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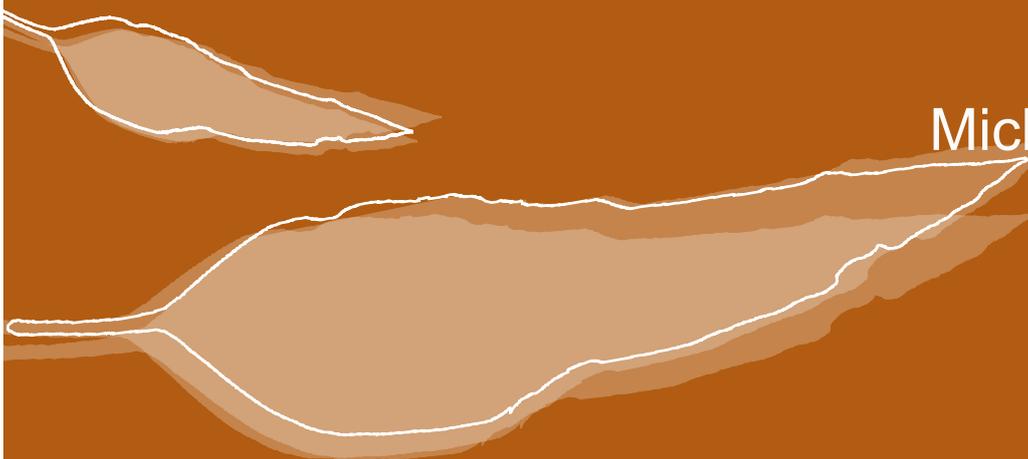


*research for a sustainable future*



Can agencies of different feathers click together?  
Collaborating for NRM research in  
North East Victoria  
Report No. 125

WesWard  
Michael Vanderzee



ILWS Technical Report no 125

# Can agencies of different feathers click together? Collaborating for NRM research in North East Victoria

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**Cover image** of presenters and participants in the 2019 Lower Ovens Science Forum, by Mary-Anne Scully

## Executive summary

Collaboration is vital in the NRM space as no one person or organisation can successfully address the complex and challenging socio-ecological issues facing Australia. Research institutes and on-ground organisations such as CMAs can each bring complementary expertise, experience and resources to develop solutions for these issues. They do so, however, in a social, institutional and external context that can compound and impede collaboration at the personal and organisational levels within and between these institutions.

While there has been longstanding interaction between NRM research institutions and regional implementation bodies, there is a dearth of successful instances of long-term collaboration between research and implementing NRM organisations in Australia, and even fewer peer-reviewed studies documenting these interactions or investigating barriers to the relationships and communication on which these collaborations are based.

This study investigated the perceived barriers for establishing and maintaining such collaborations, using a qualitative analysis of transcripts of interviews with 11 researchers from Charles Sturt University's Institute for Land, Water and Society, and 12 managers and project officers from the North East CMA in Victoria. The barriers identified in the analysis are presented using a modified Unified Negotiation Framework that highlights the conflicts and barriers within collaborative NRM projects.

Analysis highlights the vital roles of face-to-face communication and relationship building in establishing and building trust and respect between individuals and the organisations as a necessary basis for collaboration. Interviewees highlighted the need for better prior understanding of the working environment for the other party regarding funding, timelines, available resources and staff availability, in particular the need to establish shared goals as the basis for future collaborations. Over time, this can provide a platform for improved communication and relationships between the organisations, and encourage more collaborative funding bids and projects to emerge from these strengthened relationships. It was recognised, however, that such enabling conditions such as leadership, positive personal attributes and a collaborative organisational culture were required, as well as appropriate levels of resourcing, funding and staff time.

External drivers and influences such as political pressure, changes in policy, the centralisation of NRM priority setting, increased competition for diminishing government funding, and time limitations for project implementation were all seen to play a role in impeding communication and good relations in existing, and in developing new, collaborations between ILWS and NECMA. These pressures were seen to adversely influence organisational cultures, lead to increased staff turnover and diminish the value of past experiences, which further impeded communication and relationships at the individual and organisational level.

To address these issues, the report suggests some initial joint actions to address and mitigate these barriers so as to encourage successful future collaboration between NECMA and ILWS.

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# Chapter 1: Introduction

## The complexity of collaboration

In this time of the Anthropocene, no consideration of Nature would be complete without also considering humanity and its influence as part of Nature. Complex socio-ecological issues such as climate change, biodiversity conservation and freshwater management highlight the interconnected relationships, actions and reactions of Nature and humans spread across highly variable landscapes (Margerum, 2008), with overlapping challenges for Australia's native plants and animals, soils, topography, production agriculture, urban development, industry, tourism, government policies, international agreements and human communities, to name a few (Curtis et al., 2014).

So much of Australia's natural resource management (NRM) operates in regional, rural and remote areas. With over 67 per cent of Australia's population mostly concentrated in the greater capital city areas around the nation's coastal fringe (ABS, 2019), NRM faces many operational challenges in understanding and addressing NRM issues in the regional areas of Australia. Many of these challenges are not understood or are misunderstood by people living in metropolitan Australia. This lack of understanding reinforces the need for careful, considered research that addresses, investigates and explains the interrelated ecological and social issues evident in these complex landscapes.

In considering this interwoven web in which NRM is located, no one person or organisation can hope to successfully address all complex and challenging socio-ecological issues facing Australia (Benham, Hussey, & Beavis, 2014). Therefore, collaboration between stakeholders is vital for addressing these issues, globally, nationally and locally (Margerum, 2008). These stakeholders encompass ecological and social researchers and their employing organisations; implementing agencies that operationalise NRM according to government policy and community standards; private landholders; concerned community groups; and funding agencies, as well as the wider Australian community. Each can bring technical and social skills and networks appropriate for collaboration, and consequently have a significant role to play for successful NRM in Australia (Ayre, Wallis, & Daniell, 2018; Benham et al., 2014; Durant & Knight, 2019).

In particular and in addition to the professional, social and community networks in which they are embedded, these groups can access various assets that they can offer to a successful collaboration:

- Technical and research groups have important specialist research skills, access to relevant equipment, and can access relevant prior knowledge and datasets;
- Implementing agencies usually have considerable experience and contacts within and between local and regional communities, access to public lands for 'real-world' socio-ecological research, and (at times) access to project funding;
- Private landholders can provide access to local knowledge and their own land resources, plants and animals for research trials, and to themselves and their families for social research;
- Community groups often bring passion, enthusiasm, community concern and opportunities;
- Funding agencies, including Federal, State and local government organisations as well as private philanthropic foundations, can provide funds and in-kind resources such as data, usually within a policy framework that encompasses public accountability.

Research institutes based in government departments and universities and on-ground implementing agencies, such as catchment management authorities (CMAs) can offer complementary expertise, experience and resources to develop more complete NRM options or solutions to complex NRM issues, particularly at the regional and landscape scale in regional, rural and remote areas across Australia. However, the dearth of documentation and analysis of successful cases in long-term collaboration between research organisations and CMA organisations in Australia may indicate that there could be difficulties in developing and maintaining such relations between seemingly complementary organisations. This study addresses this deficit by identifying conditions that nurture effective collaborative relations and joint NRM research projects between two organisations located in regional Australia.

## Framing NRM collaborations in regional Australia

Various issues that enable or hinder effective communication in scientific collaborations, from the personal attributes of team members to various macrosocial contingencies, have received academic attention in recent years, in Australia and overseas (e.g., Head, Ross, & Bellamy, 2016; Robins & Kanowski, 2011; Ward & Given, 2017). Highlighting the complex nature of communication in science collaborations, Sonnenwald (2007) believed there are numerous personal, interpersonal, institutional and environmental issues that promote effective science collaboration and sound interpersonal relations between team members. Maglaughlin and Sonnenwald (2005) listed 20 such factors for interdisciplinary collaborators working in science and engineering in the United States, with specific categories gathered around common themes regarding personal attributes, access to resources, motivations and common experiences.

### Developing a theoretical framework

Such themes represent communication barriers or borders for team members that need to be addressed in seeking to build sound professional relations in collaborations as outlined in Lau and Murnighan's (1998) fault line theory for team communication. In this theory, fault lines between members of geographically-dispersed collaborating groups were identified according group demographics, geographic distance, group size, and environmental forces acting on the group such as differences in economic and political powers held by group members.

In developing a theoretical framework to address the complex nature of NRM and these communication barriers, Bond (2014) developed an adaption of the Unifying Negotiation Framework (UNF), originally proposed by Daniels, Walker, and Emborg (2012), to address the multiple issues that influence collaboration. While there are no reports of violent physical clashes between the organisations in our study as described in Bond (2014), these organisations have very different organisational settings, backgrounds and cultures which would require careful negotiation to enable successful collaboration. The UNF adapted in Bond (2014) provides a holistic approach to negotiating collaborations in 'messy', complex situations such as depicted in Kenya, whereby general problems in resource scarcity for certain ethnic groups was examined through ecological, social and institutional contexts at the micro (or personal), meso (institutional) and macro (societal) levels. Issues regarding past experiences, communication, trust and gender that transcended the three levels were also incorporated into the modified framework. UNF is therefore considered appropriate to provide a suitable theoretical underpinning for the analysis in this study. To this end, the Bond (2014) model was further modified by the lead author as depicted in Table 1.

Table 1: *Unifying Negotiation Framework used in this study (adapted from Bond, 2014).*

|                      | Ecological context   | Social context         |                    |                     | Institutional context            |            |
|----------------------|--|------------------------|--------------------|---------------------|----------------------------------|------------|
| Levels               | Study region   | Organisational culture | Agency & Cognition | Personal attributes | Government policy & institutions | Incentives |
| Macro                |  |                        |                    |                     |                                  |            |
| Meso                 |  |                        |                    |                     |                                  |            |
| Micro                |  |                        |                    |                     |                                  |            |
| Cross-cutting themes | ← Past experiences & history →<br>← Communication & relationships →<br>← Trust & respect → |                        |                    |                     |                                  |            |

This model provides an integrative conceptual framework to help guide institutional managers and facilitators to navigate complex contexts – in this study, establishing and maintaining research collaborations amidst a constantly changing, and at times competitive, funding environment. This framework will be utilised to contextualise the collaborations between organisations, separating, for example, contextual issues such as government policies and organisational culture from personal attributes that could enhance or hinder collaborations.

## Past NRM collaborations in Australia

Some successful localised pilot studies demonstrated successful collaborations between complementary groups of researchers, agency staff and local communities in Australia. Recent examples include communities of practice to promote sustainable agriculture in central NSW (Cross & Ampt, 2017), incorporating traditional indigenous knowledge into NRM policy in Northern Australia (Ens, Scott, Rangers, Moritz, & Pirzl, 2016), and practice and biodiversity conservation on private properties on the NSW South West Slopes (Durant & Knight, 2019). More specifically for this report, recent studies have identified numerous issues that assist and hinder collaborations between NRM researchers and other groups such as farmers (Cross & Ampt, 2017; Durant & Knight, 2019), Aboriginal landholders (Ens et al., 2016; Weiss, Hamann, & Marsh, 2013), and natural resource managers (Durant & Knight, 2019; Lindenmayer et al., 2013) who collaborated with government agencies, universities and each other on research projects that dealt with complex local and regional NRM issues.

In this study, the modified UNF model was used to posit the issues identified that assist and hinder collaboration between a research organisation and an on-ground, implementing organisation that deal with complex NRM issues at the local and regional scale. Both organisations in this study are located in the twin cities of Albury and Wodonga on the NSW-Victorian border, straddling the Murray River.

## North East Catchment Management Authority (NECMA)

The region selected for this case study is bounded by the region for which NECMA is responsible in North East Victoria (see Figure 1 in NECMA, 2013, p. 2). The region consists of urban, lifestyle, agriculture, forest and Alpine landscapes that encompass a mosaic of native and man-made ecosystems.

NECMA is one of 10 CMAs established in 1994 through legislation by the Victorian Government ("Catchment and Land Protection Act," 1994). Guided by the most recent Regional Catchment Strategy for North East Victoria, the authority aims to "provide focused, integrated and coordinated direction for all natural resource management activities in the North East [region]" (NECMA, 2013, p. 3). Importantly though the Strategy, NECMA has also sought to, "assess the condition of land, water and biodiversity" and "encourage and support participation of landholders, resource managers and other members of the community in catchment" (NECMA, 2013, p. 3), which implies the need for appropriate research to monitor and evaluate the conditions of catchment assets, both social and ecological.

In addition, through the North East Waterways Strategy (NECMA, 2014), NECMA seeks to plan and manage waterways across the region, using key values and information identified by government agencies, scientists, business and communities in the region, from the Victorian Alps to the Upper Murray River (NECMA, 2019). Again, targeted research is required to fulfil the aims of the current Waterways Strategy to monitor and evaluate water quality and the state of riparian and wetland landscapes.

NECMA receives specific funding from the Victorian and Federal governments, particularly for programs involving water quality, Landcare, and developing comprehensive regional NRM plans such as the Regional Catchment Strategy (NECMA, 2013). Therefore, NECMA seeks social, economic and ecological data to inform its decisions and investments across the catchment and in response to reporting requirements from both Victorian and Federal governments.

## Institute for Land, Water and Society (ILWS)

Initially formed in 1995 at Charles Sturt University as the Johnstone Centre for ecological research, ILWS was established in 2005 with the amalgamation of the Johnstone Centre and the Centre for Rural Social Research and other smaller research groups. Based in Albury, the new research institution gathered social, economic and spatial researchers in addition to existing ecological and NRM expertise to develop a multi-disciplinary research centre.

ILWS undertakes biophysical, social and economic research, in partnership with governments and other organisations and communities, to address various regional NRM and related issues (ILWS, 2019a). It has become an important source for integrated NRM research across NSW, Australia and overseas, with projects stretching from Nepal, Timor Leste and Pakistan to Western Australia and Northern Territory, and in the nearby Murray, Edwards and Murrumbidgee rivers and their tributaries. These are based on the specific thematic areas of biodiversity conservation, environmental water, rural and regional communities, and international sustainable development (ILWS, 2019a).

## Relations between the organisations

While NECMA and ILWS are headquartered only 15 kilometres apart in the twin regional cities of Albury and Wodonga on the NSW/Victorian border, they face numerous challenges and barriers to successful long-term collaboration in NRM in North East Victoria and Southern NSW, which are currently not evident. For example, only one short-term project is listed by ILWS with NECMA as a collaborator, of the 51 projects currently listed by ILWS as due to be completed in 2018-19 or beyond (ILWS, 2019b).

Hence the authors were requested by management from both institutions to investigate the dearth of collaboration between ILWS and NECMA and suggest possible opportunities to improve relations and communication between them. This investigation was enacted firstly using a comprehensive literature review of peer-reviewed papers on collaborations between researchers and interested NRM stakeholders in Australia to identify possible issues that assist or hinder collaborations, and then via qualitative analysis of interviews with members of NECMA and ILWS to determine actual issues to verify and shed light on alternative issues specific to ILWS and NECMA.

## Research goal and objectives

The goal of this study was to explore the conditions that encourage and inhibit collaboration between the staff of an NRM research institution – ILWS - and staff in a regional NRM project implementation agency - NECMA.

Specifically, the study identified:

1. conditions, at the interpersonal and institutional levels, that nurture effective collaborative relations and joint projects between staff from ILWS and NECMA;
2. interpersonal and institutional barriers that hinder collaboration between these staff;
3. possible measures to address these opportunities and barriers for collaboration.

