the end of the day. I think it starts to ask questions like: "Is more capacity-building warranted? Is it going to be effective, or cost-effective? Is the amount of capacity-building that it gives you going to be enough to deliver the on-ground works that you want to deliver at the end of the day?" It asks you those questions, or at least makes you think about that ²¹ .
N1_2	S1	For general capacity-building activities, what the three forms do – most seriously in Form C – is make sure those activities are linked to your ultimate goals. The general capacity-building budget [for the CMA] consists of salaries and also some operational money annually. Now that money is spent is done in isolation to the strategy of the organisation's operations unit. So if the general capacity-building people wanted to run, say, a scholarships program, those decisions are made without considering the larger on-ground and partnership programs that we run. So general capacity-building activities can be thought of in isolation, and you end up with a suite of projects that may or may not help deliver against the CAP [Catchment Action Plan] and your on-ground targets. What Form C provides is an opportunity to talk about those linkages and find the synergies and stuff so you can mesh your on-ground capacity-building activities, on-ground works, and also your general capacity-building activities.
N1_3	S1	What's really good about it is that it makes you do the thinking; you know, like even if you forgot about the numbers to some degree. It makes you understand the processes and asks you some of the hard questions. Instead of just being process-orientated, it does make you do the thinking. But what this process does is makes you do the thinking of why you're putting in figures at the end of the day. It also helps to identify your knowledge gaps, and what's some of the more subjective, and things that you're putting in there, some of the assumptions that you're using in your form. It can highlight those, and may even sort of give you a bit of an 'ah-ha' moment where you go: "Oh gee, that's a bit subjective, or it's too much of an assumption to build a program around".
N1_4	S1	The framework provides some level of objectivity to the discussion. I think if you just get a general approach of people around the table, you get a lot of other variables – the group dynamics, like some people's personalities start to dominate, some people want their agendas driven. You would need a facilitator to counter those group dynamic effects. What this framework would do is move you through that process. If someone did come up with something that you thought is a bit skewed, the questions in the framework would highlight that.

²¹ Reviewing these comments later, the staff member who offered them expressed concern that they 'sound like we don't have processes to assess and target our investments. We do have significant processes that assess cost effectiveness of our investment plans. ... We would argue that we have good rationale and logic informing our investments'.

2: What are the weaknesses of the CBPDF compared with your CMA's current practice for developing capacity-building projects?		
Comment code	Who?	Comment
N2_1	S1	It [the CBPDF] would involve considerably more time from our staff, but offers only marginal benefits in my view. It needs to provide clear benefits, helping us to make our investments more cost-effective, for us to want to use it. If it doesn't, you know, if there was only a small benefit from using it, the organisation would start to ask, 'Why are we doing all this when it's made just a marginal difference at the end of the day?'.

3: Can you see the CBPDF, or elements of it, being applied by your CMA? How might it be made more useable and useful for your CMA?		
Comment code	Who?	Comment
N3_1	S1	Something that's more compact and easier to fill in is going to be more attractive to CMAs to use – if it's something you want to get widely adopted.
N3_2	S1	Form C really needs to be done with the right players there, in a workshop even, just to get the right information and the right thinking. That would start to ask the hard questions about general capacity and how you could link it into more effective on-ground programs. Generally, the form was relatively easy to fill in. But the quality of it would depend on the overall information you get from your workshops and stuff.

16.2 Questionnaire feedback

The one staff member of Namoi CMA who had participated in the trials of the CBPDF responded to the questionnaire.

Ratings of the importance of different criteria in choosing a method for developing cost-effective capacity-building projects

The importance ratings assigned by this staff member to each of the 13 criteria are presented in Table 43. Recall that a rating (score) of 1 for a criterion denotes very low importance, and a rating of 7 denotes very high importance. The criteria are listed in the table in descending order of the importance ratings for this respondent. Rankings of the various criteria according to their respective importance ratings are also shown in the table.

The criterion ranked highest in importance by this respondent was '[the method] is practical to apply given the skills and time available to CMA staff'. Seven criteria were ranked 2nd highest in importance:

- helps justify investment proposals to government investors;
- helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects;

Table 43 Relative importance of various criteria in choosing a method for developing capacity-building projects: Namoi CMA

The method ...	Criteria:	Score for criterion importance (n = 1)	Rank by importance score
Is practical to apply given the skills and time available to CMA staff		7	1
Helps justify investment proposals to government investors		6	2
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		6	2
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		6	2
Helps justify investment decisions to your CMA's regional community		6	2
Ensures that capacity-building projects are based on sound logic and evidence		6	2
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		6	2
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		6	2
Makes transparent all the judgements and assumptions that need to be made		5	9
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		5	9
Keeps a record of all the judgements and assumptions that need to be made		4	11
Avoids subjective judgments		4	11
Can incorporate local knowledge and values		4	11

- strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money';
- helps justify investment decisions to your CMA's regional community;
- ensures that capacity-building projects are based on sound logic and evidence;
- helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects; and
- helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities.

The three criteria ranked on average *lowest* in importance by the respondent were:

- Equal 11th keeps a record of all the judgements and assumptions that need to be made;
- Equal 11th avoids subjective judgments; and
- Equal 11th can incorporate local knowledge and values.

Ratings of the performance of the CBPDF relative to the CMA's current practice

The performance ratings assigned by the Namoi CMA respondent against each of the 13 criteria are presented in Table 44. Recall that a score of -3 for a criterion denotes a rating of very low performance of the CBPDF relative to current practice, +3 denotes a rating of very high performance of the CBPDF relative to current practice, and a score of 0 denotes a rating that the performance of the CBPDF is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of the performance ratings by the respondent. Rankings of the various criteria according to their respective performance ratings are also shown in the table.

Table 44 reveals that the three criteria that the CBPDF method scored on average *highest* against in terms of its performance were: The method ...

- Equal 1st makes transparent all the judgements and assumptions that need to be made;
- Equal 1st keeps a record of all the judgements and assumptions that need to be made; and
- Equal 1st ensures that capacity-building projects are based on sound logic and evidence.

The four criteria that the CBPDF method scored on average *lowest* against in terms of its performance were: The method ...

- Equal 10th avoids subjective judgments;
- Equal 10th helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects;
- Equal 10th can incorporate local knowledge and values; and
- Equal 10th is practical to apply given the skills and time available to CMA staff.

Table 44: Relative performance of the CBPDF against the various criteria: Namoi CMA

The method ...	Criteria:	Mean CBPDF performance score (n =5)	Rank by mean performance score
Makes transparent all the judgements and assumptions that need to be made		2	1
Keeps a record of all the judgements and assumptions that need to be made		2	1
Ensures that capacity-building projects are based on sound logic and evidence		2	1
Helps justify investment proposals to government investors		1	4
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		1	4
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		1	4
Helps justify investment decisions to your CMA's regional community		1	4
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		1	4
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		1	4
Avoids subjective judgments		0	10
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		0	10
Can incorporate local knowledge and values		0	10
Is practical to apply given the skills and time available to CMA staff		-1	13

The scores assigned against all but four of the criteria were positive. A performance score of zero was assigned against three of these four criteria, indicating that the CBPDF's performance was rated against these criteria equally with that of current practice. These three criteria were: 'avoids subjective judgements', 'helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects', and 'can incorporate local knowledge and values'. The fourth of these criteria was 'is practical to apply given the skills and time available to CMA staff'. The score assigned to it was -1, indicating that the respondent rated the performance of the CBPDF against this criterion as markedly inferior to that of their CMA's current practice.

In Table 45 the criteria are ranked in descending order of their importance scores, as in Table 43, with the mean score for the CBPDF's relative performance against each criterion also presented.

We can see from this table that the three criteria against which the CBPDF was perceived to perform best (compared with current practice) – 'ensure that capacity-building projects are based on sound logic and evidence', 'makes transparent all the judgements and assumptions that need to be made', and 'keeps a record of all the judgements and assumptions that need to be made' – were not rated highest in terms of their importance to this CMA in choosing a method for developing cost-effective capacity-building projects. Given that the criterion 'is practical to apply given the skills and time available to CMA staff' was ranked equal 1st in importance for this CMA, the fact that the respondent rated the performance of the CBPDF against this criterion as inferior to current practice represents a hurdle to be addressed for this CMA to adopt this method.

User-friendliness of the forms comprising the CBPDF

The questionnaire asked: 'How 'user-friendly' did you find the forms?'. The respondent for this CMA chose the response option 'not user-friendly at all'. The respondent provided the following written elaboration of this rating: 'On first attempt they are difficult in some areas. Would need a training workshop prior to staff using in earnest'.

Helpfulness of the manuals

The questionnaire also asked: 'How much did the manuals for the method trialled help you when completing the forms?'. The respondent for this CMA chose the response option 'no help - I didn't get around to consulting the manuals'. The respondent provided the following written elaboration of this rating: 'I didn't really use them. I relied on Graham'.

Rating how worthwhile was the experience of trialling the CBPDF

One of the questions in the questionnaire asked: 'How worthwhile for you was the experience of trialling the method?'. The respondent for this CMA answered that the experience had been 'moderately' worthwhile. The respondent provided the following written elaboration of this rating: 'Mainly it challenges thought processes, assumptions and subjectiveness'.

Table 45: Criteria ranked by mean performance of the CBPDF against each: Namoi CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean CBPDF performance score (n = 5)
Is practical to apply given the skills and time available to CMA staff		1	-1
Helps justify investment proposals to government investors		1	1
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		1	1
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		4	1
Helps justify investment decisions to your CMA's regional community		4	1
Ensures that capacity-building projects are based on sound logic and evidence		4	2
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		4	0
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		4	1
Makes transparent all the judgements and assumptions that need to be made		4	2
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		10	1
Keeps a record of all the judgements and assumptions that need to be made		10	2
Avoids subjective judgments		10	0
Can incorporate local knowledge and values		13	0

17. REVIEW FINDINGS: NORTHERN RIVERS REGION

Findings from the process of reviewing the trials of the Capacity-Building Project Development Framework with Northern Rivers CMA are presented in this chapter. Workshop feedback from the review process with this CMA is presented in section 17.1. Questionnaire feedback from this process is presented and discussed in section 17.2.

17.1 Workshop feedback

Comments from Northern Rivers CMA in relation to each of the guiding questions listed in chapter 14 are presented below.

<i>1: What are the strengths of the CBPDF compared with your CMA's current practice for developing capacity-building projects?</i>		
Comment code	Who?	Comment
NR1_1	S1	<p>We do already have a process. But I must say we don't always actually go through that process. It's just a time thing, we seem to be always racing to keep up because of our current annual cycle. So realistically I don't think we document things as rigorously as we would if we went through this process [the CBPDF]. But the opportunity is there to do it if we actually followed through with what we have established.</p> <p>We certainly consider many of the same factors [as considered in the CBPDF] in that process. when we're discussing how projects are going to be delivered. The difference is that the factors aren't always documented. They're not always looking for synergy in terms of the delivery of the building-capacity. It's a lot quicker, the way we do things.</p>
NR1_2	S2	I think there's some similarities [between the CBPDF and their existing approach]. Like, at least administratively, we kind of allocate our dollars across different streams [biodiversity, water, etc.], and allocate CCB projects to project activities. There is some similarity there, but perhaps it doesn't happen so much at the operational level.
NR1_3	S3	I don't think we deal with the risk issues as well as what you do in this framework [the CBPDF]. We don't do it nearly as clearly and as up-front.
NR1_4	S3	The rationale for community capacity-building is not identified as clearly in our process as it is here [in the CBPDF].
NR1_5	S3	Investment in general capacity-building, where we want to lay the foundations of planning or other things that will assist us to get on-ground change in the future, is something we do think about in a structured way at one level. But perhaps this [the CBPDF] could help us to think more about: 'Well, where should we invest in building that community capacity to perhaps help us achieve future changes with less direct investment?'
NR1_6	S2	It [the CBPDF] provides a consistent structure that can be used across our programs [biodiversity, water, etc.]. The programs do it in different ways, and some things may not always get covered. And I think a benefit of the framework is that it has a documented method, makes sure we tick everything that we need to tick, in terms of what we need to consider. And the framework is transparent, so we can come back and ask 'Well, how did you get to that?' and the answer is 'We got the figures from here in Table C, Question C3 or whatever'. It maintains the links through the process so that you can get this transparency. It does get confusing because of those links, but at least you can follow the thread that snakes its way through the process of actually going: 'Oh, that's right. That's where that \$825,000 came from. And that's for those three to four activities listed there, or whatever'.

2: What are the weaknesses of the CBPDF compared with your CMA's current practice for developing capacity-building projects?		
Comment code	Who?	Comment
NR2_1	S1	It's a lot quicker, the way we do things.
NR2_2	S1	It [the CBPDF] is much more onerous. I just couldn't see us implementing it in its current form, because it's too complex.
NR2_3	S2 S3	There's a lot of copying and pasting text from one section of a form to another, or from one form to another form, that makes the process arduous. Since you're filling in the forms with a computer, the rolling up and down, backwards and forwards, from one section to another, is tedious. We overcame a bit of that by using a split screen, but it makes it hard when you're constantly referring back to something that you've already done.
NR2_4	S3	In our CMA we constantly report, we're constantly developing projects, monitoring projects, reporting on projects, developing more projects, monitoring more projects, reporting on projects. We understand the requirements for this [the CBPDF], but it'd be such a stress on our resources.
NR2_5	S2	We've gone through a big period of change in the way we do our business. We've gone to very heavy reporting requirements, especially reporting on milestones, and actually having standard outputs and measuring everything. We've gone from what was basically, 'Here's some money. Go away and do what you want with it', to something like, 'OK, have some money, tell us all the things you're going to do against six-monthly and twelve-monthly milestones, and tell us three years in advance'. And our staff have had to get onboard new reporting systems to handle all that.
NR2_6	S2	It [the CBPDF] is another change, and it's harder to push through. As I said before, we've just gotten over implementing a couple of big systems. And they've taken their toll. We've done that a couple of times over the last five years. We just get used to them, and then they get turned off and we've got another new system. There's a fair bit of stress involved in training and getting used to new stuff. But if this new framework [the CBPDF] could be slowly introduced, say through the CAP review process, that might work. Also a good way, which I think is a less stressful way, is to do this kind of stuff in a forum, so people are in the right place and you can pull it all together with minimal pain.
NR2_7	S3	There's a risk management issue in deciding whether to put in the extra effort that it [the CBPDF] involves. Are management prepared to continue on doing what we do as we now do it, which is much more seat-of-the-pants based on very well-informed gut feelings, or on educated guesses? I suppose it depends on how we assess the risks of not going ahead with a documented, all-encompassing process. You know, what is the difference going to be for our CMA? And then there's the need to consider the resourcing side of going for a more documented process and comparing it with the benefits.