While this study focused on conditions at the personal (micro-level of communication) and institutional (meso-level), policy and macro-societal and economic (macro-level) conditions that may also influence the negotiation and development of relations and resulting collaborative projects between the organisations were also identified, through an adaptation of Bond's (2014) Unifying Negotiation Framework.

## Chapter 2: Methods

This study investigated the perceived barriers for establishing and maintaining research collaborations regarding NRM in Australia, using:

1. A search for and review of peer-reviewed academic papers regarding issues that assist or hinder NRM collaborations in Australia;
2. qualitative analysis of transcripts of interviews with researchers, managers and project officers from ILWS and NECMA.

### Literature review

A literature review was completed using the major journal databases Web of Science, Scopus and Google Scholar to identified academic journal articles that specifically elaborated on issues that assist or hinder relations between researchers and other collaborators in NRM research projects in Australia. A total of 34 peer-reviewed articles were identified in the search and are listed in Appendix 1 of this report. A full citation for each of these articles is listed in the Reference section of this report.

Each article was reviewed by the lead author and manually coded for issues that assist or hinder relations or communication in collaborations, at the personal and organisational levels. The articles were grouped under themes and categories tabled in Appendix 1, based on the coding of each article. Table 2 below lists the themes and categories identified during this process.

This analysis provided past collaboration issues that were further investigated in the qualitative section of the case study, as outlined in the next section.

### Qualitative analysis

A social constructivist grounded theory methodology, as described in Charmaz (2014), was utilised to identify issues assisting or hindering collaboration between ILWS and NECMA members. Interviews with managers and program staff from each organisation were sought to provide views and data for subsequent qualitative analysis of the written interview transcripts.

### Interview preparation

The research proposal for this study was approved by Charles Sturt University's Human Research Ethics Committee (Protocol no. H18247). As part of the approved research process, each prospective interviewee was directly provided a Participant Information Sheet specific to each organisation – see Appendix 2a for NECMA staff, and Appendix 2b for ILWS - and a Participant Consent Form (see Appendix 3) via email five days before the interview. All interviewees could read the appropriate information sheets before the interview, and each interviewee completed a consent form before an interview commenced such that interviews were completed under conditions of informed consent.

Participants could withdraw their consent to participate in the study at any time prior to data analysis. All interviewees were provided the opportunity to edit and verify the final transcripts of their interviews to ensure their concurrence with its contents. Interviewee confidentiality was maintained by the study researchers at all times during the study, from the seeking of permission to interviewing and final reporting.

### The interviews

The lead author conducted face-to-face, confidential interviews of up to 50 minutes each between February and May 2019. These were conducted in the offices of each organisation, or in mutually agreed venues nearby.

Table 2: Themes and categories identified in analysis of 34 academic papers that specifically discuss issues influencing research collaborations in Australian NRM.

| Theme                           | Categories  |
|---------------------------------|---|
| Relations between collaborators | Trust built on relationships between collaborators<br>Trust information / knowledge provided<br>Competitive funding arrangements (inhibitor)<br>Background knowledge of, empathy between collaborators<br>Respectful relations<br>Able to accept various views, expectations, motivations within collaboration<br>Access to financial assistance<br>Time to form relations and build shared understanding<br>Develop social networks with complex relations and partnerships                        |
| Personal attributes             | Friendliness, introversion / extroversion<br>Active listening<br>Understand importance of language<br>Leadership<br>Personal/past experience<br>Demographics<br>Conflict resolution skills<br>Ability to seek information<br>Capacity and education<br>Cultural/social empathy<br>Willingness to collaborate<br>Intrinsic motivation / stewardship<br>Adaptability / flexibility<br>Honesty<br>Experience in collaboration<br>Experience in NRM<br>Transparent access to information and literature |
| Organisational attributes       | Organisation led by personalities<br>Well-developed communication within and between institutions<br>Trust in organisational capability (finance, human resources, planning, governance)<br>Physical proximity to agency/land<br>Instability / uncertainty in human and financial resources in regional organisations, including monitoring<br>Value of knowledge broker / bridge / “translator”<br>Differences in language and organisational culture  |

Initial prospective interviewees were selected using purposive selection, commencing with the CEOs of each organisation. A snowballing technique was then used to select subsequent interviewees, whereby at the end of each interview, interviewees were asked to name at least three other officers from their organisation to whom the question schedule could be addressed. In all, 25 interviews were completed, with 21 receiving verification from interviewees, resulting in 10 verified interviews with ILWS members, and 11 with NECMA. Field notes were also compiled by the lead researcher during each interview, which provided further background information and researcher observations for analysis.

The interview was guided using a question schedule that consisted of 15 semi-structured, open-ended questions for NECMA staff (see Appendix 4a) and ILWS staff (Appendix 4b). Each interview included questions that gathered relevant demographic statistics, the issues that assisted and hindered collaboration, specific suggestions to improve collaboration between ILWS and NECMA, and to whom the question schedule should next be directed. The use of open-ended questions allowed the interviewer

to further explore themes that might explain issues surrounding collaboration, particularly why and how these issues might occur, while guiding interviewees through the research questions (Charmaz, 2014).

Each interview was digitally recorded and subsequently transcribed using Dragon version 15 (Nuance, 2018), and then edited by the researcher to ensure concurrence with the interviewee's corresponding audio file. Each interviewee received a copy of the final transcription of their interview to ensure and elicit their concurrence with its contents. Only transcripts that were verified by interviewees were subsequently analysed.

## Data analysis

The verified transcripts were qualitatively analysed using the social constructivist tradition of grounded theory methodology. The lead researcher used NVivo 12 program to assist in coding each transcript, as described in Charmaz (2014). Some initial themes and categories were developed from the research objectives and the literature review (see Chapter 1, Table 2) within the modified UNF, and which were then entered as 'nodes' into NVivo. Then words, phrases and sentences from the first transcript were allocated, or 'coded', to the appropriate initial themes and categories using NVivo. At the same time, additional themes and categories were developed where data did not fit into existing categories and themes, particularly in the first and next three transcripts. The interviews with ILWS and NECMA groups were completed in three waves of three to five interviews in each wave. This allowed an iterative analysis to be carried out between each wave, ensuring a rich and exhaustive analysis of textual data, which clarified concepts, organised ideas and identified patterns (Charmaz, 2014). Interviews were halted when the data had reached 'saturation' – where no additional information, themes or categories were acquired or amended through the coding process.

As nearly all themes and categories were edited, added to or re-combined during the first wave of coding and analysis, the first four transcripts for each group were re-coded after the final wave of coding of remaining transcripts was completed. This ensured themes and categories were more completely represented in the analysis using the finalised coding. Field notes from interviews and memos recorded during transcript coding in NVivo were also coded to provide additional data for analysis. The final list of themes and categories used to code and analyse the data is provided in Table 3.

Finally, descriptive data on each interviewee were also recorded in the attributes section in NVivo to enable analysis according to each interviewee's current employing organisation, age, gender, years of experience, and years since completing a first university degree. These demographic characteristics are summarised in Table 4. The summary shows that while the ILWS staff were older in mean age, age range and age since becoming a professional, they had spent around the same time in NRM organisations and in their current employment. In addition, the gender spread was relatively even in both organisations.

The coded data was analysed using various analyses available through NVivo 12 including:

- 'Word Cloud' analysis to indicate the salient concepts expressed by interviewees;
- Matrix coding analysis to show volumes of coding for categories and subcategories within themes;
- Matrix coding analysis to show comparisons in the volume of coding between ILWS and NECMA staff for various categories; and
- Access to relevant quotes from interviewees used in these analyses.

Appropriate quotes from individual interviewees provided rich data and narrative for the findings and discussion in Chapter 3. To maintain the anonymity of interviewees, all direct quotes from interview transcripts are attributed to interviewees under a pseudonym. A pseudonym was randomly selected for each interviewee using appropriate pages from Wikipedia that provided random names in English.

Table 3: Summary of finalised themes, categories and subcategories used in data analysis for this study.

| Themes                   | Categories   | Subcategories   |
|--------------------------|--|---|
| Socio-Ecological context | Complex context<br>Geographic and temporal dispersal |   |
| Social context           | Agency and cognition                                 | Developing common visions and understandings<br>Developing shared and agreed understandings<br>Openness to collaboration<br>Tensions between knowledge groups   |
|                          | Organisational culture                               | Leadership<br>Organisational challenges<br>Organisational culture<br>Time to create and maintain  |
|                          | Personal attributes                                  | Ego and self-interest<br>Energy and enthusiasm<br>Flexibility and understanding<br>Fun and enjoyment<br>Honesty<br>Knowledgeable and willing to learn<br>Other characteristics<br>Social respect<br>Willing to listen |
| Institutional context    | Government policy and institutions                   | Government policies and legislation<br>High staff turnover  |
|                          | Incentives and funding                               | Access to expertise<br>Access to funds and in-kind support  |
| Cross-cutting issues     | Past experience and history                          | Agencies<br>Common experience and relations<br>Communities<br>Landholders<br>Research<br>Teaching and professional education  |
|                          | Communication  | Bridges linking actors<br>Collaborating in teams and social networks<br>Common language<br>Increasing interaction and communication<br>Sharing knowledge online   |
|                          | Trust and respect                                    |   |

*Table 4: Summary of demographic characteristics of interviewees from ILWS and NECMA*

| <b>Characteristic of interviewee</b>    | <b>ILWS</b> | <b>NECMA</b> |
|---|-------------|--------------|
| Number of interviews verified           | 10          | 11           |
| Age range                               | 36 - 65     | 22 - 57      |
| Mean Age                                | 50          | 44           |
| Female / Male                           | 5 / 5       | 7 / 5        |
| Mean years in NRM organisations         | 22          | 21           |
| Mean years in current organisation      | 10          | 10           |
| Mean years since completed first degree | 26          | 21           |

## Chapter 3: Findings and discussion

The qualitative analysis of the interview transcripts and related field notes and memos provided a rich tapestry of concepts to populate the Unifying Negotiation Framework adapted by Bond (2014) and subsequently the study authors, as discussed in Chapter 1. Interviewees provided textual data that addressed each of the contexts of the framework, namely the ecological, social and institutional, at each of the macro, meso and micro levels. They also addressed themes that cut across all contexts, namely past experiences, communication and trust.

### The socio-ecological context

#### NRM highlights ecological, social and economic complexity

While the ecological challenges for the region are widespread and considerable – see summaries of environmental issues in NECMA (2013, 2019), the organisation recognises the vital place and roles of people in natural and man-made landscapes (NECMA, 2013). In particular, NECMA interviewee Vaughan<sup>1</sup> recognised the influence of economic change and globalisation on some of the region’s populace, particularly the influence of rapidly fallen milk prices on the region’s dairy industry. Vaughan noted that, “We’ve got to be very mindful, there’s a lot of people stressed out on farms nowadays, with milk prices and all those sorts of things”. This example highlighted the complex interrelations between social and economic issues in North East Victoria.

This provided a major challenge for NECMA staff, as highlighted by NECMA interviewee Stephen who said that in NRM, “there is a whole big world out there in NRM that you can work across”, from working with communities on deer management, to reviewing riparian waterway grants, implementing structural works for flood-prone areas and managing contracts.

Importantly, NECMA interviewee Magdalene believed that NECMA required better science to understand how to manage the region’s ecosystems, including rivers:

“I hear a mantra in here that, ‘Our rivers are different. We have young rivers. How we manage them is different to how rivers are managed elsewhere in the State’. Okay, so where’s the evidence?”

Magdalene was keen to see the scientific evidence for such assertions, which could require further research in the region.

Natural disasters such as bushfires, floods and droughts had a big impact on the regional environment and its residents, and NECMA interviewees Thomas and Vaughan noted their influence on ensuing projects. Thomas believed natural disasters affect “what we do, how we do it, when we do it”. Thomas also saw the dual nature of natural disasters such as “flooding, as floods can be either good or bad, depending on how you look at it, because they also generate a lot of work [for local people in repairing infrastructure]”. Indeed, Thomas noted that NECMA could assist landholders and communities after bushfires, which can physically impact on these groups, however, bushfires could “also impact on works as well, such as not being able to deliver on outputs for prior funded works when you have to move your resources to deal with a natural disaster event”. As Thomas noted, “We are a bit beholden to natural disasters”.

NECMA interviewee Naomi recognised that NRM encompassed some broad issues, and that addressing them may require collaborations with people who have differing world views:

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<sup>1</sup> All interviewees in this analysis are provided pseudonyms to maintain anonymity.

“It’s the triple bottom line, it’s social, economic and environmental. To get the outcomes that you want, you need you have to collaborate with a whole range of people who might not have quite your same value pathway.”

The region’s governance structures and collaborations were also shown to be multifaceted. NECMA interviewee Michael stated that partnerships were critical in his work, dealing “with a range of stakeholders from federal, state, local government, government agencies, universities, including Charles Sturt students”. ILWS interviewee Geoffrey observed similar multiplicity of collaborators, noting that the “Commonwealth Environment Department was a very complex organisation: even if you are working at a regional NRM level, you still work at the Commonwealth Environment Department level and with various stakeholders and agencies”. These examples also highlight the organisational and governance complexity when dealing with NRM issues at the regional scale in Australia, which can cause major conflicts between organisations and individuals engaged in collaboration.

### Working in complex collaborations

NECMA interviewee Naomi believed integrated catchment management is about collaboration of parties. Fellow NECMA interviewee Magdalene saw the value in collaborations in addressing ‘wicked’ NRM problems, as organisations could not be expected to have all expertise required to address these issues.

“Collaboration brings together better minds and whilst it might be messy, you get that challenging and the conversations, and the exchange and the testing. It means that you find a better way to deliver or to think about, more wholistic.”

Magdalene recognised that while there may be differences of opinion and occasional conflicts, these were accepted in developing a more complete answer or solution, particularly where social researchers may be required to drive NRM strategies.

“[NECMA doesn’t] have social expertise, we don’t have demographic expertise. So when we are doing catchment management strategy, we need to collaborate to bring that together. I think the fact that catchment and NRM organisations, and the CMA specifically, have the role of representing and understanding what’s happening from a community perspective, ... means that we have to collaborate across a wide range of organisations and community groups to actually understand what’s going on. That’s more than consultation. Collaboration means you more deeply understand what the issues are and how communities are addressing them.”

Therefore, collaborations offer the opportunity to gain deeper understandings of issues for communities as well as ecological systems. NECMA interviewee Naomi stated that for an organisation to be known as a collaborator, it should have “staff who actually understand that collaborating is a positive outcome that will benefit all. Sometimes in collaboration you’re investing in others and not in yourself, so it’s a willingness to see that is a good thing and not a negative.” ILWS interviewee Hugh understood that while collaborations could be complex, “The more people you involve in a collaboration, ultimately it’s going to be a much more refined product that’s produced. It will be more of a consensus.” NECMA interviewee Penelope believed a good range of collaborators provided a range of views: “You don’t want everyone in the room that has the same view as yourself”, whether it be about the region or the subject under discussion.

Similarly, ILWS interviewee Isla recognised that to achieve any success in dealing with NRM issues, “You’ve got to have engagement, you’ve got to have bonding, whether you’re an NRM agency working with farmers, or educational institute working with an agency, you have to recognise that people have to do it.” This also intimates that organisations should be recognised and supported in their collaborations. Isla observed that:

“It [collaboration] won’t just happen by wanting it to happen. It’s resourcing it and recognising it, recognising that it takes time, and recognising people for doing collaborations and engaging.”