3: Can you see the CBPDF, or elements of it, being applied by your CMA? How might it be made more useable and useful for your CMA?		
Comment code	Who?	Comment
NR3_1	S1	The bottom line is that there's good positive elements in there [the CBPDF], but the only way I could see that we would implement them would be through a much simpler approach.
NR3_2	S1	I'd be aiming for 80 per cent of the benefits of the framework with 20 per cent of the effort. Because I think there's some really good concepts in there. If you teased out two or three of the main concepts, and perhaps reduced it all to a few tables as it's been suggested, I think you probably could get to 80 per cent of the end result quite quickly. So you kind of have a sheet, you identify the capacity-building activities in there for delivery of a particular project, and the rationale for those, and the indicative budget. And you do that for each of the projects the CMA or one of its themes is thinking about, and then just have a workshop process around that. I reckon with perhaps just a little bit more refining you'd get 80 percent of the result with a much reduced effort. Maybe over time the process could be built up to capture the additional 20 percent, if that was felt justified.
NR3_3	S3 S1	And if you're able to somehow brush the language down a bit to make it easier to digest because some of the questions are like a paragraph. So maybe replace them with one sentence. And you could clarify what you mean by that sentence in the manual. That might make filling the form out less onerous.
NR3_4	S2	You might help with that [the cumbersomeness of copying and pasting text from one section of a form to another, as raised in comment NR2_3] if you could somehow combine some of those forms. I find it hard when I lose sight of stuff. If all the project codes are there in front of me, for instance, I can make sense of it better. If I have to split a line to get sub-codes for a project or a capacity-building activity, I can still see how they nest together. I understand that's hard to do when you're using an A4-sized format for the forms. But maybe you have to consider going to an A3 format, so you could reduce the number of those tables, so you could follow through the process a bit easier. And that would cut out a lot of the steps.
NR3_5	S1	One possible use of this framework [the CBPDF] could be in a CAP review. We're going through a CAP review phase. So for this review there could be a way that the framework, or parts of it, could be built into reviewing the CAP in relation to the community theme – especially that section about the rationale behind why we do the general capacity-building stuff. That could be a really good way of building the way forward for the community capacity-building theme. And it wouldn't just fall on the leader of the community theme, it'd be more of a workshop-style thing. It could be something we go to the community with. You can go to the community and ask, "Why do we do all this stuff?".
NR3_6	S3	We could integrate parts of the framework into our existing approach for developing projects. Like its logic of identifying a gap in capacity before developing a capacity-building activity to remedy that gap. We rushed ahead and said, 'We'll have a workshop on this and a field day on that'. But then you got us to think about what gaps they would actually fix, and we realised they are not the right activities for the gaps that are there. So doing the gap analysis properly to start with gave us a much more targeted approach to developing capacity-building projects. It led us to the capacity-building product we needed to fill the gap rather than just another workshop. That was a good thing from the framework. Or like identifying all the tasks required for community-capacity building, to make sure we hit them all on the head, and then look for amalgamation of the tasks with those in other projects. You know, make sure that we have those points covered in the project development sheet, and to make sure we touch on them every time we consider a project.

3: Can you see the CBPDF, or elements of it, being applied by your CMA? How might it be made more useable and useful for your CMA? (continued)		
Comment code	Who?	Comment
NR3_7	S2	<p>There's some good opportunities and maybe these are something that could be looked at. All our CMAs use a thing called a Catchment Information Management System (CIMS). It's a database thing, a project contract management system. There could be an opportunity to create another module in that system, basically a project development module. The good thing about that is you could take all these components and get a computer program and just stitch it all together, and have it as a hot link in CIMS. So maybe there's an opportunity with that. ... And the great thing about it is all the CMAs pretty much are using it, and we all contribute money to support it. But there's never really been a good project development module. Maybe this [the CBPDF] is it. Because, like that, it'd be corporately-supported. And 11 of the 13 CMAs are using it. So you've got a good buy-in already.</p> <p>Another opportunity is SCarPA [Site and Catchment Resource Planning and Assessment system], which is another basic prioritisation and project management sort of software that's been developed through the Tools2 Project. There may be an opportunity to plug your framework [the CBPDF] or parts of it into the front end of that. What's missing out of CIMS and SCARPA is really the project development, and prioritisation, and costing module. Your framework could help fill that gap.</p> <p>There's those two opportunities. They offer pathways for initially integrating your framework into our existing system. Because the NRC [Natural Resources Commission] say to us: "What are your systems.? Make sure that they're adaptive", and all that sort of stuff. Well, without a project development component to our systems, there really is quite a big hole.</p>

17.2 Questionnaire feedback

Ratings of the importance of different criteria in choosing a method for developing cost-effective capacity-building projects

The mean of the importance ratings assigned by the three staff from Northern Rivers CMA to each of the criteria are presented in Table 46. Recall that a rating (score) of 1 for a criterion signals very low importance, and a rating of 7 signals very high importance. The criteria are listed in the table in descending order of mean importance rating for all respondents. Rankings of the various criteria according to their respective mean importance ratings are also shown in the table.

The five criteria ranked on average highest in importance by these staff were:

- 1st is practical to apply given the skills and time available to CMA staff;
- 2nd helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities;
- Equal 3rd makes transparent all the judgements and assumptions that need to be made;

Table 46: Relative importance of various criteria in choosing a method for developing capacity-building projects: Northern Rivers CMA

The method ...	Criteria:	Mean score for criterion importance (n = 5)	Rank by mean importance score
Is practical to apply given the skills and time available to CMA staff		6.67	1
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		6.33	2
Makes transparent all the judgements and assumptions that need to be made		6.00	3
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		6.00	3
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		6.00	3
Keeps a record of all the judgements and assumptions that need to be made		5.67	6
Ensures that capacity-building projects are based on sound logic and evidence		5.67	6
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		5.50	8
Helps justify investment decisions to your CMA's regional community		5.33	9
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		5.33	9
Can incorporate local knowledge and values		5.00	11
Helps justify investment proposals to government investors		4.67	12
Avoids subjective judgments		4.33	13

- Equal 3rd strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'; and
- Equal 3rd helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects.

The three criteria ranked on average *lowest* in importance by the three respondents were:

- 11th can incorporate local knowledge and values;
- 12th helps justify investment proposals to government investors; and
- 13th avoids subjective judgments.

Consistent with the workshop responses from the three staff to the effect that the CBPDF would need to be made less complex and time-consuming for it to be useable by them, the criterion '[the method] is practical to apply given the skills and time available to CMA staff' was ranked by them the highest-importance criteria for choosing a method for developing cost-effective capacity-building projects.

Aside from the criteria pre-specified in Table A, respondent S1 suggested a further criteria was relevant to their CMA in choosing a method for developing cost-effective capacity-building projects. This criteria was '[the method is] integrated into an existing system, e.g. CIMS or SCARPA'. This respondent rated the importance of this additional criteria as 7, or equal 1st in importance alongside five of the pre-specified criteria.

Ratings of the performance of the CBPDF relative to the CMA's current practice

Recall that a score of -3 for a criterion denotes a rating of very low performance of the CBPDF relative to current practice, +3 denotes a rating of very high performance of the CBPDF relative to current practice, and a score of 0 denotes a rating that the performance of the CBPDF is 'about same' as that of the CMA's current practice.

The mean of the performance ratings assigned by the five Northern Rivers CMA staff to each of the criteria are presented in Table 47. Recall that a score of -3 for a criterion denotes a rating of very low performance of the CBPDF relative to current practice, +3 denotes a rating of very high performance of the CBPDF relative to current practice, and a score of 0 denotes a rating that the performance of the CBPDF is 'about same' as that of the CMA's current practice. The criteria are listed in the table in descending order of mean performance rating for all respondents. Rankings of the various criteria according to their respective mean performance ratings are also shown in the table.

Table 47 reveals that the three criteria that the CBPDF method scored on average *highest* against in terms of its performance were:

- 1st keeps a record of all the judgements and assumptions that need to be made;
- Equal 2nd helps justify investment decisions to your CMA's regional community; and
- Equal 2nd helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects.

The four criteria that the CBPDF method scored on average *lowest* against in terms of its performance were:

Equal 10 th	helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities;
Equal 10 th	can incorporate local knowledge and values;
12 th	helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects; and
13 th	is practical to apply given the skills and time available to CMA staff.

The mean scores against all but one of the criteria are positive, signifying that the respondents on average rated the performance of the CBPDF against 12 of the 13 criteria as superior to their CMA's current practice. The mean score for the criterion 'is practical to apply given the skills and time available to CMA staff' was -3.00, indicating that the respondents on average rated the performance of the CBPDF against this criterion as 'much worse' than that of their CMA's current practice.

In Table 48 the criteria are ranked in descending order of their mean importance scores, as in Table 46, with the mean score for the CBPDF's relative performance against each criterion also presented. We can see from this table that the three criteria against which the CBPDF was perceived on average to perform best (compared with current practice) – 'keeps a record of all the judgements and assumptions that need to be made', 'helps justify investment decisions to your CMA's regional community' and 'helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects' – were not rated highest on average in terms of their importance to this CMA in choosing a method for developing cost-effective capacity-building projects. This table reveals also that the criterion 'is practical to apply given the skills and time available to CMA staff' was ranked first in importance for this CMA. Hence, the fact that respondents on average rated the performance of the CBPDF method against this criterion as 'much worse' than current practice represents a major hurdle to be addressed for this CMA to adopt this method.

User-friendliness of the forms comprising the CBPDF

The questionnaire asked: 'How 'user-friendly' did you find the forms?'. Of the three respondents for this CMA, two chose the response option 'slightly' and one chose 'not user-friendly at all'.

Three of the five respondents provided written elaboration of their ratings. Respondent S1 commented: 'Needs simple English text, and to combine tables'. Respondent S2: 'Forms were complex, wordy and difficult to follow. Automation of linkages would help a lot as would simplification of wording and tables (or bunching 2-3 into 1). But overall just need to greatly simplify the process and give more focus to the pointy end'. Respondent S3: 'Too verbose. Questions very long, and we often had to refer to previous answers'.

Helpfulness of the manuals

The questionnaire also asked: 'How much did the manuals for the method trialled help you when completing the forms?'. Of the three respondents for this CMA, one chose the response option 'moderate help'. This respondent elaborated: 'Examples were very useful. Manuals very long.'

Table 47: Relative performance of the CBPDF against the various criteria: Northern Rivers CMA

The method ...	Criteria:	Mean CBPDF performance score (n =3)	Rank by mean performance score
Keeps a record of all the judgements and assumptions that need to be made		2.00	1
Helps justify investment decisions to your CMA's regional community		1.67	2
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		1.67	2
Makes transparent all the judgements and assumptions that need to be made		1.33	4
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		1.33	4
Ensures that capacity-building projects are based on sound logic and evidence		1.33	4
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		1.33	4
Helps justify investment proposals to government investors		1.00	8
Avoids subjective judgments		1.00	8
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		0.67	10
Can incorporate local knowledge and values		0.67	10
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		0.50	12
Is practical to apply given the skills and time available to CMA staff		-3.00	13

Table 48: Criteria ranked by mean performance of the CBPDF against each: Northern Rivers CMA

The method ...	Criteria:	Ranking by mean criterion importance score	Mean CBPDF performance score (n = 3)
Is practical to apply given the skills and time available to CMA staff		1	-3.00
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		2	1.33
Makes transparent all the judgements and assumptions that need to be made		3	1.33
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		3	1.33
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		3	1.67
Keeps a record of all the judgements and assumptions that need to be made		6	2.00
Ensures that capacity-building projects are based on sound logic and evidence		6	1.33
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		8	0.50
Helps justify investment decisions to your CMA's regional community		9	1.67
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		9	0.67
Can incorporate local knowledge and values		11	0.67
Helps justify investment proposals to government investors		12	1.00
Avoids subjective judgments		13	1.00

Another chose 'minor help' and elaborated: 'I didn't use them much as the author was with us, but some good examples etc. in the manuals, and I could see they would be helpful'. The other respondent chose 'no help - I didn't get around to consulting the manuals', and elaborated: 'Unfortunately I was too busy to go over the manuals before the trial. I found discussing the questions with Graham and other staff was beneficial. What I did use and read was very complex but the examples were beneficial'.

Rating how worthwhile was the experience of trialling the CBPDF

One of the questions in the questionnaire asked: 'How worthwhile for you was the experience of trialling the method?'. Of the three respondents for this CMA, one answered that their experience had been 'highly' worthwhile, and elaborated: 'Need to trial to find the benefits and issues. Gave a clearer picture of the resources required and the outcomes achieved'. Another answered that their experience had been 'moderately worthwhile, and commented: 'There is a need for a project development procedure for CMAs - maybe this can help fill this gap'. The remaining respondent found the experience to be 'slightly' worthwhile, and observed: 'The process was cumbersome and hard going, but it raised some good concepts and got us thinking'.