However, ILWS interviewee Hugh believed that the number of stakeholders could be a negative for collaborations in NRM. Hugh said, “You’re dealing with lots of different stakeholders and landholders. It’s quite often too hard to move forward, because you’re always going through conflict resolution issues, you’ve got differences of opinions.” He noted that when working in large consortiums, different perspectives needed to be accounted for and managed.

“It’s going to take a while for that consortium to work out everyone’s roles and responsibilities within that. The more stakeholders you involve in a collaboration, the longer it will take to negotiate, get, find exactly where everyone is fitting without stepping on anyone’s toes, and then move forward.”

ILWS interviewee Isla recognised that collaboration within organisations was tempered by differences of opinions, as observed in the recent mass deaths of native fish at Menindee in 2018/19. Isla observed that:

“Everyone thinks everybody is doing their own little bit, but I don’t see them doing it as a cohesive force. [The fish experts] all had different ideas [about the fish kill stuff]. They all had different takes on the situation. That’s fine, we’ve all got different opinions, but I’m not sure you can force people to become part of the team if they don’t see themselves as team players.”

Researchers may and agency staff therefore need to accept that their roles as team members if they are to engage in collaborations, and compromise where required to reach agreements with other collaborators.

### Working in isolation

Gaining access to expertise was considered important for addressing organisational isolation in regional settings. NECMA interviewee Naomi observed that while the NRM was hard work, “it’s nice to know there’s other people [researchers] out there who are delving and exploring some of the answers”. Naomi was seeking experts “to have a sounding board and exploring best practice and different approaches”, while also receiving some energy through the process. This highlights the isolation that professional CMA officers such as Naomi face while dealing with complex NRM issues.

ILWS interviewee Chloe observed that some university researchers “could quite easily sit in this office and never leave or meet anyone, and still tick boxes for their job”. ILWS interviewee Freda believed that a recent local heatwave highlighted the social distance between the local campus of Charles Sturt University and its surrounding community. Freda noted:

“We just had this intense heat wave, and nobody actually talked about it. I am sure that it affected how local organisations worked or how they operated in terms of management, but we were not aware of it and we should be aware of it. It shows that ‘Charles Sturt exists in Albury, but Albury does not know about Charles Sturt.’”

Freda’s anecdote highlighted the social distance that has been created between ILWS and the local community, and that she was concerned by this distance as ILWS has experts that could advise on dealing with heatwaves, but were not approached for local comment or advice on dealing with this widespread problem.

Conversely, finding requisite research skills is a problem noted by most NECMA interviewees, including Magdalene, who stated:

“We’ve got some great universities, [but] I don’t know who in the region has the skills. We’ve got [private consultants] and two great universities - how do I collaborate on that as a piece of work? How do I even go and pitch that to someone?”

Magdalene also observed that while the expertise might be available, NECMA also needed to ask the right questions and the right organisations to answer these questions, and as ILWS interviewee Chloe notes, this takes time.

## Working over distance and time

Few interviewees recognised a difficulty where collaborators were separated by physical distance. ILWS interviewee Chloe noted the difficulties in building relationships “with people that you don't see regularly, or you don't work with”. ILWS interviewee Hugh believed that by embedding staff in the local landscape, some researchers had regular contact, communication and engagement with local NRM organisations such as NECMA. ILWS interviewee Isaac believed that “groups that are physically in proximity find excuses to work together. You bump into people all the time, the informal stuff that goes on over a cup of tea.” He noted this informality was important for developing personal relations, trust, shared values, and information networks, a contention supported by NECMA interviewee Ngaire. ILWS interviewee Malcolm asserted that these informal gatherings may need to be artificially ‘engineered’, such as through formal dinners or seminars.

NECMA interviewee Vaughan contended that working away from central offices could isolate staff from decisions that affected them, as “you don't get the opportunity to be part of the discussion, simply because you are out will in the satellite office”. Travel time was also seen as a limiting factor for work. However, Vaughan also recognised that improved communication technology such as email assisted in reducing feelings of isolation.

NECMA interviewee Penelope recognised that the interstate border between Albury and Wodonga could also present a problem: while knowing about work on environmental water flows in NSW, Ngaire had better relations with researchers at nearby La Trobe University at Wodonga in Victoria, and so she did more work with them in this area. In this case, physical dispersal exacerbated social and professional isolation.

## The social context

### Leaders in organisations

There were common challenges faced by both organisations, though to differing degrees, around leadership. Most ILWS and NECMA interviewees considered sound organisational leadership as vital for collaborations between the organisations and other stakeholder in regional NRM. ILWS interviewee Freda highlighted the role of organisational leaders in directing organisations.

“They are the ones that ultimately have the responsibility for deciding where the institute, where the organisation is going to go. I think that intention, that motivation needs to come from up here to set up the example for others.”

These comments highlight the important roles that leaders play in organisations. ILWS interviewee Hugh believed that while there were different leadership styles for different organisations, overall, organisational leaders could “make or break it”.

The interviewees mentioned a number of leadership qualities that highlight other pressures on organisations. NECMA interviewee Michael listed a number of critical values for good leaders: “integrity, trust, respect, diversity, productivity, honesty”. He also believed that an organisation's nurturing environment was established by the organisation's leaders. For example, ILWS interviewee Geoffrey recounted how a leader in another CMA empowered staff to “take responsibility, to take, within their own positions, their own leadership over things. He allowed them to run them, allowed them to make their own mistakes, and to learn from those mistakes, and to ‘Go out there, see what happens, and tell us about it!’” Geoffrey recognised leadership based on trust and empowerment was particularly useful for collaborations with other organisations. ILWS interviewee Freda appreciated working personally with good leaders, as they “come forward with new ideas and are willing to listen to others to make up those ideas”, a sentiment also supported by NECMA interviewee Ngaire. These interviewees believed good leaders are both inventive and able to allow others to develop ideas.

A few interviewees noted that good leaders were charismatic. NECMA interviewee Michael summarised the characteristics of a good leader, saying, “We need a charismatic leader, someone to lead the troops”. Michael noted that, “Good leaders draw people together. People want to be on board, they want to be associated, they see value, they get enjoyment, they get nourishment, they put in.” Enthusiasm and self-actualisation in the organisation were seen as important results of good leadership.

One important leadership quality mentioned by a number of ILWS and NECMA interviewees was the ability to seek and obtain project funding. ILWS interviewee Hugh described how funding pressures can direct leaders into fund-raising efforts for their organisation.

“My [former] boss was very good at keeping projects going by getting funding elsewhere, and then value-adding. Not just giving them what we said we were going to do, but getting PhD students to answer another question here and another question there, ready to build a much bigger picture. It showed [collaborators] that they were getting quality for money above and beyond what they were paying for.”

ILWS interviewee Malcolm described how one leader “was haggling with the Federal government for millions of dollars about his program for quite a while. They said, ‘no, no, no’”. However, the story changed when an election was announced, and the leader was told “We need something from you”. They wanted the original proposal that he had submitted two years previously, and he received \$5 million. This enabled him to implement the original project and to “support the other research and ongoing in the longer term without any hiccups”. Malcolm appreciated how the leader had been able to fund the original project and support other programs by preparing for and seizing an opportunity during an election. Such lateral thinking generated enthusiasm within the team. Similarly, ILWS interviewee Isaac believed that a visionary leader said, “Hey, can we get you guys together? There’s something big coming”, which assisted in planning projects.

According to NECMA interviewee Hermione, if the senior managers were risk averse, then “those things just make it impossible to get things signed off or get things over the line”, while ILWS interviewee Isla believed leaders needed to be “willing to support financially and do whatever it takes to make the collaboration happen”. Identifying funding opportunities was therefore considered an important aspect of leadership.

While accessing funding is critical for a program-based organisation such as NECMA, interviewee Magdalene also recognised that leaders can strive to access important information as part of their roles as leaders. She believed that information access could add value to NECMA programs and projects and help identify important baseline data, and gaps in the data, for regional NRM projects.

Alternatively, many interviewees from ILWS and NECMA recounted how poor leadership could hinder organisations and collaborations. ILWS interviewee Freda contended that:

“It all comes back to the person that sits on that important role of deciding. [If] that person has the worst qualities in terms of communicating and dealing with people, it can be very difficult to engage with them. Sometimes it’s very difficult to find a leader who is not a ‘jerk’. That’s very difficult, but when you find [a good] one, I think actually that’s gold in terms of collaboration. However, if they don’t listen, don’t want to work, don’t want to do things differently, then that is very toxic and you can end up not even trying to work with them.”

Freda and other interviewees recognised how poor leadership could constrict relationships and communication both within and between organisations. Where leadership is perceived as ineffective, others within an organisation may ‘stand up’ to assist collaboration. As ILWS interviewee Hugh stated in one example, “without the CMA champion, there were a couple of key people. They were always striving to keep projects funded. There was a lot of internal pressure to cut some monitoring programs, even though it was delivering good results.” Therefore, other staff can fill a leadership vacuum in the short-term, but not always with success such as in maintaining key, long-term monitoring programs.

Finally, external structural issues imposed within organisations can impede leaders and their relations with their colleagues. For example, ILWS interviewee Isaac contended that while leaders were not also line managers of ILWS researchers, “there’s not much they can do, regardless of their [personal] strengths and weaknesses as leaders”, as they had little formal managerial control over the day-to-day activities of researchers.

The next section will address how risk, flexibility and conflict might be addressed in collaborations.

## Agency and cognition

All interviewees commented on the importance of agency in collaboration, particularly in firstly understanding the possible tensions between ‘knowledge groups’ in a collaboration, developing shared understanding and then shared, common goals for collaborative projects, and finally the impact of competition and conflict within and between organisations on collaboration. ILWS interviewee Hugh highlighted the salience of, “open and continuous communication, and lots of planning to begin with, and the setting of clear objectives”, in developing agency among collaborators. Firstly, sharing understanding and acknowledging existing tensions could be an initial step in the collaborative planning process.

Most interviewees recognised that there were **tensions between different groups**, such as researchers, implementing agencies, public land managers and private landholders, in addressing complex socio-ecological issues in NRM. NECMA interviewee Magdalene believed this was particularly around the timeframe required for addressing NRM issues: long-term collaborations versus short-term projects. Magdalene said:

“It can be really daunting for people to try to find out ‘where do I go, or how do I start, or where’s the input. I want to collaborate on something, but where’s the in-door at a university?’ If you don’t have an organisation that has a culture of collaboration, trying to find those ‘ins’ can be very difficult. There is a tension, especially where NRM organisations [such as NECMA] are often project based organisations.”

Furthermore, if agencies do approach research organisations to address an NRM issue, Magdalene observed collaboration may be hindered when:

“The stars aren’t aligned at that time, [the collaboration] doesn’t work, and so ‘what’s the point of going back there because we tried that last year and it didn’t work’. That’s not to say that either group is to blame. It’s just that sometimes the stars aren’t aligned.”

Indeed, ILWS interviewee Liza conceded that at times “there is a mismatch between the requirements of government agencies that just want monitoring, and actual, ‘proper’ [scientific experiments]. You can have a fundamental mismatch of time, money and money availability, and basic biological research and taxonomy”. Liza believed that was a particular problem when researchers were called on to undertake monitoring projects without prior advice on the scientifically-valid establishment and implementation of the project. In this instance, researchers can play an important advisory role in planning.

NECMA interviewee Naomi believed a more fundamental problem may occur: where either party does not respect the other: “It is about respect for the other collaborator and what their views and ideals and values might be.” Naomi asserted this may be due to perceptions (or misconceptions) “about the capacity or willingness of other people”. This tension could be manifested where organisations were perceived to be ‘competing’ in certain physical, community or cognitive spaces. ILWS interviewee Chloe also saw such tensions in collaborations, particularly where there was ‘real’ funding available. She recounted a research activity around indigenous water where tension grew and intensified between a research organisation and an implementing agency due to perceived ‘ownership’ of an indigenous community. Chloe described the tussle around a research workshop that was misrepresented by the agency as a community education event, which became too unwieldy for the original intent of the research project.

“Based on the design of our research we didn't want a whole heap of people there. [The agency] came on board and we had to really keep reining them in because they had all these ideas of bringing in a school bus of kids and really big community engagement, extension stuff. And we had to keep having to say, ‘No, that’s not why we are here, it’s really low key, just a chat. We want to co-create knowledge with the communities’”.

Chloe contended that while it was a good learning experience for herself, the research activity was a “disaster” and highlighted the conflict between agencies over research resources, particularly where non-Indigenous people were “trying to get part of the Indigenous pie”. She believed another part of the problem was that “[the agency] didn’t realise quite what they did, how they railroaded our research without knowing what research is, and what we were trying to do. They didn’t know what the aim of the day was,” indicating a lack of joint understanding before a research activity commenced. In addition, accessibility of the researchers could also be a consideration, as ILWS interviewee Freda stated:

“It comes back to recognising the value in what research institutions have to offer. [Researchers need] to be accessible. Sometimes academics are on a pedestal and we cannot be bothered, but that’s not the reality, we actually want to be bothered, we want to be exposed to challenges, because we need that to develop our research.”

Government agencies also needed to be aware of the funding limitations in which researchers worked. NECMA interviewee Ngaire asserted “research has its own process for seeking grants and funding at a State or Commonwealth level, but we don’t know when those cycles are. We don't know a lot of their timing, the requirements around them.” Ngaire also recognised that government agencies had their own planning and funding cycles, and that if “Research comes in after we’ve done all our funding bids and our projects are approved, we [can only] say, ‘We’ve got no money until the next process in five years’ time”.

This could be a cause of friction between organisations such as ILWS and NECMA, while also offering an opportunity for future collaboration.

Interviewees also described the tension between science and the wider community. NECMA interviewee Thomas recounted an anecdote regarding a management program based on sound science that soured relations with other stakeholders including local communities for many years.

“It was diabolical, relationships were pretty much thrown out the window with a lot of people. [Government] agencies and [research institutes] knew what we were doing because they had the science, and they were punching the air. Collaboration should have happened, but didn't because we were arrogant in a sense. We knew what we were doing ... ‘Don’t backchat me, I know boats’. Looking back on it, individual people were saying, ‘I’m not an arrogant person’, but I think with the values that we were representing to the community, that’s how it came across. The amount of times I heard, ‘There’s no point telling you, you are going to do what you want anyway’”.

For collaborations that include management of public assets, membership of collaborations and communication before and during implementation were found wanting in this example.

Use of language can be an important consideration in improving accessibility of researchers. NECMA interviewee Thomas recounted how jargon around geomorphology and hydraulics in managing soil erosion “can be distilled down to the basic fact that water runs downhill, and it weighs a ton for every cubic metre”. Thomas conceded while a few calculations and numbers followed from these basic facts, he believed, “Farmers, they get that. They don’t want to see formulas and calculations which are written on board just to prove ‘look at how smart I am’”, they just wanted to know the actions that needed to be enacted to address possible erosion problems. While differences in education levels may be threatening to some participants, consideration of audience should be addressed in communication activities.

NECMA interviewee Ralph noted that “if landholders are not on side, unless it’s a critical asset, if those landholders are not keen to see it done and keen to participate and contribute, that won’t happen. Doesn’t matter how important it is.” This may occur when the farmer does not consider the asset of high value, even if it is of high environmental value. Ralph cautioned, however, that it may be better to await a

better time to revisit the concept rather than “ram in, do the job and get them out of the way”, risking further tension.