18. THE CAPACITY-BUILDING PROJECT DEVELOPMENT FRAMEWORK: OVERVIEW OF QUESTIONNAIRE FEEDBACK ACROSS THE THREE REGIONS

Questionnaire feedback on the performance of the trials of the Capacity-Building Project Development Framework (CBPDF) was analysed in chapters 15, 16 and 17 for each of the three regional NRM organisations which participated in the trials: Border Rivers-Gwydir CMA, Namoi CMA and Northern Rivers CMA.. This feedback is summarised in this chapter to gain a broader view of how the experience of applying the CBPDF was perceived by these organisations. An overview across the three organisations is presented in section 18.1 of how their staff perceived the relative importance of different criteria for choosing an economic accountability method for capacity-building investments. An overview of how these staff perceived the performance of the CBPDF relative to their CMAs' current practice is presented in section 18.2. An overview across the three CMAs of how their staff perceived the user-friendliness of the CBPDF is presented in section 18.3. An overview of how they rated the helpfulness of the user manuals for the CBPDF is provided in section 18.4. Finally, in section 18.5, an overview is presented of how CMA staff participants in the trials of the CBPDF rated the trials in terms of being a worthwhile experience.

18.1 Perceived importance of different criteria in choosing a method for developing cost-effective capacity-building projects

Table 49 brings together the average scores from the three CMAs in respect of their respondents' perceptions of the importance of different criteria for choosing a method to develop cost-effective projects for capacity-building. It presents also the average scores across the three CMAs, calculated as the average of the three CMAs' average scores²². The criteria are listed in the table in descending order of average criterion score across the three CMAs. Table 50 presents the information in Table 49 in the form of ranks of criterion importance for each CMA and the three CMAs combined.

We see from Table 50 that the three criteria ranked on average as of *greatest* importance across the three CMAs are:

- | | |
|-----------------------|--|
| Equal 1 st | 'ensures that capacity-building projects are based on sound logic and evidence'; |
| Equal 1 st | 'is practical to apply given the skills and time available to CMA staff'; and |
| 3 rd | 'helps justify investment decisions to your CMA's regional community'. |

The high importance ranking for the criterion 'ensures that capacity-building projects are based on sound logic and evidence' is encouraging for the present project given its focus on developing a rigorous method that helps CMAs demonstrate their economic accountability in developing capacity-building projects. The high importance ranking for 'is practical to apply given the skills and time available to CMA staff' is consistent with the present project's focus on developing a method that is as user-friendly as possible for the CMAs. The third highest importance ranking for the criterion 'helps justify investment decisions to your CMA's regional community' is consistent with the present project's aim of developing a method that is supportive of a community-based, collaborative approach to NRM governance.

²² This is different from calculating average scores across the full set of 9 respondents (five from Border Rivers – Gwydir CMA, one from Namoi CMA and three from Northern Rivers CMA). Calculating the average scores in this way would have given greater weight to CMAs with larger numbers of respondents.

Table 49: Mean scores for criterion importance, for each CMA and the three CMAs combined

Criteria:	Average score for criterion importance by CMA*			Average score for criterion importance across the 3 CMAs (n = 9)
	Border Rivers – Gwydir (n = 5)	Namoi (n = 1)	Northern Rivers (n = 3)	
Ensures that capacity-building projects are based on sound logic and evidence	5.80	6.00	5.90	5.90
Is practical to apply given the skills and time available to CMA staff	4.80	7.00	5.90	5.90
Helps justify investment decisions to your CMA's regional community	5.60	6.00	5.80	5.80
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects	5.40	6.00	5.70	5.70
Helps justify investment proposals to government investors	5.00	6.00	5.50	5.50
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities	5.00	6.00	5.50	5.50
Makes transparent all the judgements and assumptions that need to be made	5.80	5.00	5.40	5.40
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'	4.80	6.00	5.40	5.40
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects	4.80	6.00	5.40	5.40
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities	5.40	5.00	5.20	5.20
Keeps a record of all the judgements and assumptions that need to be made	6.00	4.00	5.00	5.00
Can incorporate local knowledge and values	4.80	4.00	4.40	4.40
Avoids subjective judgments	4.40	4.00	4.20	4.20

Table 50: Rankings (in descending order) of mean criterion importance, for each CMA and the three CMAs combined

	Criterion ranking in descending order of mean importance			
	Border Rivers – Gwydir (n = 5)	Namoi (n = 1)	Northern Rivers (n = 3)	Combined (n = 9)
Ensures that capacity-building projects are based on sound logic and evidence	2	2	1	1
Is practical to apply given the skills and time available to CMA staff	9	1	1	1
Helps justify investment decisions to your CMA's regional community	4	2	3	3
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects	5	2	4	4
Helps justify investment proposals to government investors	7	2	5	5
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities	7	2	5	5
Makes transparent all the judgements and assumptions that need to be made	2	9	7	7
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'	9	2	7	7
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects	9	2	7	7
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities	5	9	10	10
Keeps a record of all the judgements and assumptions that need to be made	1	11	11	11
Can incorporate local knowledge and values	9	11	12	12
Avoids subjective judgments	13	11	13	13

The three criteria ranked on average as of *least* importance across the three CMAs are:

- 11th 'keeps a record of all the judgements and assumptions that need to be made';
- 12th 'can incorporate local knowledge and values'; and
- 13th 'avoids subjective judgements'.

The low importance ranking for the criterion 'keeps a record of all the judgements and assumptions that need to be made' is of some concern given the focus of the present project on supporting CMAs in demonstrating economic accountability in their investment decision-making to stakeholders. Documenting the judgements and assumptions on which decisions are based is a key element of demonstrating such accountability. Note the higher importance ranking for the criterion 'makes transparent all the judgments and assumptions that need to be made'. Perhaps the higher importance ranking for 'mak[ing] transparent' assumptions and judgements compared with 'keeping a record' of them derives from a view among CMA staff that it is more important for the assumptions and judgements they make to be transparent amongst themselves (i.e. through workshop discussions or oral communication more generally) than for them to be transparent to external parties (i.e. by documenting them).

The low importance ranking for the criterion 'can incorporate local knowledge and values' is also of some concern given the focus of the present project on supporting a community-based, collaborative process of investment-decision, a process for which incorporation of local community knowledge and values is presumably important. The lowest importance ranking for 'avoids subjective judgements' is consistent with views expressed during the workshop discussions that subjective judgements are unavoidable in CMA investment decision-making processes because objective data on which to base decisions are often not available.

Table 50 reveals also that:

- the criterion 'helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects' was ranked highly in importance by the three CMAs combined (4th), and also by them individually (5th, 2nd and 4th);
- the criterion 'helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities' was ranked higher in importance by the three CMAs combined than was the related criterion 'helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities'. Hence it seems that the three CMAs are, on average, are more concerned with their investment decision-making processes giving due consideration to project-specific capacity-building activities than they are in respect of general capacity-building activities. This is consistent with workshop remarks from some CMA staff to the effect that their CMAs' decision-making processes for capacity-building investments tend to focus predominantly on general capacity-building activities; and
- the criterion 'strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money' was ranked by the three CMAs on average as only moderately important to them, which highlights a challenge for the present project given its focus on strengthening the cost-effectiveness of such projects. One of the CMAs (Namoi) ranked this criterion appreciably higher in importance than the other two.

18.2 Performance of the CBPDF relative to CMAs' current practice

Table 51 brings together the average scores from the three CMAs in respect of their respondents' perceptions of the performance of the CBPDF compared with their current practice for developing cost-effective capacity-building projects. It presents also the average performance scores across the three CMAs, calculated as the average of the three CMAs' average scores²³. The criteria are listed in the table in descending order of average performance score across the three CMAs against the criteria. Table 52 presents the information in Table 51 in the form of ranks of performance against criterion for each CMA and the three CMAs combined.

Table 52 reveals that the three criteria that the CBPDF performed *best* against on average across the three CMAs, compared with the CMAs' current evaluation practices, were:

- | | |
|-----------------|--|
| 1 st | 'keeps a record of all the judgments and assumptions that need to be made'; |
| 2 nd | 'makes transparent all the judgements and assumptions that need to be made'; and |
| 3 rd | 'ensures that capacity-building projects are based on sound logic and evidence'. |

Each of these criteria was indeed emphasised strongly in developing the CBPDF. The criterion 'keeps a record of all the judgments and assumptions that need to be made' was ranked by each of the three CMAs as either first or equal first in terms of how strongly the CBPDF performs against this criterion compared with their CMA's current practice. Recall from the previous section, however, that this criterion was not ranked as important for these CMAs as was the criterion 'makes transparent all the judgements and assumptions that need to be made'.

The three criteria that the PAF method performed *worst* against on average across the three CMAs, compared with the CMAs' current evaluation practices, were:

- | | |
|------------------|--|
| 11 th | 'avoids subjective judgments'; |
| 19 th | 'can incorporate local knowledge and values'; and |
| 20 th | 'is practical given the skills and time available to CMA staff'. |

The criterion 'is practical to apply given the skills and time available to CMA staff' was the only one against which the performance of the PAF method was rated lower on average by the three CMAs than their current practices. As observed above, this criterion was emphasised in developing the CBPDF. The CBPDF's bottom-ranking and inferior performance against this criterion across the three CMAs indicates a need to find ways for the CMAs to perform better against it (e.g., through greater resourcing, training and provision of outside support).

Notable discrepancies in performance rankings against particular criteria across the three CMAs include:

- the Border Rivers - Gwydir CMA's equal-10th ranking for 'helps justify investment decisions to your CMA's regional community' is markedly lower than the corresponding rankings for Namoi and Northern Rivers CMAs (equal-4th and 2nd, respectively);

²³ This is different from calculating average scores across the full set of nine relevant respondents (five from Border Rivers – Gwydir CMA, one from Namoi CMA and three from Northern Rivers CMA). Calculating the average scores in this way would have given greater weight to CMAs with larger numbers of respondents.

Table 51: Mean performance scores (compared with current practice) for the CBPDF against the various criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Average score for PAF method's relative performance against criteria, by CMA*			Average score for performance against criteria across the 3 CMAs (n = 9)
		Border Rivers – Gwydir (n = 5)	Namoi (n = 1)	Northern Rivers (n = 3)	
Keeps a record of all the judgements and assumptions that need to be made		2.00	2.00	2.00	2.00
Makes transparent all the judgements and assumptions that need to be made		1.80	2.00	1.33	1.71
Ensures that capacity-building projects are based on sound logic and evidence		1.20	2.00	1.33	1.51
Helps justify investment proposals to government investors		1.40	1.00	1.00	1.13
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		0.60	1.00	1.33	0.98
Helps justify investment decisions to your CMA's regional community		0.20	1.00	1.67	0.96
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		1.20	0.00	1.67	0.96
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		0.40	1.00	1.33	0.91
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		1.20	1.00	0.50	0.90
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		0.60	1.00	0.67	0.76
Avoids subjective judgments		0.20	0.00	1.00	0.40
Can incorporate local knowledge and values		0.00	0.00	0.67	0.22
Is practical to apply given the skills and time available to CMA staff		-1.20	-1.00	-3.00	-1.73

Table 52: Rankings (in descending order) of mean performance of the CBPDF against the various criteria, for each CMA and the three CMAs combined

The method ...	Criteria:	Criterion ranking in descending order of mean performance			
		Border Rivers – Gwydir (n = 5)	Namoi (n = 1)	Northern Rivers (n = 3)	Combined (n = 9)
Keeps a record of all the judgements and assumptions that need to be made		1	1	1	1
Makes transparent all the judgements and assumptions that need to be made		2	1	4	2
Ensures that capacity-building projects are based on sound logic and evidence		4	1	4	3
Helps justify investment proposals to government investors		3	4	8	4
Strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'		7	4	4	5
Helps justify investment decisions to your CMA's regional community		10	4	2	6
Helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects		4	10	2	6
Helps to ensure that investment decision-making processes give due consideration to 'project-specific' capacity-building activities as against 'general' capacity-building activities		9	4	4	8
Helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects		4	4	12	9
Helps to ensure that investment decision-making processes give due consideration to 'general' capacity-building activities as against 'project-specific' capacity-building activities		7	4	1	10
Avoids subjective judgments		10	10	8	11
Can incorporate local knowledge and values		12	10	10	12
Is practical to apply given the skills and time available to CMA staff		13	13	13	13

- the Namoi CMA’s equal-10th ranking for ‘helps to ensure that investment decision-making processes give due consideration to building the capacities needed to successfully implement on-ground projects’ is markedly lower than the corresponding rankings for Border Rivers - Gwydir and Northern Rivers CMAs (equal-4th and 2nd, respectively); and
- the Northern Rivers CMA’s 12th ranking for ‘helps to ensure that investment decision-making processes give due consideration to capacity-building projects as against on-ground projects’ is markedly lower than the corresponding rankings for Border Rivers – Gwydir and Namoi CMAs (equal-4th in both cases).

Table 52 reveals also that:

- the relative performance of the CBPDF against the criterion ‘strengthens your CMA’s confidence that the capacity-building projects that are developed represent ‘value for money’’ was ranked quite high (5th) for the three CMAs combined. This perception from the CMAs is consistent with the considerable effort invested by the present project in satisfying this criterion; and
- the relative performance of the CBPDF against the criteria ‘helps justify investment proposals to government investors’ and ‘helps justify investment decisions to your CMA’s regional community’ was in each case ranked relatively highly (4th and 6th, respectively).

18.3 Rating the ‘user-friendliness’ of the CBPDF forms

The nine respondents from the three CMAs participating in the trials of the CBPDF were asked ‘How ‘user-friendly’ did you find the forms [Forms A, B and C of the CBPDF]?’ The distributions of responses to this question for each CMA and the three CMAs combined are presented in Table 53. We see that none of the nine respondents rated the forms as highly user friendly, one rated them as moderately user friendly, four rated them as slightly user friendly, and three as not at all user friendly.