Interviewees observed that tensions could be decreased or minimised through collaborations. NECMA interviewee Magdalene recognised that while NECMA “didn't have any authority over [collaborating] organisations, [NECMA tried] to engage them to find out where the ‘sweet spot’ is in terms of collaborative actions, and that their actions aren't being detrimental as much as possible. I think that there has to be value seen in the collaboration.” NECMA interviewee Naomi agreed, stating that “sometimes in collaboration, you're actually investing in others and not in yourself, so it's a willingness to see that is a good thing and not a negative”. In this case, collaboration was considered desirable in itself.

NECMA interviewee Vaughan contended that project ownership was important for decreasing tensions. Using an example with recreational fishers, Vaughan believed landholder engagement and ownership was vital.

“They actually have some form of contribution to the works, whether it's physical by doing fencing, planting trees, or offering us timber, and things like that.”

Engendering community passion was key to addressing tension and generating collaboration. NECMA interviewee Thomas believed, “If you can get someone to fall in love with the site - a reach, a river or a wetland - you know they will be grumpy, ‘O you bloody government, you came in and did this, rah, rah’. But they're in love with it and they will ensure they will be the ‘dripping tap’. They gotta have the passion, and if you can enable the group to have the passion to move a side forward, then you really win.” When this passion is harnessed, developing shared understanding is the next step in collaborative planning.

Most interviewees from both organisations agreed that **shared understanding and views** were vital for good collaborations. NECMA interviewee Ralph recognised that “the best collaboration is when you've got shared goals, shared priorities. Where a number of organisations and others are working on the same program and aiming for the same outcomes, that makes it a lot easier, as you've got shared focus”. NECMA interviewee Ngairé believed that collaboration grew where both parties developed a good understanding of each other's interests and limitations, “and the opportunities for alignment”. Furthermore, ILWS interviewee Geoffrey agreed that collaborators should have, “a shared understanding of what the project's purposes are, how to deliver it, and what you want to get out of it at the end”. Indeed, the end product was an important consideration for a number of ILWS interviewees including Liza, who believed collaborators needed a clear understanding of the project's ‘endgame’:

“Is the idea that to set up an experiment to find out the answer to a question, or is it to produce a glossy report for stakeholders, or is to figure out the answer to this question so that we can inform government? You have to have a concrete idea of what they want the end result to be before you can even start, as otherwise you're just floundering around.”

ILWS interviewee Freda believed it was a more basic consideration; that “there needs to be a genuine motivation from everyone to recognise the importance of a problem, and the need to come up with a solution”. She believes they need to share the same view of a problem to be addressed by the group, utilising their various skills. As Thomas from NECMA contended, “If [the collaborators] not agreeable to what we're trying to do, then it's pointless going ahead, really”.

To commence developing shared understanding, ILWS interviewee Geoffrey proposed first developing a shared question among the collaborators, with the aim of undertaking the process of ‘collective learning’ (Nonaka and Takeguchi, 1995). NECMA interviewee Naomi also believed both parties needed to understand each other's priorities and wanted to work together:

“Sometimes with a collaboration opportunity, one party is interested but the other one doesn't always see the opportunity.”

Interviewees were concerned that collaborations that were only proposed by organisational managers or leaders were not desirable for all staff. NECMA interviewee Ngairé believed that it was pointless that collaborations were only developed by organisational leaders, as “it needs to be across both organisations. There needs to be an understanding that once you’ve got that relationship about finding common ground, you then need to talk through where each one has a particular interest, and understand what each organisation is doing,” and respect differing views. NECMA interviewee Thomas cited the example of a State-wide, ‘top-down’ project that saw a lot of construction and regenerative works completed along State waterways, but that recreational fishers “had no idea of what was happening – all they saw was that we were destroying the waterways, with no concept of why we were doing it. At the end of it, everyone hated our guts because we completely overlooked [them].” Thomas cited a subsequent five-year project that was required to revive positive relations with recreational fisher groups.

Interviewees from both organisations believed that honesty was required when developing shared understanding. ILWS interview Anthony considered personal connections should be developed and sustained regularly. Anthony contended that a collaborator should ask “What do they need, how do they work, who are they?”, not just ‘what can we do for you?’ These questions also provide context for the research, as well as guidelines for limitations, while, as NECMA interviewee Naomi recognised, “it’s finding that mutual positive outcome for both parties that is beneficial to both”. One way to answer these questions is to share clear prior understandings of project requirements. ILWS interviewee Malcolm stated that it was important to deliver research results and findings “in a way that’s functional to the [collaborating] organisation. By functional I mean in terms of the outcome, that it is something that they want to find out about, that fits their bill.” Therefore, researchers should be cognisant of the uses of their research by their collaborators through these shared understandings, so as to ‘add value’ to their work and remain relevant to their collaborators.

Negotiating skills in both organisations might be required to develop collaborative projects that engender positive collaborative outcomes. NECMA interviewee Thomas noted that collaboration may require “bringing people over a big hump. How you talk them out of the trees, and then move forward with them.”. Thomas noted that particularly in the NRM and environment space, emotion and opinion play major roles in decision-making. Similarly, ILWS interviewee Hermione recognised the funding imperative that might drive research institutes to engage in collaboration:

“First, you would want to know that why do you want it, what do you want out of it? What are they going to get out of it? Presumably ILWS is in it because they think there’s some money. It’s what research institutes are.”

This example alludes to the need for honesty in the underlying drivers for a collaboration to be communicated early in planning discussions to develop the shared understandings desired in a long-term collaborative relationship.

Many interviewees from both organisations understood that developing shared understanding could be most useful in broadening and deepening relations between organisations, and during collaborative projects relations were further developed. Some interviewees, including Chloe from ILWS, believed that an initial face-to-face meeting between collaborators to provide a shared experience in which to develop a shared purpose and allowed relationships to develop:

“I think if there was some sort of collaborative project, a small project, where we had a joint committee to organise a day-long seminar or a workshop over a period of time – so we were in regular contact, enough to achieve something together. but that then allowed for a relationship to continue.”

Some interviewees from both organisations contended that collaborative research projects could play a role providing management options and processes informed by sound scientific research. ILWS interviewee Liza asserted that even if collaborators did not understand the research, “as long as they acknowledge that whatever it is that is being done has to be informed by scientific evidence. They have

got to have that core understanding that it's not just an exercise because they got funding to do something." Liza observed that:

"They've got to understand what they want, and what the outcomes are that they desire. Many collaborations just end up being nothing because the other person doesn't understand what they wanted out of it. Clarity of thought [laughs]. So many times, it's just like, 'I don't know'. You're like, 'I can't do anything with 'I don't know'. I need some idea.'"

Liza's observation reflects the need for clear goals for all partners, or clearly defined goals that are shared and understood by all collaborators to enable successful collaborations.

Once shared understandings have been achieved, the next step in developing collaborations is **formulating and implementing shared goals**. ILWS interviewee Geoffrey believed that in using a face-to-face meeting to develop a shared question and shared understandings, collaborators could develop "an action plan that will address that particular question with set goals and responsibilities and things like that". In this regard, negotiation of goals is facilitated by the shared understandings of all parties in the discussions. ILWS interviewee Liza was particularly concerned that collaborative goals were carefully formulated and agreed before designing a project.

"Does it have nothing really to do with the animal or the plant, does it have to do with people's reactions? These are very different things. I am happy to go towards any one goal, and maybe we'll have separate goals [for each]. But I need to know your goal and you need to know what your goal is before we can sit down."

Indeed, even when common, agreed goals were formulated, expectations with a collaboration might not be completely met. ILWS interviewee Geoffrey noted that in one such collaboration, "the projects where we did deliver on expectations probably weren't quite meeting the expectations that [the collaborators] originally had". Thus, managing expectations through clear communication is also important for collaborations.

Some interviewees in both organisations recognised that disagreement between staff within organisations regarding common and shared goals influenced collaborations with other organisations. Within NECMA, interviewee Naomi believed that:

"[In an] organisation which identifies that it can't do it all itself, [it has to believe] that the whole is better than the sum of the parts, and that staff actually believe that too. It's got to go all the way through the organisation, not just certain people, but having staff who actually are understanding that collaborating is a positive outcome that will benefit all."

NECMA interviewee Thomas contended that, in the past:

"We didn't really have a clear vision of where we were going with that in the where and how. Strategically, we didn't have strong, clear, guiding documents to steer us in the right direction, when to say 'no', when to say 'yes', and where are your opportunities in between."

NECMA interviewees noted that when their internal views were more clearly agreed and articulated as external goals and objectives, collaborations were easier to formulate in achieving aims that addressed regional issues in NRM.

In ILWS, interviewees were concerned with articulations surrounding multidisciplinary research, a central mission for the Institute developed to address complex socio-ecological issues. Interviewee Isaac said, "I don't see any big, truly interdisciplinary, transdisciplinary work coming out of ILWS, historically or into the future". Isaac was critical of the structure and processes developed to support such research, as well as people involved. Interviewee Isla recognised the Institute's structure, in which few members were actually employed by ILWS, "hinders collaboration, because it's not like we can say, 'O, you're really good

at this, why don't you go and do that?" Research staff could not be directed to follow certain research lines or collaborations, only encouraged. Therefore, Isla did not consider ILWS an organisation, but it is:

"A whole heap of different people. There is this belief that if we all stick people under an umbrella, they are all going to be pulling for that same umbrella. That doesn't happen, not in the academic world anyway. There is a little bit of pulling together, but mostly it's the individuals doing their own thing. There isn't an ethos of, 'We're all going to work towards the same goal', because each of their goals are quite different."

This example indicates a need for truly shared and, more importantly, agreed goals within both organisations that will encourage real collaboration within and between organisations.

While a few interviewees valued some **competition between agencies** for funds and resources in research, most interviewees from both organisations were critical of the growing competition between agencies for limited opportunities to fund research. NECMA interviewee Michael believed this competitive spirit bode ill for collaborations over the long term.

"[Some prospective collaborators] just want to come out of the relationship as the winner, but everyone should be the winner. Some people go into rooms with the outcome already mapped out. Not a great idea, doesn't bode well for a long-term relationship, usually false or poor foundations to build a relationship."

ILWS interviewee Chloe noted that some government funding agencies were keen to see "people work [together], to fund collaboration, not a single agency". Chloe also believed "there's a bit of a tussle in the collaboration of who gets what. There is still a competitive element there, but it can be a collaborative process overall." So while there may be some internal competition, strong collaborative relations will endure.

Some interviewees believed **organisational and individual capacities** were important antecedents for successful collaboration. ILWS interviewee Malcolm believed that capacity was an important concern for collaborations, as it was "about establishing an understanding between both organisations that particularly have the capacity, so that when the organisation has resources to expend, they can engage the expertise [required for the project]", and for ILWS interviewee Hermione, on a similar timeline. This indicated the need for due diligence to be exercised by both organisations in the planning stage to ensure such capacities are available in partners, a view supported by NECMA interviewee Naomi. In one example, Naomi observed that the limited capacities of some Aboriginal communities and traditional owners and of NECMA in working with them limited collaboration between these two groups:

"We're trying, but we don't always get it right, so the capacities of both parties are important."

NECMA interviewee Stephen concurred, adding that while a collaborator might not fund an activity such as environmental monitoring, "but will they fund education programs for the community, or citizen science". Therefore, successful collaboration might also require some 'creative' project building and understanding of alternative perspectives.

## Personal attributes

A number of personal attributes of good collaborators were identified by the interviewees, though some were deemed more important by the majority. These were flexibility and understanding, knowledgeability and willingness to learn, professional respect, ego and self-interest, energy and enthusiasm, and willingness to listen.

Most interviewees recognised **flexibility and understanding** as the most useful personal attributes for collaborators. ILWS interviewee Anthony considered flexibility as the ability to "share the benefits and foibles of others. You've got to work with both, you've got to work with the whole character. Understanding and sharing are key." Anthony believed accepting other people's limitations improved

understanding and “made the best parts work, helping avoid the bad bits, the difficult bits or the bits that are out of sync”. At a personal level, NECMA interviewee Phoebe asserted that flexible people are “willing to go beyond what’s just in the position description to make a successful collaboration”, with the additional trait of “empathy for the other person’s position”, according to NECMA interviewee Theresa. ILWS interviewee Malcolm added this flexibility also allowed a person to seize opportunities as they present – that person can “see an opportunity there, and they’ve got the background and ability to jump into that window of opportunity”. NECMA interviewee Ralph observed that “some of the best long-term collaborations have been when people have dealt with change and kept focussed on the outcomes, the long-term, the results”, alluding to the importance of focus on research and NRM objectives and the role of time in successfully completing projects.

ILWS interviewee Isla asserted that flexible, understanding people “are happy to say, ‘Let’s just see where this goes’. Other people are rigid and want to know the outcome straight away.” Isla recognised the importance of time in flexibility, whereby collaborations “evolve, take time. [You need to] go with the mood of what’s happening, how things are happening in the wider sphere, what’s happening on an as-needs basis.” NECMA interviewee Magdalene believed that flexibility also allowed acceptance of greater diversity, in which “people can bring in different ideas from different perspectives. If you’ve got someone who will only work with white, middle-aged men, then you might collaborate but I’m not sure that the outcomes are going to be particularly good.” Magdalene equated diversity of ideas and opinions with improved outcomes. Indeed, NECMA interviewee Phoebe also observed that greater understanding and flexibility had great benefits for an organisation, as “they increase organisational thinking, bring new people in and add new ideas to an organisation”, views that were particularly supported by other NECMA interviewees.

Conversely, NECMA interviewee Phoebe recognised poor flexibility as an attribute detrimental to collaborations, where collaborators were “not open to change, very output focussed and not willing to look at the greater benefits of collaboration. Some people see that as a bit threatening, I suppose.” ILWS interviewee Freda believed inflexible people “always think they are right and they’re not willing to change the way they do things, just because you work in a different way”. ILWS interviewee Hermione believed such people should “just get a consultant and give them a brief. They are really dogmatic in their thinking so they just have set ideas.” Hermione did not believe this was true collaboration.

At an implicit level, ILWS interviewee Liza considered that inflexible people might also come to a collaboration with pre-conceived ideas whereby they already “know what the result [of research] is and they are not willing to even consider that there may be other explanations for whatever it is they’re seeing. They may even come to the collaboration with a previous, hidden agenda.” This final comment also alludes to the role of honesty in collaborative relations.

Many interviewees, particularly from NECMA, believed that **knowledgeable individuals who were willing to learn** were also positive for collaboration. ILWS interviewee Anthony contended that collaborative team members needed to bring knowledge to the table, “mixed with a willingness to learn”, particularly, as ILWS interviewee Isaac noted, there was a shortage of “clever people” working in NRM research projects, “and there’s a crashing need for real-world solutions to a lot of the big [NRM] issues”. ILWS interviewee Hugh believed that researchers were also messengers, conduits for knowledge to people such as landholders:

“Through knowledge that you’ve learnt, the people you’ve talk to, you pass it on. Through your experiences, you refine that message. Eventually, that message and the more people you talk lands in the right spot. Then people change, and they’ll tell somebody else.”

In this observation, Hugh also highlighted the possibility of behaviour change over time through collaboration.

ILWS interviewee Liza noted how the role of the researcher as a knowledgeable person who was willing to learn also provided enjoyment and satisfaction for individuals.

“I love getting stretched. I love learning stuff I don't know. I love working with people who do things I can't do, and being a bit player in a bigger thing. It's like playing in an orchestra. You do your little thing in isolation. It's humble, bit boring, but when you're part of a whole ensemble, a whole band, it's like, 'Bloody hell, that's pretty cool, that's big, that matters'.”