Table 53: Ratings from each CMA and overall in response to the question ‘How ‘user-friendly’ did you find the forms?’

How user-friendly are the forms?	Ratings from respondents in each CMA			Total across the three CMAs
	Border Rivers - Gwydir	Namoi	Northern Rivers	
Highly	0	0	0	0
Moderately	1	0	0	1
Slightly	4	0	1	4
Not at all	0	1	2	3
Total	5	1	3	9

18.4 Rating the helpfulness of the user manuals

The nine respondents from the three CMAs were asked ‘How much did the manuals for the method trialled help you when completing the forms [Forms A, B and C of the CBPDF]?’ The distributions of responses to this question for each CMA and the three CMAs combined are presented in Table 54. One of the nine respondents rated the forms as providing considerable help, four as providing moderate help, one as providing minor help, and three as providing ‘no help – I didn’t get around to consulting the manuals’.

Table 54: Ratings from each CMA and overall in response to the question ‘How much did the manuals for the method trialled help you when completing the forms?’

How much help did the manuals provide?	Ratings from respondents in each CMA			Total across the three CMAs
	Border Rivers - Gwydir	Namoi	Northern Rivers	
Considerable	1	0	0	1
Moderate	3	0	1	4
Minor	0	0	1	1
No help - I referred to the manuals but it didn't help	0	0	0	0
No help - I didn't get around to consulting the manuals	1	1	1	3
No help - I didn't need any because the forms were clear enough by themselves	0	0	0	0
Total	5	1	3	9

Few of the participants in the trials appeared to have read the manuals in any depth prior to trialling each form, despite having been encouraged to do so. Hence it seems that the six ratings of ‘considerable’, ‘moderate’ and ‘minor’ help were based predominantly on any use of the manuals during the various meetings held for undertaking the trials. Reference to the manuals during the trials tended to be sporadic, given that participants preferred to ask the project leader directly for advice about how to respond to any question.

18.5 Rating how worthwhile was the experience of trialling the CBPDF

The nine respondents from the three CMAs were asked ‘How worthwhile for you was the experience of trialling the method?’ The distributions of responses to this question for each CMA and the three CMAs combined are presented in Table 55. We see that 1.5 of these nine respondents rated the experience as highly worthwhile, 3.5 as moderately worthwhile, 2 as slightly worthwhile, and zero as not at all worthwhile. (One of the respondents rated the experiences as between highly and moderately worthwhile. Half of this respondent was recorded as assigning a rating of highly worthwhile and the other half as assigning a rating of moderately worthwhile.)

Table 55: Ratings from each CMA and overall in response to the question ‘How worthwhile for you was the experience of trialling the method?’

How worthwhile?	Ratings from respondents in each CMA			Total across the three CMAs
	Border Rivers - Gwydir	Namoi	Northern Rivers	
Highly	1.5*	0.0	1.0	1.5
Moderately	2.5*	1.0	1.0	3.5
Slightly	1.0	0.0	1.0	2.0
Not at all	0.0	0.0	0.0	0.0
Total	5.0	1.0	3.0	9.0

* One respondent from BRG CMA provided a rating of between ‘highly’ and ‘moderately’ worthwhile. Hence half of this response (0.5) was assigned to ‘highly’ and the remaining half to ‘moderately’.

PART D: SUMMARY AND CONCLUSIONS

19. SUMMARY

Approaches to environmental and natural resources governance described as community-based and collaborative have become widely adopted in Australia and other countries over recent decades. The project ‘Improving economic accountability when using decentralised, collaborative approaches to environmental decisions’ was initiated in response to strengthening demands for economic accountability in this domain, and also the difficulties experienced in satisfying these demands. The activities, outputs and findings of the project were documented in this report. The project developed and trialled methods for strengthening the economic accountability of regional, and other community-based collaborative, NRM organisations. It aimed to develop methods of this kind that:

- (i) are consistent with an economic way of thinking;
- (ii) collaborative community-based organisations could apply proficiently;
- (iii) accommodate value systems decided collaboratively in community-based processes; and
- (iv) account for the consequences of NRM investments for community and other socio-economic capacities needed for investments into the future.

Three regional NRM organisations – Border Rivers-Gwydir Catchment Management Authority (CMA), Namoi CMA and Northern Rivers CMA (all from New South Wales (NSW)) – agreed to participate in the project by trialling the methods developed and providing feedback.

The Investment Framework for Environmental Resources (INFFER) was identified as the most appropriate foundation on which to build methods consistent with the above project aims. This framework was used as a foundation for pursuing the aims of the present project in two ways. The first of these ways involved accounting for capacity spillovers from on-ground projects which are important for the success of community-based NRM yet not accounted for by INFFER. The method developed towards this end was referred to as the supplemented PAF method. This method is summarised in section 19.1, as is the feedback obtained from trialling the method. The second of these ways focussed on strengthening economic accountability in developing NRM capacity-building projects. The method developed towards this end was referred to as the Capacity-Building Project Development Framework. This method is summarised in section 19.2, as is the feedback obtained from trialling the method.

19.1 The Supplemented PAF Method

19.1.1 The method trialled

INFFER does account methodically in developing a project for a specific natural asset, and also in evaluating the project developed, for the capacities upon which the project’s feasibility in meeting its goal(s) depends. However, it does not account for the expected effects of implementing that project on the community and other socio-economic capacities available for other asset-focussed investments to subsequently draw upon. These capacity-spillover effects influence the feasibilities of these other investments (assuming fixed budgets) in realising their respective goals. Given that these effects can vary considerably between projects, not accounting for them in an evaluation process means that projects generating positive effects of this kind are not ‘rewarded’ in the evaluation process, and projects generating negative effects are not ‘punished’ in this process.

In order to overcome this weakness, a supplementary form to the Project Assessment Form (PAF) applied in Step 3 of the INFFER process was developed to be used in tandem with the PAF. This

tandem process, referred to in this document as the supplemented PAF method, was the method for evaluating on-ground investment options trialled with the three NSW CMAs.

A main purpose of the PAF is to collect the data needed to calculate a Benefit: Cost Index (BCI) for a project which can be used as a quantitative basis for ranking its economic worth against alternative investment opportunities. The PAF supplement is designed to collect the additional data needed to calculate a modified version of the BCI (referred to as the Modified BCI or MBCI) that accounts for the capacity spillover effects of the project being evaluated on other areas of investment by the same CMA. The MBCI accounts for these capacity spillover effects in terms of their combined impact on the cost of implementing the other areas of investment at a given level of feasibility.

Where the capacity spillovers are beneficial overall, this is accounted for as a saving in the total cost of the other areas of investment achieving a given set of outcomes. This cost saving is deducted from the direct cost of the project being evaluated (which includes the costs of maintaining the project's intended outcomes beyond its own life) to obtain the net impact on the CMA's investment costs of implementing the project. Where the capacity spillovers are adverse overall, in contrast, this is accounted for as an increase in the total cost of the other areas of investment achieving a given set of outcomes. This extra cost is added to the direct cost of the project being evaluated to obtain the net impact on the CMA's investment costs of implementing the project.

19.1.2 Undertaking and reviewing the trials

The supplemented PAF method was trialled on three assets selected by the Border Rivers – Gwydir CMA, two assets selected by the Namoi CMA, and three assets selected by the Northern Rivers CMA. The trial process commenced with a two-day training session on INFFER and the PAF for the three CMAs. The CMAs then proceeded to select the specific natural assets to focus on and to complete PAFs for each of these assets.

Accounting for capacity spillovers from projects by using the Modified BCI, rather than the standard BCI, to rank projects changed the ranking of projects for one of the three CMAs. Given the small number of projects (two or three) being compared for each CMA, it would not have been unexpected if projects rankings were unaffected.

Workshops were run with each of the three CMAs to review their experiences in trialling the supplemented PAF method. These were attended by the CMA staff who had participated in the trials and in some cases by CMA Board members or other CMA staff. The review process also involved a questionnaire designed to obtain quantitative data on how participants perceived the trials. The questionnaire listed 20 criteria that respondents were asked to rate for their importance in choosing a method for strengthening economic accountability of on-ground investment decisions, and against which they were asked to rate the performance of the standard PAF and PAF supplement methods relative to their CMA's current practice. The PAF and PAF supplement steps of the process were reviewed in turn.

19.1.3 Findings from reviewing trials of the PAF

Workshop feedback

The perceived *strengths* of the PAF method compared with the CMAs' current approaches include:

- broadens the range of assets and projects considered when evaluating investment opportunities;
- prompts a more rigorous process of thinking about project development;

- enables comparison of all kinds of projects (e.g., large or small, across different asset classes, etc.);
- accounts better for risks to project success;
- provides increased transparency;
- facilitates adaptive learning by better documenting all the assumptions and judgements made; and
- being better at identifying information gaps.

The perceived *weaknesses* of the PAF method compared with the CMAs' current approaches include:

- requires considerably more time and effort to apply, at least until users become skilled in its use;
- impractical to apply to the numbers of projects that CMAs have been investing in;
- the language used in the PAF needs some translation if PAF results are to be used by CMAs as evidence of compliance with the NSW Standard for Quality NRM; and
- it is less valuable in the current funding environment than previously when CMAs had greater discretion over how to allocate funds between alternative investment opportunities.

The perceived *obstacles* to applying the PAF method include:

- organisational inertia;
- obtaining a 'critical mass' within CMA staff of the awareness and skills needed to apply the method on an organisation-wide basis and justify it to community and other stakeholders;
- obtaining consistency across a CMA in how the PAF is applied to competing investment opportunities; and
- community pressures to spread investment funds broadly rather than target them strategically.

Actions to overcome such obstacles to applying the PAF method include:

- organisation-wide training (i.e., for CMA staff and Board members);
- establishing a protocol for quality assurance in how the method is applied across a CMA;
- a decision by a CMA's General Manager and Board to adopt the method; and
- a return to longer-term (e.g., 3-year or 5-year) funding cycles which would allow CMAs more time for strategically planning investments.

Each of the three CMAs could envisage applying the standard PAF method to at least some of their investment decisions. Participants at the review workshop with Border Rivers – Gwydir CMA could envisage applying it for investment priority setting under government funding programs (e.g., the NSW Catchment Action program) where CMA flexibility is not unduly limited by pre-determined program priorities. Participants at the review workshop with Namoi CMA could see the PAF method being used to rank projects under consideration within its annual investment cycle (particularly those that would be targeted at the Catchment Action program). They saw it of value also to their CMA in prompting a greater focus on the feasibility of projects when they are being

developed. Participants at the review workshop with Northern Rivers CMA also saw the PAF method as useful in strengthening the feasibility of the projects it puts forward for funding. They saw it also of value as a guide to how funds allocated annually to each of their CMA's two major programs should be allocated between particular projects.

Questionnaire feedback

Of the 20 criteria listed in the questionnaire as relevant to CMAs in choosing a method to evaluate asset-focussed investments, the three ranked on average as of *greatest* importance across the three CMAs were:

- 1st 'strengthens your CMA's confidence that investments will achieve their intended biophysical outcomes';
- 2nd 'strengthens your CMA's confidence that the prioritised investments represent 'value for money''; and
- 3rd 'is practical to apply given the skills and time available to CMA staff'.

The high rankings for these three criteria are highly consistent with the emphases of INFFER generally and its PAF method in particular.

The three criteria ranked on average as of *least* importance across the three CMAs were:

- 18th 'recognises the benefits from investing in innovative investment options rather than just 'tried and true' options';
- 19th 'avoids subjective judgments'; and
- 20th 'identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals'.

The lowest importance ranking for the three CMAs combined of the criterion 'identifies appropriate mechanisms to motivate the various actions required for investments to achieve their goals' runs against the strong emphasis placed on this criterion in developing the PAF method.

The three criteria that the PAF method performed *best* against on average across the three CMAs, compared with their current evaluation practices, were:

- 1st 'provides a quantitative basis for ranking investment options across different asset classes';
- 2nd 'makes transparent all the judgements and assumptions that need to be made'; and
- 3rd 'provides a quantitative basis for ranking investment options'.

Each of these criteria was emphasised strongly in developing the PAF method.

The three criteria that the PAF method performed *worst* against on average across the three CMAs, compared with the CMAs' current evaluation practices, were:

- 18th 'is consistent with the philosophy of integrated catchment management';
- 19th 'avoids subjective judgments'; and
- 20th 'is practical to apply given the skills and time available to CMA staff'.

The criterion 'is practical to apply given the skills and time available to CMA staff' was the only one against which the performance of the PAF method was rated lower on average by the three

CMAs than their current practices. As observed above, this criterion was ranked across the three CMAs the third most important criterion for choosing an evaluation method. Despite close attention to this criterion in developing the PAF method, it is evident that the CMAs are not convinced enough has been done in this direction.

19.1.4 Findings from reviewing trials of the PAF *supplement*

Workshop feedback

The perceived *strengths* of the PAF supplement method compared with the CMAs' current approaches include:

- raising awareness of the capacity spillover effects of projects;
- accounting for capacity spillovers quantitatively rather than intuitively; and
- revealing the difference that accounting for a project's capacity spillovers makes to its (M)BCI and to its ranking vis-à-vis other projects.

The perceived *weaknesses* of the PAF supplement method compared with the CMAs' current approaches include:

- lack of information and evidence on which to predict the kinds of capacity spillovers that may occur and what their strength might be;
- the method's need for predictions of CMA investment budgets ten years ahead, and for predictions of how budgets will be apportioned between different areas of investment, is difficult to satisfy in the current environment where funding is short-term and CMAs have limited autonomy in how funds are to be used.

The perceived *obstacles* to applying the PAF supplement method include:

- CMA staff are often not familiar with thinking about capacity spillovers from projects; and
- difficulty of articulating what capacity spillovers might be expected from a particular project rather than from a CMA's investments more generally.

Opportunities that were identified for addressing perceived weaknesses in the PAF supplement method and perceived obstacles to its application include:

- ensuring that the process of completing the PAF supplement is a collective effort, since group discussion on the basis of shared knowledge and experience tends to be invaluable for anticipating capacity spillovers and gauging their likely strength;
- including in the manual for the PAF supplement form a standard list of capacity spillovers that users of the form could use as a basis for identifying those relevant to their particular context;
- providing greater guidance in the manual for the PAF supplement on the multiplier values relevant for measuring the strength of particular kinds of capacity spillover;
- CMAs recording in a dedicated database the capacity spillovers identified for different projects, and the multiplier values assigned to them, so such an accumulating database can be used as a guide for setting multiplier values for subsequent projects;

- adding to existing CMA monitoring and evaluation processes to collect the kinds of data required to increase confidence in the identification of capacity spillovers and in quantifying their effects; and
- using sensitivity testing as a means of dealing with uncertainties regarding the values of multipliers, future investment budgets and future apportionments of those budgets.

Each of the three CMAs could envisage applying the PAF supplement method to at least some of their investment decisions. Participants at the review workshop with Border Rivers – Gwydir CMA could envisage applying this method were its use simplified by standardising to some extent the identification of capacity spillovers and estimation of the strength of their effects. Participants at the review workshop with Namoi CMA could see their CMA applying the method, although they wanted to undertake further testing of the method to better appreciate its sensitivity to the multiplier values assigned to capacity spillovers. Participants at the review workshop with Northern Rivers CMA could see their CMA applying the method as a way of helping them to better justify investment priority-setting decisions to their community stakeholders.

Questionnaire feedback

The performance of the supplemented PAF method compared with the CMAs' current practice was rated by respondents against eight of the 20 criteria against which the standard PAF method was assessed. Hence, the perceived performance of the standard PAF and PAF supplement methods can be compared against these eight criteria. The performance of the supplemented PAF method was perceived on average across the three CMAs as *superior* to the standard PAF method against the following six of these criteria (although the superiority against the 1st and 3rd of the criteria listed below was negligible):

- 'strengthens your CMA's confidence that the prioritised investments represent 'value for money'';
- 'is practical to apply given the skills and time available to CMA staff';
- 'helps justify investment decisions to your CMA's regional community';
- 'is consistent with the philosophy of integrated catchment management';
- 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments'; and
- 'avoids subjective judgments'.

The superiority of the supplemented PAF method compared with the standard PAF method was greatest in absolute terms against the criterion 'accounts for the effects of investment options on the community and other capacities needed for your CMA's ongoing investments'. This is encouraging given that the supplementation of the PAF method was designed explicitly to improve its performance against this criterion. Nevertheless, the influence of this superiority on motivating adoption by the CMAs of the supplemented PAF method may be limited given that this criterion was ranked across the three CMAs only 16th in importance out of 20 criteria for choosing a method to evaluate asset-focussed investments.

The performance of the supplemented PAF method was perceived on average across the three CMAs as *inferior* to the standard PAF method against the following two of the eight criteria:

- 'makes transparent all the judgements and assumptions that need to be made'; and
- 'helps justify investment proposals to government investors'.

As was true for the PAF method, the criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the perceived performance of the supplemented PAF method was rated lower on average by the three CMAs than that of their current practices. This criterion was ranked across these CMAs the third most important criterion for choosing an evaluation method, however, so poor perceived performance against this criterion remains a significant hurdle to be straddled in gaining adoption of the supplemented PAF method.

Of the nine respondents from the three CMAs who participated directly in trialling the PAF supplement, two rated the experience as highly worthwhile, five as moderately worthwhile, and two as slightly worthwhile. The ten respondents who participated in trialling the PAF tended to find completing this form a more worthwhile experience (three ratings of highly worthwhile, six of moderately worthwhile and one of slightly worthwhile) than that of completing the PAF supplement (although the difference was not large).

19.1.5 Comment

The three participating CMAs face formidable obstacles in proceeding to adopt the supplemented PAF method (or the standard PAF method for that matter) due to their perceptions that the method is less practical to apply than their current practices given the available skills of their staff and the time they have available for evaluating investments. The degree to which these obstacles actually impede adoption of the method can be lessened by finding ways to develop the requisite skills and free up staff time. As participants in the review workshops emphasised, progress in this direction may be rapid were the leadership of the CMAs to commit to applying the method, especially if external support were provided (e.g., for training staff and providing quality assurance). Any such obstacles could also be mitigated by strengthening CMAs’ incentives to adopt evaluation methods likely to increase the value of benefits obtained from their investments. Such incentives could be strengthened significantly by investing governments prioritising more systematically the investment funding bids they receive according to each bid’s rigor in demonstrating its cost-effectiveness. A move in this direction by investing governments would increase markedly the rewards that CMAs and other regional NRM organisations perceive from evaluating their investment proposals more rigorously.

In the meantime, further research would help redress the lack of knowledge in this area that lessens the confidence with which regional NRM organisations currently can account for capacity spillovers from projects they propose to undertake. This research could involve a series of case studies of how asset-focused investments by such organisations in the past generated capacity spillovers that affected the feasibility of subsequent investments. It should be noted in any case that each of the three participating CMAs found the process of completing the PAF supplement form to be valuable for considering the capacity spillover effects of their proposed projects even where the information relied upon to complete the form was of low quality.

Finally, we can expect regional NRM organisations to be motivated to account for capacity spillovers when evaluating asset-focussed investment projects only to the extent they feel confident that the investments those spillovers are expected to impact upon will actually occur (and indeed that governments will continue to fund these organisations so they remain able to undertake such investments). The shift in recent years by Australian governments to shorter-term NRM funding commitments and to leaving regional NRM organisations less discretion in how funds are to be invested tends to work against this confidence. Indeed, uncertainty of such organisations regarding their own persistence, their future investment budgets and governments’ future investment priorities lessens their motivation to pursue any kind of strategy of building community and socio-economic capacities that have value beyond the short term.

19.2 The Capacity-Building Project Development Framework

19.2.1 Background

Part C of this report focused on the method developed in the present project for strengthening the economic accountability of investments in building the capacities needed for sustainable community-based NRM. The need for such a method was considered in section 11 of this report. It was noted how various authors have emphasised the importance of capacity-building investments for the success of Australia's regionalised approach to NRM, and thus of making these investments strategically. Such a strategic approach includes targeting investments at cost-effectively building the 'project-specific' capacities needed for asset-focused projects we can confidently predict will occur. Given the considerable funding uncertainties faced by Australian regional NRM bodies, and the fact that capacities for many longer-term asset-focused investments cannot be built overnight, a strategic approach to investing in 'general' capacity-building activities is also required. Such activities are needed to enable regional NRM bodies to cost-effectively adapt their investment programs as the outcomes of present funding (and other) uncertainties unfold.

Accordingly, the present project sought to develop a method for investing strategically in building both the project-specific and general capacities needed by community-based regional NRM organisations to achieve sustainable NRM. INFFER, and particularly step 3 of this framework which involves completion of a PAF, was used as a starting point in pursuing this aim. This starting point was limited to identifying what project-specific capacity-building activities will contribute to the cost-effectiveness of an organisation's investment program. The PAF is not designed to contribute towards decision-making about investments in general capacity building.

Hence, the method developed in the present project was designed to complement INFFER's contribution by encompassing both general and project-specific capacity-building activities in a broader framework for developing cost-effective capacity-building projects. In developing such projects, the method explores how various capacity-building activities identified for investment might be coordinated to enhance their overall cost-effectiveness. Where a capacity-building project developed in this manner includes project-specific capacity-building activities (i.e. included in particular on-ground-action projects), the intention is not for these activities to be managed only as parts of the capacity-building project, independently of the on-ground projects that depend on them. The intention is rather for these activities to be managed both as part of the relevant on-ground-action projects and concurrently as part of the capacity-building project.

This intention recognises:

- that the expertise required to successfully design and implement capacity-building activities is specialised, and not always held by managers of on-ground-action projects who tend to be technically trained; and
- the benefits that can arise from coordinating the management of capacity-building activities included as part of different on-ground-action projects. Such benefits can arise from similarities in the resource demands of different capacity-building activities, which offer possibilities for either: (a) saving costs by spreading 'overheads' over a greater number of such activities (e.g. running two workshops targeting similar groups of landholders back-to-back on the same day at the same venue), and/or (b) increasing the capacity-building 'outputs' achieved for a given cost outlay (e.g. increasing landholders' overall attendance at these two workshops because running them together makes it more worthwhile to travel to where they are held). Benefits from coordinating the management of capacity-building activities

included in different on-ground-action projects can also arise from the greater opportunities to share the lessons gained in running these activities across the staff managing them.

Aside from this departure from the PAF starting point to explore how different capacity-building activities might be coordinated cost-effectively as projects, a range of further steps were required to arrive at a comprehensive method of developing such projects. These steps addressed the following issues which are not systematically accounted for in the PAF:

- (i) Where payment mechanisms are the appropriate main policy tool for motivating private citizens to adopt on-ground actions, capacity-building activities may still be needed as supplementary policy tools to ensure successful engagement with the payment mechanisms;
- (ii) Capacity-building activities may sometimes be the appropriate main policy tool for motivating private citizens to adopt on-ground actions when those actions would not already be attractive to fully-informed private citizens. This possibility can arise when individuals face a collective action problem in deciding whether to adopt, and adoption is unattractive to them largely because they lack trust that others will reciprocate their own adoption rather than ‘free ride’. The appropriate main policy tool here may be a capacity-building intervention designed to build social capital in order to remedy the lack of trust.
- (iii) Capacity-building may be required for the organisation proposing/leading a project (the ‘lead organisation’), not only for private citizens and organisations other than the lead organisation.
- (iv) There are risks that the lead organisation may fail to fully implement the project tasks it is responsible for – in addition to the risks that private citizens and other organisations may fail to implement the project tasks for which they are responsible.
- (v) The PAF may be unsuitable for a lead organisation to use because it is (a) unable or unwilling to apply this method, and/or (b) insufficiently informed about future funding of its investment program to be able to prioritise how that funding should be allocated between different asset-focused projects.

19.2.2 The method trialled

The method developed in this project for strengthening the economic accountability of community-based regional NRM organisations in respect of their investments in capacity building consists of the four forms – A, B, C and D – comprising the Capacity Building Project Development Framework (CBPDF). Accompanying each form is a user manual containing further instructions than was possible to include in the form, and also examples that illustrate to the user how particular questions might appropriately be answered. Excel spreadsheet calculators have also been developed for each of Forms B and C to automate some of the more demanding calculations required in completing these forms, and also to automate some of the data transfers between questions that are required when completing these forms.

Forms A, B and C of the framework deal with situations where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead. Form D applies otherwise.

Where an organisation is sufficiently informed about future funding of its investment program that it is able to plan at least part of that program for at least one year ahead, it is able to identify (a) the project-specific capacities that need to be developed for those plans to be successfully implemented,

and (b) other general capacity-building activities to be undertaken with the available funding. General capacity-building activities are not focused on capacities needed for individual projects, but rather on capacities that a variety of unspecified projects may benefit from.

The roles of Forms A, B and C can be summarised briefly. One purpose of Form A is to identify sets of on-ground actions that the user's organisation expects to invest in and that depend for their successful implementation on capacity-building activities that need to be resourced from the organisation's investment funding for the coming year. The other purpose is to identify the value of investments in general capacity-building activities that need to be resourced from the organisation's investment funding for the coming year.

Subsequent to completing Form A, Form B (adapted from INFFER's PAF) is completed for each set of on-ground actions identified in pursuing the first purpose of Form A in order to develop cost-effective projects for implementing them. Completion of Form B for a particular set of on-ground actions includes calculating the Feasibility Adjusted Cost (FAC) of the particular project design developed in the form to achieve implementation of the goal(s) set in respect of those actions. Calculation of the FAC for a project design takes into account not only the costs of implementing the project design but also the probability of that project design fully achieving its goal(s). The FACs of different project designs intended to deliver the same goal(s) can be compared to identify the project design that achieves the goal(s) most cost effectively.

Form C is then used to:

- (a) compile the details of the capacity-building activities included in the 'on-ground-action' projects that were developed using different copies of Form B;
- (b) detail how the organisation's investment budget for general capacity-building activities over the coming year (identified in Form A) will be allocated between activities of this kind; and
- (c) consider how to manage all these capacity-building activities cost effectively as coordinated projects.

The four forms comprising the CBPDF are designed to provide a structured comprehensive process for developing cost-effective capacity-building projects. Such a process is required to ensure that those developing such projects consider all key considerations in a logical and accountable manner, including by making transparent the evidence, assumptions and judgements on which their responses to questions in the forms are based.

19.2.3 Undertaking and reviewing the trials of the CBPDF

The trials

It was agreed that the trials for each CMA would involve: (i) completing Form A; (ii) completing Form B for some of the sets of on-ground actions identified in Form A as depending on capacity-building activities undertaken during the coming year; and (iii) completing Form C based on the information contained in the completed copies of Form B. Form D was not relevant to the participating CMAs as they were each in a position to plan their investment programs for at least one year ahead.

Border Rivers – Gwydir CMA chose to complete Forms A, B and C in a series of three separate meetings. A common group of staff was nominated to participate in each of these meetings. The trials by Namoi CMA involved one staff member from that organisation, and involved two

meetings. Northern Rivers CMA chose to complete the forms in a single meeting run over two days and attended by three staff from that organisation.

Reviewing the trials

Workshops were run with each of the three CMAs to review their experiences in trialling the CBPDF. These were attended by the CMA staff who had participated in the trials. The review process also involved a questionnaire designed to obtain quantitative data on how participants perceived the trials. The questionnaire listed 13 criteria that respondents were asked to rate for their importance in choosing a method for strengthening economic accountability of capacity-building investment decisions, and against which they were asked to rate the performance of the CBPDF relative to their CMA's current practice.