ILWS interviewee Isla supported this contention, stating that a knowledgeable person should be “willing to grow, and step into the unknown”. In addition, ILWS interviewee Freda believed that knowledgeable people may also require negotiating skills.

“As a researcher you might have your ideas. They might be good but they actually don't fit in what the [collaborating] organisation is looking for. Being able to find that middle ground between what they need and what you have to offer them, that requires open minds from both sides.”

This showed the need for compromise and the role of knowledgeable, flexible people in achieving shared understanding.

Interestingly, a number of NECMA interviewees were concerned at the lack of scientific knowledge informing NRM in their region. As NECMA interviewee Magdalene questioned, “‘Are we making and doing things with the best available knowledge? It might not necessarily be [just] scientific knowledge, but the range of knowledge.’” Magdalene indicated important opportunities for collaborative research, particularly around environmental monitoring, that address these questions:

“If this is important: one, how can we tap into other research that might be monitoring what we've done; and two, what are some opportunities to invest, to collaborate for the long-term monitoring to see what's happening?”

Attaining scientific knowledge for NRM could play an important role in developing collaborations, and opportunity recognised by NECMA interviewee Naomi. She believed that knowledgeable researchers, particularly those who can help identify priority issues, with “an ability to critically analyse what are the things we should be working towards and making more effort on than other [issues]”.

Alternatively, as noted by ILWS interviewee Anthony, “Know-alls are usually a pain in the arse”. NECMA interviewee Magdalene noted that if the willingness to share information was absent, and “information was seen as a source of power, then collaboration will not be successful”. However, for NECMA interviewee Penelope, it might not be ill-intent but tedium that could cause conflict: “sometimes you just get stuck in these groups where you do the same old thing each time, and you might not have those fresh eyes [available]”, indicating the occasional need for a knowledgeable person to present new perspectives on existing NRM problems.

Many interviewees from both organisations considered **mutual professional respect** as important for enhancing collaborations. ILWS interviewee Liza noted that collaborators wanted their “ideas or thoughts taken seriously, considered and respected”. NECMA interviewee Naomi believed that respect was not always apparent between research and implementing organisations: “Both parties have to have respect for the other. Sometimes in academic the opportunity is provided for a collaborator “to say, ‘You're important and your views count, you're actually worth investing or collaborating with’. It's very powerful.” This affirmation helps build relations and enhance collaborations.

ILWS interviewee Chloe noted that if a collaborator has professional respect in an area of expertise, that person can more easily engage in difficult discussions with partners:

“[A respected collaborator] might have had a quiet word, and I think that's probably the best way to handle [this situation]. If she were to say something like that, they would be taking notice [of her].”

One concern expressed was in how to earn professional respect. ILWS interviewee Anthony proposed that some researchers had widespread respect from various stakeholders including agency staff and

landholders, “because they do have specialist knowledge in a field”. This perspective could be due to an implicitly accepted hierarchy of scientific knowledge, where the ‘knowledge worker/academic’ is held in greater esteem than the ‘workers’ in government agencies and industry. Furthermore, ILWS interviewee Freda asserted that this knowledge and ability needs to be recognised by all parties, including times when uncertainties arise during projects, or when a forthright critique is required.

Collaborative context also influences the development of professional respect between collaborators. ILWS interviewee Geoffrey observed that collaborations needed “a level playing field” to engender such respect in an atmosphere of co-learning:

“For that collaboration, there was a level playing field in a sense that everybody was treated with respect, the learning happened together. There was not one person who was the instructor and the other person was the learner. Everybody was learning together.”

When establishing a collaboration, ILWS interviewee Hermione believed honesty regarding one’s abilities was important in developing personal respect, where “there is respect, there’s an understanding of complementary skills, and not misrepresenting or overstating your own skills”, because a collaborator may need to unexpectedly carry greater responsibility for a project than originally intended, due to the limitations of another, perhaps dishonest, collaborator.

Many interviewees from both organisations mostly considered **excessive ego and self-interest** as personal attributes that inhibit effective collaborations. ILWS interviewee Chloe noted that there were many manifestations of self-interest, or ‘what’s in it for me’, from seeking research project money, to increased status, becoming lead author of a paper, or leading a new research team. She believed “people tend to see through that - maybe not straight away, but over time”. ILWS interviewee Anthony stated egotists were “People thinking they are too important – ‘up’ themselves. I think a lot of professional research and academic people are too up themselves.” Thus, Anthony hints at the prevalence of ego and self-interest in academic spheres, which ILWS interviewee Isaac attributes to needs for career-advancement rather than financial gain. Indeed, NECMA interviewee Magdalene asserted that collaboration was about “a group of people setting out to achieve something and sharing that journey, including the spoils of success”.

Conversely, NECMA interviewee Stephen noted how personal arrogance repulsed him from forming relations – and collaborating – with that person. For example, ILWS interviewee Geoffrey recounted a difficult project where an organisational leader “insisted on doing it their own way, and not allowing somebody else to be able to do their way, and certainly not even reaching a collaboration [or consensus] on how to do something”, which NECMA interviewee Magdalene attributed to the need to control. Geoffrey asserted that there were power dynamics at play, and “when it gets to different organisational cultures, it could easily happen the other way around and [the other leader] is not prepared to compromise and to understand that there could be a different way of doing things”. Similarly, NECMA interviewee Ralph noted past opportunities “where people’s personal powerbase screws things up when they try to protect them”, rather than looking at the bigger picture, the outcomes for NRM.

ILWS interviewee Malcolm observed that academic researchers might demonstrate their self-interest by not completing research as stipulated by a funding agency, for example, by investigating fish parasites rather than monitoring fish populations in a geographic location. As NECMA interviewee Naomi observed, they were “too focused on their endgame and couldn’t see the bigger picture”, and not thinking strategically, while NECMA interviewee Theresa was particularly critically of “people who over-commit and can’t deliver” due to the constraints.

Interviewees such as Chloe from ILWS recognised the importance of some humility among members of collaborations. Chloe believed that “not having too much ego and they’re liked more. That is conducive to bringing in other people and keeping [the collaboration] going.” Thus, humility and recognising one’s personal limitations play important parts in successful collaborations, particularly over time.

**Personal energy and enthusiasm** were also attributes highlighted by the majority of interviewees, particularly those from NECMA including Vaughan, who noted people working in NRM “have a particular bent for the environment, to see it be improved, and the ones that we work well together with have that same mindset”. NECMA interviewee Thomas was enthused by working with energetic people, claiming it was an “unbelievable experience, just opens your mind, broadens your horizons, into fields of which you had no concept of before”, which ILWS interviewee Isaac noted often led to “two or three really great ideas that would expand your research”. NECMA interviewee Ralph particularly noted the prevalence of passion and energy when dealing with the wider community:

“They want to be involved, they are willing, so it makes it easy. You don’t have to go looking [laughs], they’re at your door.”

As NECMA interviewee Vaughan observed, “you need to be passionate about what you do. If you’re only in this job to make money - which you wouldn’t be anyway - you’re not going to get anywhere.” ILWS interviewee Geoffrey noted the energy and fervour that NRM researchers and agencies often brought to projects, particularly as he believed “academics do need to work with real issues and ultimately work with real people doing stuff on the ground”. And as NECMA interviewee Michael noted, “if there is no energy in the relationship, it doesn’t go so well, it doesn’t come to much”. At a regional level, NECMA interviewee Michael observed that while he believed North East Victoria could be a leader in NRM, however “I don’t think it harnesses energy or the power it’s got”. He indicated that a link or ‘bridge’ between the region’s NRM agencies could help harness that energy. However, ILWS interviewee Isla noted that she only had so much energy to share, and that she could not do everything. Therefore, this energy may need to be carefully considered and ‘rationed’ between projects.

The majority of interviewees highlighted the fundamental need for collaborators to have the **willingness to listen** to other team members for collaborations to succeed. ILWS interviewee Geoffrey remarked that as a good collaborator:

“You have to be able to listen. And by listening, that means being prepared to have your mind changed. It’s coming with your ideas and going into discussions to really listen to the perspectives of others.”

Geoffrey’s comment also incorporated other personal attributes such as flexibility and relaxation of self-interest. His contention was supported by ILWS interviewee Freda, who asserted when good collaborators “identify more of the positives that you can bring to the project, because everyone is different, everyone has different abilities”.

ILWS interviewee Hugh noted the willingness to listen was a particularly useful attribute for researchers when they met with landholders. He had observed that farmers wanted to know what was happening, but were not keen to be told what they should do. He noted that “over time, landholders come on board and want to change based on information they’re getting, rather than change because they’re being told to change”. This reflects the possible need for time for sustainable learning and for behaviour change to occur. However, NECMA interviewee Vaughan observed that both farmers and researchers can be prone to arrogance in their views, which can be displayed as an unwillingness to listen, and so was a poor foundation for collaboration.

Interestingly, a willingness to listen may also display the presence of diplomacy in a good collaborator. NECMA interviewee Michael noted that “You’re sitting in a room of people and there is usually a loud mouth in there somewhere. Everyone’s got a story to tell, it’s about listening to that story.”. Thus, the art of listening might also include indulging people their need to speak in meetings to engender a sense of collaboration. Indeed, NECMA interviewee Stephen noted that displaying an ability to listen could also show sympathy and empathy for the speaker, which would further encourage a relationship and future collaboration.

Other personal attributes such as **honesty, extroversion, friendliness, and fun** were also explicitly mentioned by interviewees from both organisations. Interestingly, the importance of personal honesty

was considered more important by NECMA than by ILWS interviewees, while **social respect, seeking fun and enjoyment in work** were considered least important by the interviewees.

## The institutional context

### Government policy and funding agencies

While most interviewees considered policies by State and Federal governments having important influences on collaboration, in particular NECMA interviewees who are employees in an institution constituted by Victorian government legislation and with reporting responsibilities to State ministers. NRM policies can change as governments change, and NECMA interviewee Vaughan observed how these policies change according to the ideologies of the government of the day:

“The government has a particular bent from time to time as to what they want. There's been some big changes in the last 10 years to the amount of funding. We are down nearly half of what we used to get.”

Vaughan noted how this has changed how NECMA works, from whole-of-catchment approach to specific projects for which specific funding is targeted. NECMA interviewee Thomas also reported how more strategic, large-scale works were possible where long-term funding was available, such as during the five-year project that was derived from the then-Victorian government's *Our Water, Our Future*, White Paper, which enabled a large-scale river restoration program across the state with collaboration between CMAs, government agencies and contractors. In this case, funding played a role in determining the scale of collaboration.

Conversely, NECMA interviewee Ralph iterated his frustrations with the current short-term government funding provided for works in the region, a sentiment echoed by most interviewees, which NECMA interviewee Thomas attributed, in part, to “the need to deliver things politically, and have the photograph with the child planting a tree and a handshake,” which led to exasperation. ILWS interviewee Liza also emphasised the movement of funding cycles to smaller time spans as well as rapid government changes to the funding of organisations, and the increasing dependence on an ever-decreasing, competitive funding pool for NRM.

ILWS interviewee Malcolm related an example, however, of how a research collaboration, led by an entrepreneurial researcher, was able to secure funding during an election campaign for a large NRM project. This situation enabled the collaboration to attract further funding to maintain in long-term viability and development. According to Malcolm:

“It enabled him not only to get the funding [for that project], but it also enabled him to support the other research and ongoing in the longer term without any hiccups.”

Thus, collaborations may be driven to seek funding in competitive or serendipitous circumstances rather than managed in long-term stages, a process of policy development that disturbed some interviewees. NECMA interviewee Ralph was frustrated by “constantly changing priorities, where the funders ‘cherry pick’ priorities”, particularly where NECMA and the regional community had “very little control over what's a priority for the region, even though we have a [regional] strategy developed in conjunction with community, who said, ‘These are our priorities.’” Ralph observed that, in reply, “governments say, ‘Don't care, these are our priorities, you do it’.”

Ralph's observation highlighted the recent shift of prioritising power from regional communities to the State and federal governments, which could stifle long-term relationships that rely on long-term funding. Indeed, ILWS interviewee Malcolm noted that party ideology had profoundly “shifted research priorities and funding”, which was not conducive to long-term regional collaborations. For example, a returning conservative government that did not support climate change, “restructured the Office of Environment and Heritage and got rid of the entire unit that was supporting climate change.” While Malcolm was able

to keep the funding, the personnel in this unit were scattered and expertise and relationships dispersed elsewhere in the organisation.

NECMA interviewee Teresa complained of the over-complexity of policy and reporting frameworks, observing that “over-complexity makes it very hard to work with other people”, while ILWS interviewee Geoffrey also complained of the rigid rules for project budgets and timing that hindered collaboration. NECMA interviewee Ralph noted that changing policy foci also placed pressures on possible collaboration due to insufficient skills within the collaborators, such as recent moves to increase Aboriginal community engagement in regional NRM. In this example, Ralph explained that where such engagements included NECMA staff, it was important to be “very careful not to cause offence. That's tricky. To get it right, it's great, get it wrong it's horrendous. Sometimes you can get it wrong so easily without even knowing it, without not even having any idea and all the best intentions in the world,” thus exacerbating conflict rather than enabling collaboration with other groups.

Given the complexity and short-term nature of government policies apparently working against collaboration, some interviewees observed that some legislation and policies favoured or obligated projects to include collaboration. NECMA Ngaire described how CMAs were obliged to implement particular processes in collaborations, and even how they were to be implemented. However, these mandates did not account for the current underlying priority that favours competition. NECMA interviewee Theresa believed that there was a difference between government rhetoric encouraging collaboration and the underlying frameworks that embodied competition between groups bidding for funding.

“State and Federal policies recognise the value of collaboration, but the [funding] frameworks underneath don't necessarily reflect the policies.”

Indeed, the planning process for collaborative projects is further complicated by the short time frames for project development when announced by some government funding agencies. NECMA interviewee Ngaire cited cases where only six weeks were allowed for major project applications, from time of announcement to the closure of applications, and “that often doesn't give you enough time to put everything else aside and fully collaborate”. She believed potential collaborators needed “those conversations twelve months in advance and be working towards that shared goal. You've got to forward plan quite significantly to have true collaborations.”

ILWS interviewee Chloe also highlighted the competitive nature of government funding when she noted that “there is a finite bucket of money, and all the different government departments have to internally fight for their share. You open it up to other government agencies, non-profit sector, private sector, and it's quite competitive.” Many interviewees were critical of the current competitive nature of government funding for NRM and its effect on collaboration. In contrast, NECMA interviewee Ngaire compared her experiences in competition in the private and government sectors: “Having worked in a range of different organisations, collaboration is good when you don't have the competition. I was previously in the private sector, and it can be quite different to the public sector. The private sector can be quite good at collaboration, because they are keen to progress opportunities where they have a mutual benefit.”

ILWS interviewee Malcolm also noted the power of lobby groups in changing or adding to policies. He described how an additional site was added to the list of ‘icon sites’ for the Murray Darling Basin through organising a “tour for politicians of that area to show them the assets and lobby them to include these [wetland] assets” in the icon list. This has since “led to them asking for environmental water on the site, which led to them asking for some institution tendering for that process”, resulting in further collaborative research opportunities.

Some interviewees did note a recent change in project management requirements, from producing outputs to outcomes. NECMA interviewee Theresa noted that the Victorian government was still “very output focussed - they still want that number of kilometres of fence”. She stated that this “can be difficult to massage that into a proposition that they are happy with” as “their strategy and policy setting talk about engagement, which is not necessarily well built” into their policies or reporting requirements.