19.2.4 Findings from reviewing trials of the CBPDF

Workshop feedback

The perceived *strengths* of the CBPDF compared with the CMAs' current approaches, as identified during the review workshops, include:

- a. prompts a process of looking ahead at what capacities will be needed in future that need to start being built now;
- b. prompts a more rigorous process of developing capacity-building projects by ensuring that key considerations are not overlooked or glossed over;
- c. the structured process provides a check on group dynamics that may lead current investment planning processes in sub-optimal directions;
- d. strengthens accountability by better recording the assumptions, judgements and reasoning involved in the process of developing capacity-building projects;
- e. providing a way of testing the assumptions made in developing a project design and thus assessing more realistically the risks associated with that design;
- f. provides a better foundation for diagnosing project success or failure, and thus for the monitoring and evaluation crucial for adaptive management ;
- g. prompts consideration of alternative project designs for achieving a given goal;
- h. calculation of the FAC for a particular project design developed in Form B offers a useful way of comparing the cost-effectiveness of alternative project designs sharing the same goal but differing in their implementation costs and feasibilities;
- i. provides a structured process for considering how the different capacity-building activities to be undertaken can be coordinated to maximise their overall cost-effectiveness in building the capacities needed for sustainable NRM;
- j. counters the tendency of project-specific and general capacity-building activities, and also general capacity-building activities and on-ground-action projects, to be planned and implemented in isolation from one another and thereby fail to capture the benefits of integrating their management (related to (i)); and
- k. provides a consistent method for developing capacity-building projects that can be used across a CMA's different programs (e.g. biodiversity, water, community, etc.).

The perceived *weaknesses* of the CBPDF compared with the CMAs' current approaches, as identified during the review workshops, include:

- a. there is a risk of CMAs and other users viewing the CBPDF as purely a form-filling exercise when successful completion of the framework often requires deliberation between those with the relevant knowledge;
- b. some questions in the forms were too wordy and complex;
- c. at various steps the process involves transferring information from one question to another, or from one form to another, and this can be time-consuming and cumbersome;
- d. completing the framework is markedly more time-consuming than the CMAs' current processes because the framework requires documented responses to questions that cover a wider set of factors than are currently considered;
- e. the process trialled was not easy enough for professionals to persevere with rather than revert to a less formalised process;
- f. the benefits from using the framework need to be substantial in order to justify the significantly greater demands on staff time that it entails; and
- g. consideration of general and project-specific capacity-building activities within a single framework creates a risk of general capacity building receiving less priority because it cannot be justified as directly as can project-specific capacity building.

The perceived *obstacles* to applying the CBPDF include:

- a. adopting the framework would create further pressures on CMA staff fatigued from the period of major changes, and of learning how to apply new systems, that they emerged from only recently; and
- b. the risks for a CMA of not adopting a more accountable process of developing capacity-building (and other) projects are currently perceived as insufficient for them to justify adopting such a process.

Actions suggested to overcome such obstacles included:

- a. clarify that the CBPDF is not meant as a substitute for group-based processes of project development;
- b. automate the various steps within the CBPDF of transferring information from one question or form to another;
- c. simplify the wording of questions in the forms, relying on the manuals to provide clarifications;
- d. combine some of the forms, perhaps using an A3 format instead of the present A4 format, to reduce the need to transfer information and move back and forth to check earlier responses;
- e. trim the framework to a smaller set of core questions that CMA staff could answer more easily and quickly;
- f. the CBPDF, or elements of it, could be used by CMAs in the upcoming process of reviewing their Catchment Action Plans, particularly to help achieve integration within those plans of general ('community theme') capacity-building investments with other investments (including project-specific capacity-building investments);
- g. elements of the CBPDF could be integrated into CMAs' existing approaches for developing capacity-building projects; and

- h. integrate the CBPDF, or elements of it, into investment management systems that most CMAs in NSW are already using (e.g. Catchment Information Management System (CIMS) or the Site and Catchment Resource Planning and Assessment (SCaRPA) software).

Questionnaire feedback

Of the 13 criteria listed in the questionnaire as relevant to CMA in choosing a method to develop cost-effective capacity-building projects, the three ranked on average as of *greatest importance* across the three CMAs were:

- Equal 1st ‘ensures that capacity-building projects are based on sound logic and evidence’;
Equal 1st ‘is practical to apply given the skills and time available to CMA staff’; and
3rd ‘helps justify investment decisions to your CMA’s regional community’.

The high rankings for these criteria are consistent with the emphases of the present project in developing the CBPDF.

The three criteria ranked on average as of *least importance* across three CMAs were:

- 11th ‘keeps a record of all the judgements and assumptions that need to be made’;
12th ‘can incorporate local knowledge and values’; and
13th ‘avoids subjective judgements’.

The low importance ranking for the three CMAs combined of the criterion ‘keeps a record of all the judgements and assumptions that need to be made’ particularly runs counter to the focus of the present project on strengthening the accountability (particularly the economic accountability) of community-based investment decisions.

The three criteria that the CBPDF *performed best* against on average across the three CMAs, compared with their current approaches to developing capacity-building projects, were:

- 1st ‘keeps a record of all the judgements and assumptions that need to be made’;
2nd ‘makes transparent all the judgements and assumptions that need to be made’; and
3rd ‘ensure that capacity-building projects are based on sound logic and evidence’.

Each of these criteria was emphasised strongly when developing the CBPDF.

The three criteria that the CBPDF *performed worst* against on average across the three CMAs, compared with their existing approaches to developing capacity-building projects, were:

- 11th ‘avoids subjective judgements’;
12th ‘can incorporate local knowledge and values’; and
13th ‘is practical apply given the skills and time available to CMA staff’.

The criterion ‘is practical to apply given the skills and time available to CMA staff’ was the only one against which the performance of the CBPDF was rated lower on average by the three CMAs than their existing practice for developing capacity-building projects. As observed above, this criterion was ranked across the three CMAs the equal-first most important criterion for choosing a method to develop cost-effective capacity projects. Despite close attention to this criterion in

developing the draft version of the CBPDF trialled by the CMAs, it is evident that they were not satisfied that enough had been done in this direction.

The nine CMA staff who participated in the trials were asked to rate how user-friendly they had found the draft versions of the CBPDF forms they had trialled. None rated them as highly user-friendly. One rated them as moderately user-friendly, four as slightly user-friendly, and three as not at all user friendly. These nine staff were asked also to rate how much the user manuals for the CBPDF's Forms A, B and C had helped them when completing these forms. One responded that the manuals provided considerable help, four that they provided moderate help, and one that they had provided minor help. Three answered that they had not consulted the manuals.

19.2.5 Comment

CMA participants in trials of the CBPDF recognised in workshop discussions the need for a more accountable approach to investing in capacity-building activities. They valued the contribution of this framework by way of providing a platform for integrating the planning and implementation of their various capacity-building activities. They recognised that planning of general capacity-building activities (typically within a CMA's 'community' program) had typically been isolated from planning of on-ground projects and the (project-specific) capacity-building activities required to support these projects.

Nevertheless, their questionnaire responses revealed on average that they rated accountability, in terms of documenting the key assumptions and judgements made in the process of developing a project, as a relatively unimportant criterion for choosing a method for developing capacity-building projects. Although these responses revealed on average that the trial participants found the CBPDF to perform most strongly (compared with their existing approaches) against this criterion, the low importance rating on average for this criterion suggests that these perceptions of strong performance may not figure highly in their CMAs' decisions about whether to adopt the CBPDF.

Part of the problem here may be that the mounting pressures from government audit offices and treasuries for greater outcomes-based and economic accountability of regional NRM bodies relate largely to these bodies as a group. Responding to these pressures requires these bodies to demonstrate collectively how they have strengthened their accountability of this sort. In doing so, these bodies face temptations to 'free ride' on each others' contributions. While adoption among regional NRM bodies of methods for strengthening their economic accountability remains low, moreover, they perhaps enjoy a certain 'safety in numbers' to the extent that governments are unwilling to antagonise, by punishing non-adoption, most of the organisations they depend upon to achieve the on-ground behaviour changes required to fulfil their NRM policy objectives. These considerations may explain why the participating CMAs rated accountability on average as a relatively unimportant criterion for choosing a method of developing capacity-building projects, despite the existence of strong pressures on regional NRM bodies collectively to make this criterion a high priority.

The importance to CMAs of the criterion of user-friendliness in choosing a method of developing capacity-building projects was strongly emphasised in both workshop and questionnaire feedback, as was the perceived poor performance of the CBPDF against this criterion. (This was the only criterion in the questionnaire against which the performance of the CBPDF was rated lower than that of their current approaches to developing capacity-building projects.) A common view of the trial participants was that the CBPDF is too time-consuming and cumbersome for their CMAs to be able to adopt it. This was not unexpected given that:

- (a) the performance of INFFER's PAF against the criterion 'is practical to apply given the skills and time available to CMA staff' was rated by the same three CMAs earlier

- in the present project as substantially worse than their current approaches to developing and evaluating on-ground projects; and
- (b) the CBPDF incorporates (as Form B of the framework) an adapted version of the PAF to which it adds a number of additional forms.

One of the participating CMAs commented further that the benefits it would gain from using the CBPDF, compared with its existing approach, were not sufficient to outweigh the adoption costs it would incur. This CMA expressed confidence that the rationale and logic informing its investments was already sound.

Various modifications have been made to the CBPDF since the trials to make it more user-friendly, less time-consuming, and thus more adoptable. Further modifications are possible that may contribute significantly towards this end but were beyond the scope of the present project. For instance, a web-based version of the framework would simplify the process of transferring information from one form, or section of a form, to another, and also make it easier to check responses made elsewhere in the framework. Further trialling and evaluation of the framework could also be undertaken to better demonstrate the benefits of adopting the framework.

20. CONCLUSIONS

Conclusions from the project, particularly concerning the challenges of gaining adoption by regional and other community-based NRM bodies of the economic accountability methods developed in the project, are presented in this closing chapter. The relevance of the comparative institutions approach for choosing a particular method for strengthening economic accountability, and the importance for gauging the adoptability of the method chosen of understanding the preferences of prospective adopters, are considered in Section 20.1. The implications of the preferences of the CMAs regarding methods for economic accountability, as revealed by feedback from their staff (and in some cases also their board members) for the current adoptability of the methods developed in this project are also explored in that section. Section 20.2 considers some cultural challenges within regional NRM organisations that lie ahead in strengthening the adoptability of these methods. Section 20.3 considers some institutional and governance challenges of this kind. Section 20.4 discusses some deeper issues contributing to the challenges discussed in the preceding sections. Section 20.5 proposes a number of general principles, adapted from key principles underpinning the methods proposed in the present project for economic accountability of regional-level NRM investment decisions, to be applied to higher levels of the natural resource governance system in order to resolve the deeper issues considered in the preceding section. Finally, some closing remarks are presented in section 20.6.

20.1 Working with the preferences of prospective adopters

Methods for strengthening the economic accountability of investment decisions are value articulating institutions. An economic choice between them should therefore be guided by what economists refer to as the comparative institutions approach. This approach recognises the real-world constraints on implementing alternative institutions such that few alternatives are implemented as ideally intended. Hence, it requires alternatives to be compared as they would actually be implemented.

Important among these real-world constraints are the preferences that intended users apply when assessing the value to them of the alternatives. All else equal, we can expect a given alternative's level and quality of implementation to be higher the closer its attributes match the preferences of intended users. Consistent with a comparative institutions approach for choosing methods for strengthening the economic accountability of environmental investment decisions, representatives from the three NSW CMAs participating in the project were asked through questionnaires to indicate their preferences for attributes of such methods.

The emphasis of the PAF and supplemented PAF methods on an economic way of thinking was revealed by the questionnaire data to be well aligned to these CMAs' preferences given the high importance rating they assigned on average to the criterion, 'Strengthens your CMAs confidence that prioritised investments represent 'value for money''. Moreover, both the standard and supplemented PAF methods were rated on average as performing better against this criterion than the CMAs' current evaluation practices for on-ground investment projects. Indeed, both these methods were rated on average by these CMAs as performing better against all but one of the listed criteria than their current practices. However, the one criterion (out of the 20 criteria listed in that questionnaire) against which these methods were rated on average as performing worse than current practice – i.e., 'is practical to apply given the skills and time available to CMA staff' – was rated on average the third most important out of the 21 listed. Moreover, performance of these methods against this criterion was rated on average as substantially worse than their current practices.

Although the emphasis of the CBPDF on an economic way of thinking was found on average to be less strongly aligned with the CMA representatives' preferences for a method of strengthening

economic accountability of capacity-building projects²⁴, this framework was also rated on average by them as superior against this criterion than their existing approaches. These representatives did recognise in workshop discussions the need for a more rigorous approach to investing in capacity-building activities. They valued the contribution of CBPDF in integrating the planning and implementation of their various capacity-building activities. They recognised that planning of general capacity-building activities (typically within a CMA's 'community' program) had typically been isolated from on-ground investments and the project-specific capacity-building activities supporting these projects. Nevertheless, their questionnaire responses revealed on average that they rated accountability, in terms of documenting the key assumptions and judgements made in the process of developing a project, as relatively unimportant for choosing a method of developing capacity-building projects. Although their responses revealed on average that they found the CBPDF to perform most strongly (compared with their existing approaches) against this criterion, their low importance rating on average for this criterion suggests that these perceptions of strong performance may not figure prominently in their CMAs' decisions about whether to adopt the CBPDF.

As with the supplemented PAF method for economic accountability of on-ground investment decisions, the criterion 'is practical to apply given the skills and time available to CMA staff' was rated on average by the CMA representatives as one of the most important criteria for their CMAs in choosing a method for strengthening the economic accountability of decisions to invest in building capacities for sustainable NRM (in fact it was rated on average as *the* most important criterion in this context). Similarly also, this was the only criterion against which the CBPDF was rated on average as performing worse than existing practice. Similarly too, the performance against this criterion was rated on average as *substantially* worse than existing practice.

It seems therefore that the three CMAs that participated in the project face formidable challenges in proceeding to adopt the methods developed in the present project due to their perceptions that the methods are less practical to apply than their current practices given the current internal and external circumstances of these organisations. As discussed in section 1.1.1, the internal circumstances of CMAs and other regional NRM bodies relate to availability of staff with the skills, attitudes and other resources required to adopt these methods proficiently. It should be noted that recurrent funding of CMAs in NSW is greater than in some other states and territories, so that the issues with the practicality and user-friendliness of the methods developed in this project that were identified by the three NSW CMAs may be more pronounced elsewhere.

Their external circumstances concern how their incentives and opportunities to undertake such adoption are impacted upon by decisions at other scales (e.g., decisions by government investors affecting the workload of regional NRM organisations, or affecting their confidence that their longevity and/or ongoing success in attracting investment funds will be increased by adopting such methods). INFFER's PAF method itself, upon which these two methods build, faces substantial challenges of this kind. In some cases there are perceptions also that the methods are not sufficiently superior to their existing approaches for developing and/or evaluating investment proposals that the additional effort involved in applying these methods can be justified. The degree to which these obstacles actually impede adoption of these methods can be lessened by:

- finding ways to develop the requisite skills and free up staff time; further training in, and trialling of, the methods to better demonstrate their advantages; and

²⁴ The criterion 'strengthens your CMA's confidence that the capacity-building projects that are developed represent 'value for money'' was rated on average to be middle-ranking in importance for these representatives.

- addressing those external circumstances of regional NRM organisations that currently diminish their incentives and opportunities for adoption.

The external circumstances of regional NRM bodies, and particularly the wider institutional governance arrangements within which they operate, have been identified as posing particularly significant obstacles to them adopting approaches to economic accountability that are more rigorous and comprehensive than their existing practices (Pannell et al. 2010a; 2010c). The nature of these obstacles and the challenges that lie ahead in hurdling them are considered in more detail in section 20.3. Even in the absence of these institutional or governance-related obstacles, however, it appears that the culture of some regional NRM bodies would remain a significant obstacle to routine and proficient application of more rigorous approaches to economic accountability of their investment decisions. Hence, we consider some of the challenges associated with these obstacles before proceeding to broader-scale institutional and governance challenges.

20.2 Cultural challenges

A reasonably common view among the CMA staff participating in the present study was that the weaknesses in their existing investment planning approaches were not sufficient to justify shifting to approaches that are substantially more rigorous and comprehensive. A number of suggestions were made by CMA participants in the trials of the CBPDF regarding how most of its benefits could be achieved with a much shorter time commitment. The view of the author of this report is that these suggestions are unrealistic, and symptomatic of the following observation by the INFFER team:

Participants [from regional NRM bodies in INFFER trials] ... can feel that a systematic, comprehensive process is unnecessarily difficult and time consuming. They are generally unaware of the very great difference to outcomes that can be made by the quality of the decision process, the choice of policy mechanisms and the project design ... If INFFER shows that a currently funded project is not likely to generate substantial benefits, there is a tendency for some stakeholders to resist the information and attribute the result to a weakness in INFFER' (Pannell et al. 2010b pp. 4-5).

They observed also that 'sometimes people claim there is nothing new in INFFER – that they are already using an equivalent process. In all the cases we have examined to date, this is far from correct. Usually their process involves a small subset of the INFFER process' (Pannell et al. 2010b p. 5). They found in fact that 'in the application of INFFER by regional NRM bodies, they have often been led towards substantial changes in their investment priorities' (ibid. p. 11).

A further cultural challenge for some regional NRM organisations in adopting more rigorous investment decision-making frameworks would seem to lie in staff with temperaments predisposing them to perceive such frameworks as tedious and an unproductive use of their time. One participant in the trials of the CBPDF responded in the questionnaire that one of the most important criteria for choosing a method of developing capacity-building projects should be that the method 'is enjoyable and fun'. Previous studies of regional NRM bodies have remarked on the dominant desire of staff in these bodies to 'get on with the job' of implementing their investment strategies and plans and avoid further evaluation of these (Allan et al. 2005; Seymour et al. 2008), although one of the CMA participants in the trials argued that this was becoming less of a problem in his organisation at least. The monitoring and evaluation officer referred to earlier observed:

The idea that we plan and strategise is not looked down on, but there's the feeling, 'We've done enough planning, we've done enough thinking, now let's do it'. And monitoring and evaluation runs counter to that, and to many people that feels like stopping in mid-race.

A final cultural challenge that was evident from the trials run in this project, and also expressed informally by members of the INFFER team in relation to their own experiences, concerns the reluctance by some CMA staff participants in trials (including of INFFER's PAF) to consult the user manuals for the forms to be completed. Despite suggestions that they do so, few actually read through the manuals prior to commencing the trials. The expectation tends to be that the forms be self-explanatory. At the same time, however, such staff tend to be quick in expressing frustrations with the added 'wordiness' of the forms when efforts in this direction are made. This reality highlights the importance of pro-active support of potential users of these methods through training workshops and ongoing help-desk support.

20.3 Institutional and governance challenges

As explained in section 1.3 of this report, the methods trialled in this project were developed in recognition of the continuing challenges that governments, regional bodies and economists have been experiencing in applying methods for economic accountability of NRM investment decisions that are consistent with the collaborative vision. Marshall et al. (2010 p. 273) discussed how:

During the 1980s and into the 1990s, a vision of a collaborative alternative to the longstanding top-down approach to Australian NRM governance crystallised. ... The vision was of a bottom-up approach to NRM governance to be built from voluntary cooperative efforts of local communities and supported by complementary actions of governments.

The collaborative vision continues to be relied upon by governments to underpin their claims that devolving NRM responsibilities to community-based, collaborative, regional NRM bodies will promote more self-reliant responses by individuals and communities to the environmental problems they share. As Marshall et al. (2010 p. 273) proceeded to argue, however, the actual design of programs and policies for the regional delivery model has become much less motivated by this vision than by a centralised vision founded upon economic rationalism.

This collaborative vision for NRM governance seems at first glance to have been pursued actively by Australian governments at the national and state/territory level since the early 1990s. The rhetoric used by governments in promoting new NRM programs has remained largely consistent with this vision. On closer inspection, however, it is evident that the governance model that has evolved in Australia over the last two decades remains strongly centralised ... The collaborative 'partnerships' referred to in this rhetoric are in effect purchaser-provider relationships that have become increasingly tightly controlled from the top down, leaving community-based 'partners' diminishing autonomy with which to adapt their modes of operation to local circumstances.

Robins et al. (2011) found similarly that opportunities under CfoC for regional NRM bodies to allocate resources consistently with the regional NRM strategies developed by them had become highly constrained. Marshall (2009a p. 53) observed how 'increased government control over regional processes has been achieved in seeming disregard for the costs of this control in terms of lost opportunities to mobilise voluntary cooperation in implementing regional decisions'. Hence, as noted in section 1.1.2, it has become increasingly difficult to regard the current institutional and governance arrangements for the regional delivery model as an authentic exercise in collaborative, community-based environmental governance. In these circumstances we can expect regional NRM bodies to be appreciably less motivated to adopt economic accountability methods consonant with the collaborative vision than they would be if their external circumstances – particularly the institutional and governance arrangements within which they must operate – actually supported them in their pursuit of this vision.

The INFFER team has remarked on the significant difficulties it has faced in gaining adoption by regional bodies of its approach to economic accountability, even though this approach is considerably simpler than those developed in the present project because it remains tightly focused on on-ground investments, does not attempt to account for capacity spillovers from these investments, and does not seek to support the process of developing capacity-building projects. They report the requests they have received to simplify their framework in order to overcome the challenges faced by regional NRM organisations in applying it, and their argument in response that it is not possible by simplifying it, at least not without compromising its essential rigour and comprehensiveness.

Similarly, a number of suggestions were made by CMA participants in the trials of the CBPDF regarding how most of their benefits could be achieved with a much shorter time commitments. The view of the author of this report is that these suggestions are unrealistic, and symptomatic of the following observation by the INFFER team:

In many environmental management bodies, there is lack of capacity to formally integrate disparate technical and socio-economic information for decision making. Such integration as does occur is informal and often weak. Participants are used to simplistic decision processes and can feel that a systematic, comprehensive process is unnecessarily difficult and time consuming. They are generally unaware of the very great difference to outcomes that can be made by the quality of the decision process, the choice of policy mechanisms and the project design (Pannell et al. 2010b).

The INFFER team observed that training and support for regional users of more rigorous investment decision-making methods is necessary but not sufficient to overcome the reluctance of these users to adopt such methods. They found that ‘acceptance of INFFER requires more than training in its mechanics. It requires support for a change in mindset, and in some cases even a change in organizational culture. Users need to be persuaded that it is worthwhile investing the time and effort into a more comprehensive assessment’ (Pannell et al. 2009a p. 10).

Such a change of mindset requires substantial changes to the institutional context within which regional NRM organisations operate. Pannell et al. (2010b p. 7) found:

Environmental managers often have little or no incentive to do a more rigorous, comprehensive assessment of investment priorities. If they make weak decisions, they face little or no penalty in the current institutional arrangements, which often discourage, rather than encourage, good decision processes. ... [F]or widespread use of INFFER (or any other systematic decision tool), there need to be supportive changes in institutional arrangements, including rewards for organisations that make appropriate use of sound decision methods, and/or punishment for those who do not.

Although the INFFER team’s focus was on lack of incentives from governments for regional NRM bodies to make their investment decision-making more upwardly accountable to them, their concerns about lack of incentives apply equally to the incentives that lower levels of the governance system (e.g., local groups and individual landholders) are able to create for regional bodies to make their investment decision-making more downwardly accountable to them. Despite the policy rhetoric signalling intentions for the regional delivery model to be community-based and thus downwardly accountable to community members and groups, we have seen above how the model has been implemented in a top-down manner that has focused regional bodies much more on upward accountability (Davidson et al. 2008; Marshall 2009a; Marshall et al. 2010; Wallington et al. 2009). Davidson et al. (2008 p. 18) found:

Although regional NRM bodies have made significant efforts to engage their local communities, they do not necessarily have broad-based support since individuals in the regions have limited means for influencing the choice and actions of members of regional boards or for recourse in the event of disagreement with their actions.

The *Evaluation Framework for CMA Natural Resource Management* (NSW Government 2009) distinguishes, for instance, between external and internal drivers for CMAs in NSW to undertake evaluation activities. It defines external drivers as those that explicitly require the CMAs to undertake evaluation (e.g., legislation, bilateral agreements between state and federal governments, etc.). Internal drivers are defined as those that arise from within a CMA for ‘continuous improvement’. Neither class of drivers recognises the possibility that individuals, groups and organisations within a region may exert external upwards or sideways pressures on their CMA to carry out evaluation activities in order to strengthen its downward accountability to them. Remedying such oversights and moving towards an authentic community-based collaborative model could be expected to strengthen markedly the incentives for regional NRM bodies to make investment decisions in the rigorous, comprehensive manner required for effective economic accountability.

Aside from affecting the incentives faced by regional NRM organisations when deciding whether to adopt more systematic decision-making tools, the institutional and governance arrangements surrounding these organisations strongly influence the opportunities that are available for this adoption to occur. In their review of the National Action Plan for Salinity and Water Quality (NAP), for instance, Pannell et al. (2010a p. 90) observed:

Good prioritization requires good information and good analysis, which takes time. Programs need to be run with the patience to allow this to happen. In the NAP, CMOs [catchment management organisations] were placed under severe time pressure to complete the planning processes and commence spending the money, irrespective of the quality of those plans.

In the scoping phase of the present study, a monitoring and evaluation officer with one of the CMAs participating in the trials remarked along similar lines that:

We pay lip-service to the longer-term stuff, but it’s not really getting into the consciousness at the moment. And that’s understandable. People who have to deliver these things have got relatively short timeframes. ... I’m trying to give one message [about the need for monitoring and evaluation], but for the Board and management it’s not what they’re being judged on. ‘Let’s stop and think’ is an unpopular message, because if you stop and think you mightn’t be able to spend the money quickly enough.

Part of the reason for reluctance by staff of regional NRM organisations to adopt more rigorous investment decision-making frameworks relates to the large number of projects that many such organisations currently invest in, and the major time and resource demands of applying such frameworks to all these projects. Pannell et al. (2010c p. 4) remarked on ‘a tendency [of regional NRM organisations in Australia] to shy away from targeting of investment to projects that are most likely to deliver valuable outcomes, preferring a philosophy of broad participation, despite the limited success of that approach’. Many regional NRM bodies are now addressing this issue to some extent by targeting investments at priority sub-catchments. However, if changes in the institutional context of these organisations were enacted to also strengthen their incentives to invest in fewer projects, the time and resource demands of adopting a more rigorous invest decision-making framework would be reduced accordingly.

Another part of the reason for reluctance by CMA staff to adopt a more rigorous investment framework relates to this adoption involving substantial upfront investments of their time in learning to apply the framework, whereas the benefits from demonstrating stronger accountability (e.g., in terms of increased competitiveness in applying for investment funding) are spread into the future. The considerable uncertainty that CMA staff perceive concerning future funding of their programs, and even persistence of their organisations beyond the short term (see section 1.1.1), makes it likely that the future benefits from adopting a more rigorous decision-making framework are being discounted by them markedly more, compared with the upfront costs of adoption, than would be the case in a more secure environment.