NECMA interviewee Penelope agreed that much State reporting was still based on outputs, “tick the box – yeah, done that, done that, which is what they wanted”. Penelope explained how she attempted to incorporate outcomes in the reporting text, however this was not always appreciated. Indeed, NECMA interviewee Stephen was critical of the continued focus on attaining output targets, which appeared to be related to election cycles, rather than monitoring long-term environmental outcomes, particularly in terms of effective government investment. He believed this would require long-term monitoring systems and research opportunities that could incorporate higher educational research opportunities such as PhDs and Masters projects, a sentiment echoed by other NECMA and ILWS interviewees.

ILWS interviewee Hugh has noticed the change from reporting outputs to outcomes in Federal funding, whereby:

“Prior to this change, all they could really report on was number of hectares fenced. The government said, ‘Well, that’s great, but are we improving vegetation? Yep, we dealing with a threatened white box gum woodland – is it improving? Is it enhanced?’”

Hugh believed organisations had to respond to various government’s desire to know exactly how money was being spent. While placing greater reporting responsibilities on organisations, Hugh believed this provided greater opportunities for expanded collaborations to provide more complex outcome-related monitoring and reporting. NECMA interviewee Theresa noted that Federal funding agencies were particularly focussed on environmental outcomes, rather than social, while ILWS interviewee Malcolm noted Federal grants required monitoring to be included in funding bids.

### Differing organisational cultures

A number of interviewees recognised the differences in organisational cultures between ILWS and NECMA. As ILWS interviewee Malcolm assessed, “The research organisation [ILWS] and the NRM organisation [NECMA] work in different spheres, and they therefore have very different cultures”. These organisations have different purposes and objectives, with responsibilities to different groups of stakeholders: NECMA primarily to their regional communities and the Victorian and Federal governments, and ILWS to Charles Sturt University’s more widespread communities, its students, and the wider array of research investors and partners. Such responsibilities place pressures on each organisation, particularly through differing priorities for staff time, organisational support for collaboration, supportive organisational governance, and conflicts within the organisation.

**Time pressures** place considerable strain on collaborations, from conception and planning to implementation and evaluation, in both organisations. NECMA interviewee Stephen considered time pressures as the biggest challenge for collaborations.

“We often have spanners thrown in the works. We [ILWS and NECMA] might have a project running, [but] if the Minister wants some reporting done on your project that is impromptu, he might want it by such-and-such a date, then people are pulled away.”

This hypothetical example illustrates such considerations as the power differences between funders and implementing agencies, as shown by the Minister; time pressures placed on all collaborators in completing such reporting tasks; and the pressure on resources, including staff, to complete these tasks on time.

Resources, including staffing, funding, and social understanding and trust, need to be built into design and management to nurture effective collaborations. NECMA interviewee Theresa also noted that these conversations needed to be held “fairly early on” in the planning process to define, as noted by ILWS interviewee Anthony, the “urgencies” for both organisations when developing collaborative projects. ILWS interviewee Isaac asserted that “one thing ILWS and many others [organisations] get wrong is the frittering away of a researcher’s time on bullshit, menial tasks that could easily be farmed out”. ILWS interviewee Geoffrey noted that time pressures are “what makes people do those rude things - they get frustrated because things aren’t happening quickly enough”. This in turn substantially and adversely affects relationships among collaborators, as Geoffrey described in an international project. However, a

few interviewees such as Ralph from NECMA noted that for organisations based in project management, funding agencies placed them under pressure to minimise costs. However, Ralph continued, “some of the difficult and complex [projects] will take a lot of time to properly engage with community partners to get the best outcome”, forcing implementing agencies sometimes to wear additional project costs not funded by funding agencies.

Interviewees from both organisations reflected on the role of time in developing trust, at the individual and organisational levels. ILWS interviewee Chloe noted that “relationships take a lot of time, as well as earning that trust and getting to know people”. NECMA interviewee Michael contended trust was “a long-term investment, it’s not going to happen overnight”. Michael intimated at the importance of social aspects of professional relationships and collaborations, with trust growing as individuals become better acquainted.

“I always find it does not cost anything to make a phone call or say ‘hello’. There’s a lot goes into building that trust”.

NECMA interviewee Stephen has also seen to reverse side of collaboration, where poor collaborators do not allow the time to form relationships, and “they commit without having an understanding of how much time it will take to do the commitment”. ILWS interviewee Freda also recounted comments from partners complaining that, “Research projects, they take so long’. I understand that, but we can be flexible around that”, reflecting on the need to balance the time taken for research with the quality of that research.

ILWS interviewee Hugh observed that long-term collaborations could add value to projects, as “They’re a lot more competitive”. NEMCA interviewee Ngairé recognised that part of this value was indirect, where:

“You might collaborate on a working group about something, and then five years later you get a phone call or you might call someone because you remember that collaboration from five years ago. That’s the gift that keeps on giving [laughs].”

ILWS interviewee Hermione agreed that relationships need to be nurtured and maintained, and that, “you need to always have that person in the back of your mind”. Indeed, Hermione believed those working in the collaborations should be looking for new collaborators, “always thinking ‘I wonder if that person could come in on this’, or ‘I wonder if this ...?’ And they need to be thinking the same.” This consideration of others helps build and maintain informal networks of collaborators that can be accessed as required. Indeed, as Chloe from ILWS observed, good collaborators are “good at bringing people into their region and building collaborations and identifying different people to strengthen a network”. On the other hand, existing exclusive relations between institutions may preclude others from participating in collaborations, regardless of their apparent advantage in expertise. As Hermione noted, “we’ve tried to work with some organisations more, but they might have an exclusive relationship with another university. Someone in upper management might have relationships and so then they are not very open to working with other universities, and that happens a fair bit.” This restricts access to wider collaborations, particularly where the original exclusive relations are viewed as ‘prestigious’ for a collaborator.

Some interviewees from NECMA, including Phoebe, believed that establishing a process to establish and recognise collaborations makes it “easier to have an ongoing program”. Phoebe asserted that:

“Once the processes are set, regardless of staff members coming and going, and this is a project regardless of personalities. There needs to be an established framework, an MOU or a process.”

However, as projects mature, a different type of collaborator may be required. ILWS interviewee Isaac named this collaborator as the ‘kelpie’, someone to round up all other collaborators to get a project completed on time. Isaac, who has accepted this role in the past, said “You need someone who is like, ‘Right, we need it by, let’s say, Wednesday. Can you give your thing to me by Wednesday, and I will do that thing?’” He believed a collaborator was needed with time to round up others and maintain pressure to conclude projects.

Interviewees also described how time pressures affected relationships when partners were applying for project funding for collaborations, particularly with the mismatch of time expectations between agencies. For example, as part of a significant government grant, ILWS interviewee Malcolm was to find a postgraduate student to complete some research for the project. Importantly, Malcolm noted that the differing time frames between the project and University academic requirements meant that:

“I couldn’t find anybody. The pivot point is not that I couldn’t find anybody, but that program got funded over a particular timeline and if I didn’t find somebody for a year then it was going to take another year [for the research study]. You can’t recruit somebody in April or August, half way through the year, they have to start at the beginning of the year.”

This timing mismatch was highlighted by interviewees from both organisations, indicating an area of contention and difficulty for both parties. NECMA interviewee Magdalene reflected on a similar situation for “our NLP2 funding bid [where] we had eight weeks to get that together. Sometimes those timeframes are really difficult and they’re really difficult for, say, a university to understand”. Similarly, NECMA interviewee Theresa described how discussion for major funding bids to the Victorian government commenced 12 months before they were due, noting that, “It’s difficult to get a collaboration happening if we don’t have that notice that it is coming”. Theresa also stated that they identified collaborators in advance, noting that “You’ve got to forward plan quite significantly to actually have true collaborations”.

In addition, Nature can play a role in deciding time frames for projects and impede collaborations. ILWS interviewee Liza observed that scientists “can’t work around the fact that the biological imperative of that plant and animal has nothing to do with what the government decides it’s time to do. All of these monitoring things go by the wayside. Even though there is money to do it, it just takes so long, the time lag is so long, and so we can’t get any information unless it’s through philanthropic funding”.

Funding agencies can also get timing wrong. Though not directly involved in the example, ILWS interviewee Liza described a project where the timelines of two organisations did not align.

“Governments were saying, ‘we need to monitor wedged-tailed eagles’. The organisation knows that they needed to be monitored, they got the funding to get it monitored, and go through the government cycles. By the time the people climb the tree to look at the nest and band the birds, the birds were mostly already fledged. They spent thousands of dollars to get the right people in the right place at the right time. They got the right people at the right place, but time was gone.”

NECMA interviewee Naomi believed leaders could get timing better and allow more time for projects to come to fruition, because “because collaboration takes time to build trust and relationships, or else it might not work as well as it could, or it might not eventuate”, a contention supported by many interviewees including Ngaire from NECMA. Ngaire maintained that such interactions might not support an organisation now but “sometime in the future”, indicating a more strategic view of collaborations. As NECMA interviewee Magdalene observed, “I think it is really important that someone is willing to invest time in that ‘greyness’ knowing that there is not necessarily going to be some rich payoff for doing that”, the ‘greyness’ being the unknown and so a source of risk for the organisation. Furthermore, NECMA interviewee Phoebe believed leaders and managers should allow their co-workers the “time to think about potential partnerships, and just being overloaded is a hindering factor” for collaborations”, while NECMA interviewee Ralph believed organisational members should also be allowed to innovate to encourage collaboration. As NECMA interviewee Phoebe noted, “We always get focussed, we also get very busy, [but] some people need to focus on the bigger picture, and not just the day-to-day, to encourage those productive relationships”.

Interestingly, use of communication technologies was recognised as one way to deal with time constraints and geographic dispersal. NECMA interviewee Vaughan recognised that emails were an important tool as, “[face-to-face] meetings are all well and good, and we have so many meetings”, but he also had major travel commitments to service his region, and so meetings in Wodonga can decrease his time to attend to local work commitments.

Many interviewees believed that **organisational support for collaboration** could be served not only by managers and leaders allowing extra time to establish collaboration, but also by actually supporting these activities, as reported by many interviewees. ILWS interviewee Hermione noted that “everyone says they want to collaborate, but often they are not supported”. Hermione believed collaboration should be supported by many activities at all levels of the organisation, from giving staff time to develop grants to hiring the right staff that encourage collaboration. As noted by ILWS interviewee Liza, “what hinders collaboration is the unwillingness to collaborate in the first place”, a situation which NECMA interviewee Magdelene believed could be addressed by either, “setting up the space for collaboration to be an ongoing process, and you spin-off opportunities as projects arise, or do you say, ‘I’ve got this outcome - how do I collaborate to achieve that [end]?’”. The first is a long-term view of embedding a nuanced culture of collaboration, and the second a tactical, program-based view of collaboration.

Another possible vehicle for supporting collaborations is the identification of champions for a project. For example, ILWS interviewee Geoffrey recounted how a couple of champions in a partner organisation – one a senior manager, the other a junior member - “saw themselves as change agents with their organisation ... to rally the ‘masses’, particularly if it’s an interdisciplinary project, to coordinate that and get things started”. These formal and informal leaders played an important role in promoting the project internally.

An effective organisational support could be acknowledgement and an expression of appreciation by the organisations when members collaborate. ILWS interviewee Anthony agreed that “effort needs to be acknowledged, not just outcomes. And much research depends on collaboration, so it’s an issue”. Furthermore, as noted by ILWS interviewee Liza, lack of recognition and disregard of interdisciplinary expertise can be a major block for collaboration between and within organisations. Indeed, while ILWS was promoted as an interdisciplinary organisation, ILWS interviewee Geoffrey contended that ILWS itself struggled to bring disciplines together to address shared problems, a view presented by a few other ILWS interviewees. Geoffrey observed that while, “ecologists will do projects very well together, and social scientists will do a project well together, trying to build interdisciplinary stuff [between ecology and social sciences] can be difficult”. The disregard or cursory view of other disciplines can develop into perceptions of disrespect and so lead to conflict within organisations and diminished use of locally-available expertise, even within organisations.

**Conflicts within an organisation** could also strangle collaboration with other organisations, as NECMA interviewee Ngaire had observed with her organisation. ILWS interviewee Isaac believed that internal conflicts were reflected in the distrust of members of the organisation. “The organisation needs to trust in its people”, he said, as managers cannot keep abreast of all that is happening in research projects. “Obviously there are performance issues that are for my line manager, my boss”. However, as Isaac noted, ILWS had very few staff of its own and so had little direct influence on the researchers in the Institute who were employed by Charles Sturt University, not ILWS. ILWS interviewee Liza believed this should be fixed before entering into more collaborations. As ILWS interviewee Isaac noted, “The structures within which there asked to work are not conducive to teambuilding. We are also a herd of cats. We’re a very difficult group, any group of researchers is going to go in different directions.”

NECMA interviewee Naomi believed one way to address internal conflict was to develop “joint, unified values and goals, with a staff who knows the vision and the mission of the organisation and what the different pathways to the endgame - you might not know quite how to get there, but to know what the endgame is”. These views also included attitudes to risk. NECMA interviewee Ralph recognised internal flexibility and views on risk as issues for organisations: “I’ve been through periods where the risk appetite for community engagement was very low, and that had massive impact on all our jobs.” As NECMA interviewee Thomas articulated, “There is a need to have very clear and understandable guiding principles at a high level” to help guide discussions in collaborations.

**Organisational governance** can also influence organisational culture and consequently collaboration. ILWS interviewee Hugh believed research organisations should aim for appointing “progressive boards with good governance and leadership”. He contended that having scientists as well as farmers on a regional board helped with understanding the scientific process and in collaborating with universities –

“the agricultural science people really come into their own then”. ILWS interviewee Chloe noted that boards “direct the culture of the organisation and what’s seen as good and bad and worthwhile, or without value, where the organisation should be going, and what it should be seen to be doing”. Chloe believes that such governance boards influence the actual and the perceived futures of an organisation, and thus the direction of future collaborations. ILWS interviewee Geoffrey particularly observed one board that “took time out to reflect on where things were going, and alternated between business meetings a more reflective meeting which was structured and would have a purpose to the reflection”. Using this reflective practice, Geoffrey believed that the board developed a clearer view of the organisation’s and the region’s futures.

## High staff turnover

Some interviewees noted that high staff turnover within organisations had considerable negative influence on collaborations. ILWS interviewee Chloe, noted the disruption caused within organisations, as well as tensions caused by officers entering an organisation long enough to suit their career needs. However, she was also critical of the lack of job security, caused by short-term contracts and project-based employment, and its influence in collaboration:

“We were working with people who had to apply for their own jobs every 12 months. That’s not a conducive environment for really investing in your job, or people’s satisfaction with their job I don’t think that’s really conducive for going above and beyond. That ‘cloud of uncertainty’ in the workplace limits some things because people would say - ‘Look, I don’t know if I ‘m going to be here in 12 months’.”

ILWS interviewee Hermione recognised the difficulty of working with organisations with constantly changing workplaces, whereby “if the organisation is constantly shifting people, rotating people out of roles, that becomes really difficult.” ILWS interviewee Isla pointed to the loss of relationships as a special consideration for high turnover, especially where a collaboration hinged on one or two individuals. She observed that, “once you build a relationship [and] that person moves on, that relationship is sometimes lost, with the organisation it’s lost. If it’s pinned on one or two people, then you’ve basically got to start all over again”. The need to rebuild was also emphasised by NECMA interviewee Phoebe.

ILWS interviewee Hugh observed the considerable impact of staff turnover with the loss of information and project focus.

“Whereas the people that stay with the project through its entirety, you get more out of them because they appreciate the relationship more and more as time goes on, as the person as someone who has just come in, seen the collaboration, has a minor role to do and left, and doesn’t know the big picture.”

NECMA interviewee Stephen observed that the loss of tacit knowledge, such as available expertise within a collaborating organisation, was important for future collaboration. Stephen asserted that a researcher “might have a contact, but that person might not be there anymore. Who else can they contact?” To address this problem., NECMA interviewee Phoebe believed that the documenting and updating of stakeholder contacts should be more frequent to account for the ever-increasing turnover of staff in all organisations.

Finally, one NECMA staff also commented on the adaptability of staff in organisations due to high staff turnover. Ralph noted that where “people go through restructures all the time, they may not know what their job is now, but they are still focused on trying to get these projects going.” While this indicates some staff resilience to constant change, there was no indication of where this might all end. Indeed, NECMA interviewee Stephen highlighted the increasing workloads for remaining staff which was also not conducive to forming long-term relationships for collaboration.

## Access to funding and physical resources

Most interviewees considered access to funding and resources as major considerations for collaborations. ILWS interviewee Hermione recognised the primacy of funding from government agencies for NRM research in Australia, with government organisations as research partners. In Hermione's case, "even if you don't really like working with someone, if someone is really talented and is bringing a lot of money, you can look overlook a lot". NECMA interviewee Magdalene supported this view, observing that while "money is not everything, it helps. Collaboration is really hard where you can't bring something to the table from a resourcing, a dollar perspective. It shouldn't be the basis for everything, but it can help open doors." However, NECMA interviewee Naomi noted that "Sometimes in collaboration you're actually investing in others and not in yourself, so it's a willingness to see that is a good thing". Such altruism also intimates at the need for a power shift from the organisation to the regional community.

ILWS interviewee Chloe observed how even potential collaborations can be stifled by considerations of money and power. She recalled how a fellow researcher was told in no uncertain terms by another researcher to stay out of a country, regardless of his previous extensive experience and relational network in that country. Chloe continued: "there's really staking territory and that's certainly not conducive for collaboration. There was real money in funding available, and this [was certainly] in the mix." Chloe believed the lack of funds can be attributed to policy and politics: "in the government sector, there's a lack of political will".

ILWS interviewee Hugh noted the importance of **initial block funding** to commence environmental monitoring projects, importantly as they can be used to leverage larger longer-term government grants to extend or expand the existing monitoring projects. Indeed, some funders direct influenced collaborations. He believed implementing organisations able to demonstrate pre-existing links with research organisations were conserved favourably for larger funding opportunities. Indeed, NECMA interviewee Naomi believed that the "funder's priorities for investment" identified "whether you can do certain collaborations", while ILWS interviewee Malcolm contended that such successful long-term relations could arise where implementing organisations such as CMAs circulate a call for "a general expression of interest, saying "These are our priorities, and this is what we want to do"", with submissions based on the needs of the organisation. This situation could cause conflict between individual researcher's interests and the requirements of implementing agencies, particularly where collaborations are unable to accommodate the researcher's personal research interests, as noted by ILWS interviewee Isaac. This discussion highlights the range of conflicts that could occur or be circumvented through the actions of various players in collaborations, and in balancing funding, organisational and personal needs.

One question raised by a number of interviewees was 'should the action of collaboration receive specific funding for the collaboration to proceed?' According to ILWS interviewee Isaac, "there's many things [researchers] can do, but unless you put your money where your mouth is, you are whistling in the wind. It needs recognise that asking people to go into new collaborations is taking them away from things that they would otherwise be doing. You need to make it worth their while." Isaac was unsure how this could be funded, but co-funding by relevant organisations and external funding were suggested.

"Whenever I'm involved in initiating collaborations, I don't even dream about contacting someone unless I've got something to give them."

Some interviewees recognised that perceived economic efficiencies were drivers for many funding policies. NECMA interviewee Ralph believed that funding agencies wanted to minimise costs in delivering projects. Ralph recognised that NECMA, as a project management organisation, was funded to deliver.

"Difficult and complex projects will take a lot of time to properly engage with community partners to get the best outcome. It's a constant problem when you have funders say, 'No, that's too expensive to do it that way. We want you to have 12 months to deliver this project to get these outputs, and we're prepared cover this much for project costs'. We never get funding for follow-up maintenance. We never get funding for follow-up monitoring."

NECMA interviewee Penelope stated that with some projects, NECMA staff were simply told to get on with it and do it, and ‘we need it done by this time, spend all your money’. With these sentiments, Penelope opined that “the emphasis is not on collaboration”, and so collaboration would suffer in these circumstances. ILWS interviewee Liza similarly complained that, from the ILWS viewpoint, grants to be spent by a target date were not conducive to long-term collaboration.

In addition, where incentives were used to undertake works to address NRM problems rather than grant funding, NECMA interviewee Vaughan contended that incentives had different requirements, “where it’s more about fencing, re-vegetation and weed control and not about erosion or blockage issues”. Vaughan noted his frustration with these instances, as this concentrated funding on outputs rather than socio-ecological outcomes.

ILWS interviewee Chloe believed even when the NRM problem was small, such as restricted access to a pooled car, it had big consequences in fostering collaboration. Chloe contended that, “If you wanted to go and meet a farmer or an agency person, you can’t do that if basic resources aren’t allocated for fostering collaboration.” As ILWS interviewee Anthony noted, “you need money as a minimum to drive down the road”, or a willingness to provide in-kind support such as transport or capabilities, as also noted by ILWS interviewee Liza.

Interviewees mentioned **alternative sources of funding and resources** to help initiate and develop collaborations. ‘Seed’ grants – or small funding grants help to initiate a set of research projects – were described by several interviewees as most useful, particularly for early career researchers. ILWS interviewee Chloe lauded short-term small grants for providing a space to get a start or continue a small project. ILWS interviewee Hermione suggested that small NRM projects could be resourced by providing Honours students to complete targeted fieldwork, or a funding agency could say, ‘Look, we’ve got five thousand dollars, let’s do an Honours or Masters project’. However, Hermione stated she was now reticent to put staff or students in fieldwork on their own, which has substantially increased project costs.

“If you’re sending someone further than local, realistically we budget a thousand dollars per day per person, which is accommodation, meal allowances, and salary. So, ten days of field is going to cost ten thousand dollars minimum. That’s barely enough to do an honours project with ten days in the field. These are big [funding] issues.”

Hermione contended that the days of scholarships for Honours students worth three to five thousand dollars were past, and “Unless you had a whole lot of in-kind support, there’d be no point”. This observation has important implications for future research collaborations, as some NECMA interviewees were very supportive of re-developing in-house training incorporating undergraduate and Honours students, including those from CSU.

ILWS interviewee Geoffrey suggested collaborations could access alternative funding other than government, for example, via private industry, but this is not common in Australia. Geoffrey believed that to facilitate this meeting of interests:

“Industry should reach out to us as well, because we can’t be everywhere all the time. We should make the effort to know what’s happening around us, but the world around us should also be able to come to us and ask for help. I think they should do that more often, engage more with us [researchers].”

ILWS interviewee Isla believed limited industry funding could be accessed, over and above traditional funding sources and relations, to initiate research. ILWS interviewee Hugh also believed industry and governmental partners could provide capacity to support research projects, such as by supporting an Honours student to complete research on their property, or by providing relevant industry contacts. Hugh believed in this case that a research organisation could provide the research support as long as co-contribution was forthcoming, otherwise “why would you go there?” As ILWS interviewee Liza observed, even when money was available in a certain research area, “the time lag is so long, and we can’t get any information unless it’s through [for example] philanthropic funding. If you are relying solely on [a

government] organisation for your funding, you cannot dictate when things need to happen.” As noted previously, time and Nature waits for no one, including government funding agencies.

### Access to expertise

All interviewees mentioned that access to expertise was a consideration for collaborations, however NECMA staff showed greater concern for expertise access than their ILWS counterparts. While ILWS was acknowledged by the majority of interviewees as a centre of excellence and source of experts for NRM, ILWS interviewee Freda also acknowledged that “it takes time to find the right person [in ILWS]. People can say, ‘You should talk to someone at this place, or you should talk to someone here’. But also you need that person to be receptive.” NECMA was also recognised as a centre for expertise, however, interviewee Michael recognised it would take some work to find the right person. Michael stated, “It’s a matter of searching out who’s got the vision to see that there is an opportunity, what a collaboration might look like”.

NECMA interviewee Magdalene recognised that organisations could not be “experts in everything” and that “collaboration brings together better minds”. She acknowledged that “it might be messy”, however there were also challenges, conversations, exchange and testing that enabled a better, more wholistic approach to be delivered. NECMA interviewee Naomi recognised that in collaborations, “you can share, solve problems and find solutions better if you’ve got more and different minds, different types of thinking and delivering, expanding how you think about achieving outcomes, and helping answer and solve wicked problems, because you get energy out of that too.” According to NECMA interviewee Thomas, an early objective for a collaborative project should be to get “the right people with the right skills at the table”. ILWS interview Isaac agreed, stating that “a really useful precursor to a collaboration is an admission that there is something missing.” Isaac believed collaborators needed “someone who can look at the big picture, who can look at the whole, and not just see how the bits fit together, but see what’s missing”. He believed some researchers had this skill.

Some NECMA interviewees highlighted a growing need for more science-based collaborations. NECMA interviewee Magdalene noted that while CMAs tried to be focused on science, “we are not science organisations”, and considers that this “drives collaboration because people need to collaborate to access the best available information”, particularly as “I don’t think we actually have the best available science around what we should be doing with our rivers”. Magdalene highlighted that NECMA were not researchers, and did not have laboratories and many specialised analytic tools or information sources for integrated catchment management, and socio-demographic or spatial research. However, NECMA interviewees observed that scientific expertise was becoming more difficult to find, especially in government agencies. Ralph emphasised the difficulty in finding expertise, and that “they are not going to be part of a research organisation or a government body or an agency, because the agencies no longer have people with expertise in a lot of sections – that’s gone, where the agency used to be the source of expertise”.

Some interviewees were looking for expertise elsewhere, including in regional areas. ILWS interviewee Freda noted that ILWS had “a wide range of people working in different disciplines at a really high level, active researchers recognised for what they do in their own disciplines”, while ILWS interviewee Chloe also recognised the possible need for collaborating experts from institutions other than ILWS. NECMA interviewee Thomas believed that, over time, he knew who and where were the experts in the area, however, if a NECMA officer was new to the area, “it would be more challenging to ask the right questions of your colleagues and peers to make sure you get it right”. NECMA interviewee Ralph agreed, stating “it makes it a lot easier to develop and maintain a partnership when you know who’s available, who has certain skills when you need them, and who’s potentially available to participate in programs”. Therefore, a clearer understanding of available expertise could encourage greater collaboration with local institutions. Many interviewees including Stephen from NECMA concluded could be attained through regular face-to-face meetings, which NECMA interviewee Thomas believed could also include other researchers from universities and State agencies in a wider forum. NECMA interviewee Theresa cited an example of where ILWS researchers were not invited to participate in planning for upcoming projects funded through Landcare as it was unknown if researchers would charge for the planning activity, as well

as the 'politics' of inviting one organisation but not another. Thus, Theresa said, only past collaborators with whom NECMA had previous experience were invited to the planning sessions.

This example alludes to the importance of time for finding experts for collaborative research. ILWS interviewee Isla believes, "A seed can be planted and it will be two or three years before the outcome of that seed happens". Isla noted that governments might not allow this seed to germinate, particularly where they say for example, "Right. We're really going to get serious about this deer issue. We're going to put money into it." Isla believes this is when pre-existing relationships will provide the flexibility to allow a collaboration to address the government proposal, and NECMA could say, 'cool, let's run with this. OK, there's these people from ILWS, they know how to do this and this. Let's make it happen.'" NECMA interviewee Penelope confirmed that, in some cases, nearby La Trobe University, also based in Wodonga, had been preferred over ILWS due to previous relations with that institution and close proximity to NECMA.

With time in relations also comes past experiences, and ILWS interview Theresa noted that existing and recent-completed projects played a major role in identifying partners and in generating offers to participate in new projects. Theresa observed that they participate "partly because we pay them. We give them contracts all the time. They know that they need to be there." She concurred that ILWS was not similarly invited as "we don't have that relationship, so you're not engaged at that early point, whereas if you were engaged then, you could contribute to the design and have a place at the table". A few ILWS interviewees also commented on this conundrum and were concerned at this apparent 'snub' by NECMA.

Some interviewees from both organisations highlighted the need to clarify research needs before seeking collaborators, to ask the 'right questions'. For example, ILWS interviewee Hugh noted "it depends on what type of research questions they're asking to ensure that they are talking to the right person". Therefore, having a clear idea of what question to ask before identifying collaborators would assist in future relations within the collaborations, particularly when establishing shared understandings and goals. However, NECMA interviewee Thomas contended that some research experts could be overconfident or overstated their abilities to work with these goals, such that they "become pretty confident in their omnipotence, were unable to absorb information coming back, and then make things that are really quite simple seem overly complicated, and everyone just switched off". This relates to our earlier discussion of egotism in the section on Personal attributes.

Where special technical skills were required, ILWS interviewee Malcolm contended the organisations such as ILWS needed more field technicians to offer monitoring services for local CMAs. Furthermore, a few interviewees recognised that experts came in all guises and had various expertise, including worldly experience. ILWS Geoffrey cited a collaborative project that included a wide variety of experts, including officers from State government agencies with university degrees and academic interests, as well as participants with "on-the-ground expertise" that could be used "to address an academic question", which brought passion and fervour to the project. ILWS interviewee Geoffrey believed this spread of expertise across organisations also made research 'richer' by including consideration of people in NRM, and contributed to finding a practical solution to an immediate NRM problem while they also contributed to academic learnings.

In addition to personally meeting with experts, some interviewees stated the need for an online database, network or 'clearing house' of experts for specific NRM issues, rather than trying to wade through 'ILWS the Monster', as dubbed by ILWS interviewee Hermione, whereby experts could be identified according to problem areas such as aquatic ecology, fish biology or geographic information systems, and their direct contacts provided. Alternatively, ILWS interviewee Michael suggested a co-funded position to bring together similar expertise on specific issues that could be accessed by CMAs and other regional agencies. NECMA interviewee Theresa observed that a few researchers already performed this role informally, but this role could be formally recognised and utilised if funding was specifically directed to an established position by local collaborating organisations.

## Cross-cutting issues

### Communication between collaborators and their organisations

All interviewees viewed ‘good’ communication as vital for collaboration, but there were differences in how this was established and maintained. All agreed that increasing two-way interactions increased collaboration in specific teams, and in professional networks and communities generally. However, sharing knowledge using online infrastructure, using ‘bridges’ or knowledge brokers between organisations, and using more easily understandable language for all collaborators were not widely promoted by interviewees.

Some interviewees, including Thomas from NECMA, extolled the salience of **two-way communication** at the individual and organisational levels in collaboration, particularly during the design and development phases of research projects. Thomas believed that at least one collaborator needed the people skills, someone who could “articulate [the project] to people and absorb information back from people”, particularly in very public, long-term projects. Thomas observed how, in one such massive, State-wide works program produced many failed relationships, as “we completely forgot to make sure that the narrative kept pace with the work program and with community”, regardless of the science, the funding and the contractors that were all readily available. As NECMA interviewee Ngaire noted, “if people don't know about them, they aren't likely to be following them or be in tune with what is in them. That can be a huge hindrance to progress.”