Wider institutional arrangements also influence the motivation of staff of regional NRM organisations to adopt new decision-making systems by affecting the demands on their time more generally, and thus the time and energy they have left for adopting new ways of working. A common refrain from participants in the review workshops for the CBPDF was that staff in the participating CMAs had been expected by governments to adopt in recent years to adopt a number of new management and reporting systems, and consequently were less motivated to adopt new approaches for economic accountability than would otherwise have been the case. Robins et al. (2011) observed how the move from NHT2 and NAP to CfoC, and particularly the pressures imposed by CfoC on regional bodies to compete for funds in order to maintain their previous funding levels, had markedly increased their 'busyness' and contributed towards further burnout of their staff.

20.4 Some deeper issues

Members of the Project Reference Committee (PRC) for the present research, which included officers from both the NSW and Australian Governments, offered feedback on a draft of this final project report that widespread adoption by regional NRM bodies of more rigorous approaches to economic accountability of their investment decisions is unlikely to occur until progress is made in addressing the kinds of broader-scale institutional and governance challenges discussed in the previous section. As noted earlier, these challenges constrain these bodies from delivering what they were primarily established to do; i.e., pursue society's long-term goals for the condition of natural resource and environmental systems more affordably than is possible with centralised, top-down governance.

The collaborative vision, founded upon a rapidly accumulating body of research evidence (Berkes 2007; Dietz et al. 2003; Marshall 2005; Ostrom 2009; Poteete et al. 2010), indicates the potential for collaboration in solving environmental problems to strengthen voluntary cooperation in implementation of the solutions and thereby appreciably enhance the affordability of implementation overall. This emphasis of the PRC on institutional and governance reform as a prerequisite for strengthening economic accountability of regional NRM bodies echoes observations by the INFFER team in responses to the challenges they have faced in widening adoption of their framework among Australia's 56 regional NRM bodies (Pannell et al. 2010a; 2009a; 2010b).

The PRC anticipated that efforts to strengthen the economic accountability of regional NRM bodies would continue to achieve only limited success while economic accountability of the governments and agencies funding and administering the regional delivery model remains weak. Its members argued that efforts to strengthen economic accountability at these higher levels would usefully be guided by the principles underlying the methods proposed in the present project for adoption at the regional level. A number of such 'scaleable' principles will be identified in the next section. Here we consider some of the deeper issues underlying the institutional and governance challenges that were discussed in the previous section.

The first of these deeper issues arises from lack of government articulation of the logic and evidence upon which their decisions to invest in the regional delivery model have been based. While the logic appears to follow from the collaborative vision as enunciated above – given policy-makers’ assurances that community-based collaborative processes are more effective in leveraging community ownership and self-reliance than government-driven processes – no thorough case has been advanced by Australian governments for how such leveraging is expected to arise from how the model has actually been structured and administered. Some of the constraints faced by regional NRM bodies in striving to operate in the community-based collaborative manner envisaged by the collaborative vision were discussed in the previous section. The challenge of realising the potential of community-based governance when applied at the scale of large and populous regions, rather than at the local community scale where it was first introduced, has also received little attention from policy makers. In considering this challenge, Marshall (2008a p. 9) remarked that:

No evidence from social scientists has since been cited by policy-makers regarding the degree to which constituents might effectively be engaged at this [regional] level, and whether this degree of engagement would generate ‘community ownership’ and other social dynamics (e.g., peer pressure, trust, legitimacy) strongly enough to realise the professed aim of strengthening constituents’ voluntary cooperation in implementing region-level decisions.

A second deeper issue arises from lack of government accountability for success or failure of the regional delivery model in realising the potential of a community-based collaborative approach to environmental governance. As argued earlier in this report, the benefits of this approach often accrue in complex ways over the longer term as individual and social capacities are catalysed and self-reliance gradually emerges. In contrast, for instance, the accountability focus of the CfoC program is on demonstrating immediate value for its investments, and thus on expecting investments to deliver simple, tangible outputs within the short term (Robins et al. 2011). Some of the consequences of such a narrow accountability focus were highlighted by Marshall (2008c p. 90) as follows:

In order to retain access to funding, regional bodies must comply with stringent upward accountability measures imposed by the governments. Demonstrating compliance with such measures makes it hard for regional bodies to be perceived as community-based since it consumes resources that could otherwise be used on projects of interest to the community, and involves bureaucratic processes that are a ‘turn off’ to voluntary community engagement. It also skews their energies towards activities that demonstrate immediate progress against the easily-measured indicators on which accountability tends to focus, and away from longer-term investments ultimately vital for community engagement (e.g., nested systems helping to build trust) but for which indicators are difficult to monitor.

Lack of government accountability for success or failure of the regional delivery model in strengthening community self-reliance in NRM undermines the motivation of governments to provide incentives to regional bodies to improve their performance in this respect, including by rewarding them for adopting rigorous approaches to economic accountability and/or punishing them for not doing so. This can be understood as an outcome of the ‘Samaritan’s Dilemma’ (Buchanan 1977; Marshall 2011b) where the incentive for a helper (e.g., government agency running an NRM investment program) to provide help (e.g., granting investment funds to a regional NRM body) overrides the helper’s commitment to provide help only to the extent that the recipient (e.g., regional NRM body) uses it to strengthen its own self-reliance (e.g., by strengthening the self-reliance of those individuals and groups it depends on to maximise leverage from the investment funds granted to it).

Government agencies investing in the regional delivery model often find themselves caught in such a dilemma, unable to convince regional NRM bodies that they possess the ‘strategic courage’ (ibid.) needed to fund the latter according to their performance in leveraging greater community self-reliance from those funds. Regional NRM bodies have various reasons to doubt the ability of such agencies to summon and sustain such courage. One reason is that government agencies often face strong political pressures to ‘take action’ on environmental problems, and therefore can find themselves compelled to fund regional bodies regardless of their performance in strengthening the self-reliance of themselves and their communities. A second reason is that governments not uncommonly evaluate and resource their agencies on their demonstrated ability to expend funds within a specified time frame of relatively short duration (often on an annual basis). Hence, agencies investing in the regional delivery model can be discouraged from exercising strategic courage because withholding funds from regional bodies may lead to under-expenditure of their budgets, and thus to ‘punishment’ by way of reduced budgets in subsequent years.

A further reason arises where different governments, or government agencies, are in competition with each other in delivering investment funds to regional NRM bodies. This can undermine the strategic courage of those governments or agencies by leading to expectations that the benefits of their own courage will be negated by other governments or agencies compensating for any funding they withhold. For instance, members of the PRC discussed instances where tightening accountability conditions for access to some investment funding programs resulted in some regional NRM bodies refocussing their funding bids at other programs imposing less stringent accountability conditions.

A final deeper issue concerns lack of government accountability in terms of the performance of the regional delivery model in achieving the outcomes for the condition of natural resources and environmental assets for which the model was introduced. Demonstrating such outcomes is often difficult due to factors including the complexity of links between problems and solutions, the multiple scales at which NRM issues operate, the frequently long delays between actions and environmental outcomes, and the need to invest in intermediate and less tangible goods like individual and community capacities (Robins et al. 2011). Nevertheless, as argued by various commentators (Byron 2011; Robins et al. 2011; Wentworth Group of Concerned Scientists 2008), these difficulties would be reduced considerably if a national system of environmental accounts were developed and maintained. Byron (2011 pp. 4-5) emphasised the importance of this step as follows:

In this age of ‘evidence-based policy’ why do we have so little evidence on which to even start deriving NRM and environmental policies, let alone evaluating them so that we can learn from past experiences and improve. After all, ‘management’ implies deliberate and informed action. How can anyone distinguish between competent management and simple good luck, or between incompetence and bad luck, without evidence and a monitoring/evaluation process? How can we even tell whether policies and programs were effective, let alone efficient and equitable?

Various deeper issues arising from how governments operate but which affect the incentives of regional NRM bodies to adopt more rigorous approaches to economic accountability of their investment decisions were considered in this section. Given that the present research focussed on the regional level, however, it has only been possible here to consider generally how these deeper issues might be influencing the incentives faced by regional NRM bodies to strengthen their economic accountability. The nature and substantive significance of these issues will vary across these regional bodies given their unique institutional contexts (e.g., state/territory government jurisdiction, availability of alternative investment funding sources, etc.). Systematic investigation

of these higher-level obstacles to economic accountability of investment decisions by regional NRM bodies is highlighted as an important area for further research.

20.5 Some general principles for economic accountability in environmental governance

The discussion in the preceding sections highlights the importance of generalising some of the key principles underlying the methods for economic accountability of regional investment decisions that were proposed in the present study, so they may be scaled up for application to higher levels of the natural resources governance system from where significant constraints on regional adoption of economic accountability methods seem to originate. Table 56 presents four such scaleable principles, intended to serve as a guide to strengthening the economic accountability of organisations at all levels – from governments to farm businesses and other individual enterprises – responsible for natural resources governance

The second to fourth of the principles follow from the first which is the most general. The focus of the first principle is on the cost-effectiveness of the natural resources governance system as a whole in achieving societal goals for natural resource condition. A decision by an individual NRM organisation breaches this principle when it increases the total costs of the whole governance system in achieving society's goals, even if it reduces the organisation's own costs. Conversely, a decision by an individual NRM organisation complies with this principle when it reduces the total costs of the whole governance system in achieving society's goals, even if it increases the organisation's own costs.

This principle echoes one of the five principles enunciated in a recent review by the (NSW) Natural Resources Commission (2010) of progress achieved in that state by CMAs in implementing the standards, targets and catchment action plans established as guideposts to, and yardsticks of, their performance. This principle, 'Implement whole-of-government and community catchment planning', was elaborated as follows:

We seek integration across different components of the landscape (biodiversity, water, land and community) so that efforts to manage one problem don't have adverse impacts on other parts of natural systems. *We also seek alignment between different parts of government and the community so the efforts of one part of government don't undermine those of government at other scales, or of community initiatives* (ibid. p. 52, emphasis added).

To the extent that strengthening the self-reliance of community-based NRM bodies, communities, groups and individuals is identified as crucial for cost-effective pursuit of society's goals for resource condition outcomes, the first (and also the fourth) principle requires that any organisation be rewarded or punished according, *inter alia*, to whether its decisions strengthen or weaken self-reliance elsewhere in the natural resources governance system. Holding an organisation (e.g., government agency) to account against this principle should thereby bolster appreciably the incentives it faces to muster the strategic courage required to make decisions that strengthen the self-reliance of other organisations (e.g., regional NRM bodies) in contributing towards society's NRM goals rather than increase the dependence of those organisations on ongoing external support.

These principles necessarily remain abstract at this point given that the main focus of the present research was on community-based NRM governance bodies rather than on the higher levels of the governance system (i.e., governments and their agencies) for which the principles are primarily (but not exclusively) proposed. Translation of these principles to make them operational in specific contexts remains an important area for further research.

Table 56: General principles for economic accountability in environmental governance

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- 1 NRM organisations at all levels, from governments to individual enterprises, should be accountable for, and rewarded and/or punished in accordance with, how their policy and investment decisions facilitate or obstruct cost-effective pursuit of society's long term goals for the condition of natural resource and environmental systems.
 - 2 Where accountability against goals for the condition of natural resource systems is presently infeasible, NRM organisations should be made accountable, and rewarded and/or punished in accordance with, their performance in alleviating informational and other constraints on accountability against such goals.
 - 3 Assessment of the contribution of a particular decision by any organisation towards cost-effective pursuit of society's goals for the condition of natural resource systems should consider the feasibility of the objectives of the option chosen given the risks involved in (a) specifying those objectives realistically, (b) implementing the decision as planned given the resources likely to be available, and (c) ensuring the specified objectives are achieved and maintained given the various socio-economic risks that are involved.
 - 4 Assessment of the contribution of a particular decision by any organisation towards cost-effective pursuit of society's goals for the condition of natural resource systems should consider any significant consequences (positive or negative) for ongoing capacities within the overall governance system (i.e., within the same organisation, other organisations, communities, groups or individuals) to pursue those goals.
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20.6 Closing remarks

There is more that could be done with the methods developed in this project (e.g., developing web-based versions²⁵) to overcome perceptions by the three participating regional NRM organisations that these methods are currently impractical to apply routinely, or insufficiently advantageous to justify the additional effort entailed in their application. One suggestion from CMA participants in the project was that the adoptability of new approaches for economic accountability may be enhanced if they were embedded in a system that regional NRM organisations were already using, such as (in the case of such organisations in NSW) the Catchment Information Management System (CIMS) or the Site and Catchment Resource Planning and Assessment (SCaRPA) system. However, such moves by themselves are unlikely to overcome these perceptions.

A key and essential message from this study is that, regardless of the elegance of the techniques that are developed to strengthen economic accountability in community-based collaborative environmental governance, substantive advances in this direction are unlikely without significant changes to the institutional and governance system within which community-based NRM bodies operate. Changes of this kind are needed to create incentives for such bodies (downwards from governments, upwards from their constituents, and sideways from other organisations) strong enough for them to embrace investment decision-making frameworks that are more rigorous and comprehensive than those they currently use. These changes could also motivate the cultural changes sometimes required within such bodies for staff to value adoption of more rigorous methods of economic accountability as an important use of their time. Such institutional and governance changes could also alleviate the time pressures faced by regional, and other community-based, NRM bodies in completing their investment planning processes, and help to free up or otherwise make available the staff resources needed to make more rigorous and accountable decisions in this arena. A number of general principles were proposed in the previous section as a

²⁵ A web-based version of INFFER's PAF was developed after the trials of the PAF and the supplemented PAF method had been completed and reviewed by the participating CMAs.

starting point for the institutional and governance reform needed in this area, although further research is required to support translation of these principles to specific contexts.

In the meantime, adopting INFFER as well as the methods developed in the present project all at once seems too much to ask of most regional NRM organisations. It seems advisable to work with regional NRM organisations in gaining confidence with INFFER and its PAF method before expecting them to build on that method using the complementary methods documented in this report. Meanwhile, further research is needed to remedy the knowledge gaps (e.g., concerning identification and quantification of capacity spillovers) that lessen the confidence with which regional NRM organisations are able to apply these methods.

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