ILWS interviewee Anthony believed communication should be “a constant process, treating participation as a constant process, not just ‘when I want, or when they want’. [It needs to be] dialogue, ongoing dialogue,” based on mutual understanding of the needs and situations of each organisation. This was supported by most interviewees including Freda from ILWS, who noted this process could be as simple as holding a regular informal morning tea that included both organisations, or which ILWS interviewee Chloe contended could be an invitation to the ‘Wednesday seminar series’ at ILWS. While ILWS interviewee Hugh noted the advantages of day-to-day, face-to-face communication between collaborators that were located near each other, NECMA interviewee Magdelene desired semi-regular, formalised conversations between collaborators that could address mutual concerns or opportunities to address “all the problems or questions we’ve got coming up. Where can we work together, and how do we do that?”

NECMA interviewee Naomi recognised the value of face-to-face communication for **developing professional relationships**:

“Face-to-face interaction is actually quite important when you’re busy, and to really get a scope of what are the opportunities and the relationships staff can build.”

ILWS interviewee Hermione described the specific benefit of communication for developing relationships between individual collaborators for future projects, whereby “with me having a series of meetings with staff there, face-to-face, trying to come up, shape up a project, trying to work out over a year, bringing people in, working stuff out, developing stuff up, getting things funded”. Indeed, Hermione preferred working face-to-face rather than through meetings, which ILWS interviewee Hugh believes that “through dialogue then research questions and collaborations can move along”, “brainstorming workshop sessions. What we’re doing now is a crucial part of it, identifying what needs to be done, because quite often, they don’t know what needs to be done”.

**Communication with honesty and clarity** was considered important at the personal and organisational levels. NECMA interviewee Theresa highlighted the need for rapport between collaborators to build relations and engender honest conversations, which Theresa believed further developed relations. ILWS interviewee Isaac highlighted the need for people to be “open about objectives, about where we’re going”. However, ILWS interviewee Liza expressed concern with the apparent ‘snub’ of ILWS through poor communication and its effect on future relations:

“[It’s like], ‘Oh sorry, we knew you were here, but we never bothered to even pick up the phone and ask’. Even knowing we [ILWS] were here, you never bothered to ask. Is this how it’s always going to be?”

Through these actions, Liza contended that these ‘non-actions’ reduced trust between possible future collaborators and their organisations. Indeed, this lack of understanding and respect was also expressed by NECMA interviewee Thomas, who described an example of projects that oscillated between excessive information delivery only, and apparent engagement without intent of subsequent action, while NECMA interviewee Phoebe highlighted the importance of communication in maintaining transparency projects and avoiding conflicts.

Clear communication using the appropriate language for the collaborating team was an important concern for some interviewees from both organisations, particularly NECMA. Interviewee Naomi observed that, “Some people have great ideas and are very conceptual, especially sometimes when we are talking at an academic level. To progress some of the ideas and opportunities there needs to be clear communication between the collaborators about the ideas and opportunities.” Opaque language created opportunities for increasing mistaken understanding and contributing to conflict or ‘silence’ between collaborators, as illustrated in a waterways project by NECMA interviewee Vaughan, and even the loss of possible projects and opportunities due to poor communication skills and use of jargon as noted by NECMA interviewee Ralph. NECMA interviewee Thomas contended this silence could also occur where “people that are undeniably skilled become pretty confident in their omnipotence, not able to absorb information coming back, and then make [simple] things ... seem overly complicated, and everyone just switches off”. Thomas’ comment emphasised the role of personal ego in hindering communication between collaborators. ILWS interviewee Anthony observed that taking time to find a common language was an important part of relationship building in collaborations, in Australia and overseas, particularly when speaking to different audiences that are part of the collaboration.

While clear language can enable the dissemination new ideas, ILWS interviewee Freda contended that organisations should first be “actually open to listen to your views, because they hold a very specific perspective of reality and their ways of doing things”, which links to organisational culture. Freda understood that organisations “normally have the way they do business”, due to responsibilities and past experiences, but “it’s really refreshing and positive when they’re willing to open a little space to hear about your ideas and your ways of working out something”. ILWS interviewee Geoffrey believed complex messages should be ‘translated’ into clearer language to enable different collaborators and organisations to interpret complex communication.

Interviewees also sought to identify communicate with collaborators through **networking opportunities and bridges**. To help build networks, ILWS interviewee Malcolm valued deliberate networking, or attending events such as conferences with a major goal of seeking new projects and collaborators. Closer to home, ILWS interviewee Chloe recognised the importance of location in building networks, stating that “people who are good at establishing collaboration are invested in their location for a long-term outlook, and they’re good at bringing people into their region and building collaborations and identifying different people to strengthen a network.” Many interviewees including Naomi from NECMA believed that a face-to-face meeting, or “networking opportunity” between ILWS and NECMA people, not necessarily just researchers, could help build connections in a regional network, by “putting that face to a name. I know we don’t have time for it, but it does make it a little bit easier to create a connection, at least initially face-to-face.” Here, Naomi alludes to the possible need to prioritise and organisationally support such networking events and to highlight the opportunities they present to staff from both institutions.

Unfortunately, some interviewees described how some ‘collaborators’ can block communication in networks and between organisations. ILWS interviewee Hermione said some ‘negative’ collaborators were appointed to roles “where they should technically be responsible for collaboration. Then they can become a bit of barrier to anyone working with those organisations, because they’re the first person that people are contacting, they’re just too much work, and then it doesn’t happen. You only need one or two in an organisation, and it’s finished”, an issue also recognised by NECMA interviewee Penelope. In addition, a few interviewees recognised the importance of collaborations for access to networks that they would not

usually seek. ILWS interviewee Liza recognised she needed to work with others ILWS staff or other collaborators such as NECMA to access farmers and other landholders, while she had direct access to academic and educational networks through her own professional activities. This highlights the need for ‘bridges’ or ‘brokers’ to link collaborators to networks necessary for a successful collaborative project, NECMA interviewee Thomas also labelled such bridges as the ‘sheepdog’ needed to ‘round up’ appropriate experience and expertise.

Researchers or other staff who informally connect collaborators and organisations in communication networks through their relationships are bridges across networks, people who ILWS interviewee Isaac commended for linking researchers across narrower disciplinary networks, as they are “outward looking, who are enablers, who see things, who tap people on shoulders” and connect people through contacts and information, and “who just get what research is”. Thus, Isaac pointed to the importance of the bridge’s prior knowledge and understandings in forming these connections, which ILWS interviewee Malcolm believed should be both within and outside ILWS, and NECMA interviewee Phoebe contended could be formalised in a memorandum of understanding or similar inter-organisational agreement.

ILWS interviewee Geoffrey extolled the role of the ‘knowledge broker’, who didn’t complete the research, but was formally appointed to “facilitated the academics to communicate in a way that other people could understand”. He said that “choosing those people was absolutely crucial, and getting the [knowledge broker] made a huge difference to the project”, particularly when collaborating with large complex organisations. More specifically, ILWS interviewee Hermione believed such a broker would aid prospective collaborating in ‘navigating’ ILWS to identify and connect appropriate researchers or groups for a project.

Such formality could be extended to the **funding of communication activities**, which concerned some interviewees. ILWS interviewee Geoffrey believed communication should be funded as part of research projects, using all communication channels, not just written publications or websites, which was supported by a number of ILWS interviewees. However, this was not a general view the interviewees. ILWS interviewees including Geoffrey and Hugh identified the roles of ‘champions’ within organisations to help procure resources, both funding and in-kind, for collaborations, which ILWS interviewee Malcolm considered could also require championing by external influencers such as politicians and their parties.

## Trust

Most interviewees believed trust played an important role in collaborations. ILWS interviewee Isaac stated that “if there’s no trust there, then nothing can proceed”, at both individual and organisational levels. Isaac alluded to the time required to establish trust, the difficulty and the power gained when attaining it:

“Trust is a tricky thing, but once that’s there, then all sorts of things can happen.”

ILWS interviewee Chloe contended that **mutual trust and respect** were necessary precursors for successful collaborations to commence. ILWS interviewee Anthony believed in a broader sense of “faith in the people”, in the societal values that a collaborator might represent, and Chloe contended that external contingencies such as changing access to funds due to changing political priorities also influenced trust within collaborations, as circumstances could change without any influence from the collaborators. However, A few interviewees including Liza from ILWS did not believe trust was important for collaborations, as long as “the science was fine”, which provided a more utilitarian view of trust and collaborations.

ILWS interviewee Isla believed that collaborations should provide “a safe, secure environment [in which] you trust there is confidentiality, you trust it’s not going to go back to the big bosses, you trust that what you say is respected”. NECMA interviewee Naomi believed that trust could be disentangled into personal traits such as reliability and authenticity, while NECMA interviewee Michael believed openness, sincerity and understanding in a relationship, as well as personal integrity, also helped build trust, particularly over time. Furthermore, Michael suggested that developing trust and friendship could be synonymous,

however other interviewees disagreed. Indeed, interviewee Vaughan recognised the value of honesty in developing trust, particularly where “someone is not afraid to have ‘hard’ conversations” and “they will bring things up when things aren’t working”. This forthright situation may not engender friendship, but trust and respect can follow honesty in a relationship.

Some interviewees from both organisations expanded on the role of **trust within and between organisations**. ILWS interviewee Hermione contended that organisations should also have mutual trust, otherwise “contracts don’t happen, and letters of support get dropped off [project] bids”, and collaborations don’t occur. Prior trust was an important precursor for establishing a collaboration, which was based on prior relations, as well as past experiences and history, which is further discussed in the next section. In addition, ILWS interviewee Isaac also noted the role of trust within organisations in developing collaborations, which he believed should, “trust in its people and give them the latitude to make their own personal judgements”. This trust is related to organisational culture, which was explained earlier in this chapter.

### Past experiences and history

Experiences in past activities (especially research and education) and with various groups (particularly government agencies, landholders and local communities) were related by all interviewees, particularly from NECMA. They explained how history between individuals and organisations played major roles in establishing and halting new collaborations, as well as the effects of stories from ‘third party’ individuals and organisations in collaborations. NECMA interviewee Michael highlighted the potential for collaboration with the “incredible cluster of intellect in the region around waterway management” of which he was well aware, but which he and a few other NECMA interviewees felt was under-utilised. NECMA interviewee Ngaire believed this could be due to ignorance of past research completed by research organisations such as ILWS.

NECMA interviewee Theresa noted the importance of **past collaboration history** between organisations to establish new projects. Theresa recounted how some organisations were invited to new collaborations due to their past positive performances in collaborations:

“We give them contracts all the time and they know that they need to be there. We don’t have that with you guys, we don’t have that relationship so you’re not engaged at that early point. Whereas if you were engaged at that early point, you could actually contribute to the design and have a place at the table.”

Theresa also noted that other possible collaborators were declined entry into negotiations due to knowledge of past positive interactions and ignorance of alternative collaborators rather than active exclusion from discussions. As NECMA interviewee Theresa observed, by going to a known collaborator:

“I know what the rules of play are, I know how to get them into contract, I know about what it is going to cost me. I can do that planning before having the conversation.”

ILWS interviewee Geoffrey reflected on the importance of past contacts and relations with individuals in establishing NRM collaborations, particularly when these individuals moved to other organisations. Geoffrey recounted an example where:

“The academics and key [NRM agency] staff ... were asking a new [research] question. They came to the project understanding that they were contributing to the academic world. That has worked previously as well in another project.”

Geoffrey noted how both groups desired academic recognition for the research to be undertaken and that this approach had already been used to enable collaboration. Similarly, NECMA interviewee Naomi reflected on her own interactions with ILWS researchers but how such relations needed to be maintained for collaborations to continue.

NECMA interviewee Penelope was also cognisant of **poor past experiences or relations** in considering future collaborations.

“Either there’s been a poor collaboration in the past, or people that don’t get along with the other organisation which means they don’t want to collaborate with them. ‘They’re no good’, or ‘They’ve done this in the past’. Whether that’s valid or not, it’s still there.”

Penelope recognised that the poor perception may not be valid, but that this could still influence a decision to collaborate. ILWS interviewee Geoffrey noted how academic ‘fascination’ or differing research goals among collaborators could also detract from research outcomes and the collaborative process if the understandings and goals of all collaborators were not aligned throughout the project, and how this situation influenced future collaborations. This was supported by NECMA interviewee Theresa, who recounted how university research projects at times did not align with the needs for informing NRM, and how this perception was dispersed through the NRM sector in Victoria. Specifically, NECMA interviewee Ngaire believed more systematic sharing of past research results may also improve local collaborations, as well as more robust acknowledgement of past assistance by NRM organisations such as NECMA.

ILWS interviewee Chloe also acknowledged the positive learnings from past poor experiences collaborating with a government agency in Indigenous NRM. She observed that “it let me into this insight into this, particularly within the Indigenous space, of tussling over resources, and these are non-Indigenous people trying to get part of the indigenous [funding] pie”. Such disingenuous actions have cautioned Chloe regards future collaborations in this NRM space. ILWS interviewee Liza is similarly cautious regarding conservation research due to past issues regarding funding, timing and research design.

‘Negative’ issues played out in the public eye can have major influences on collaborations, as noted by some interviewees during the disastrous fish deaths around Menindee in far western NSW in 2019. NECMA interviewee Penelope noted that when public outrage focused on one organisation, other possible collaborators might be discouraged to collaborate with it “because they might be seen as co-conspirators. They distance themselves when they don’t want to be caught up in the ‘bad press.’” Thus, public perceptions and opinions might also influence current and future collaborations. However, Penelope observed that collaborators could be “forced together in collaborations because there is some bigger issue, like the fish kill in the Darling” and that it actually “encouraged collaboration” as various agencies sought to, and currently seek to, address this contentious NRM issue.

A number of interviewees, particularly from NECMA, acknowledged the importance of **educational opportunities and relationships** established through research projects completed by student researchers completing Honours or PHD degrees. NECMA interviewee Stephen noted the importance of such collaborative projects for developing ongoing relations with NRM organisations such as NECMA. ILWS interviewee Freda supported this contention, noting that “stronger collaboration between universities and NRM organisations would be reflected in terms of the quality of teaching [at CSU] and how we prepare our graduates to work in the industry”. Freda believed that “it is so important that you provide students with real life examples of what they could be doing in the future, and also for them to see that what we are teaching them here is aligned with what the industry is expecting from us to teach them”. Therefore, the mutual benefits for undergraduate and postgraduate students working in NRM agencies also created and maintained important long-term relationships between universities and NRM agencies who employed these graduates.

ILWS interviewee Hermione recognised, however, that student placements in NRM agencies had increased in expense and complexity:

“People don’t understand what things cost, it’s just ridiculously expensive, even if it seems like a pretty minor thing, it might be twenty or thirty thousand dollars. We can’t just produce a student to go on a huge project to do all of this stuff. When we put students on projects, we have to give them some autonomy, and they have to be supported. Now you can’t put a student out on the road, so that’s a problem.”

The increased complexity included the increased regulations to be enforced in student placements as well as responsibilities placed on supervisors. While many NECMA interviewees were keen to revive an internship program for placing university undergraduates or postgraduates within NECMA, these added complexities were yet to be addressed by both organisations.

Finally, interviewees from both organisations were effusive of the outcomes of successful collaborations. ILWS interviewee Hugh “gets immense satisfaction when landholders approach me and tell me what they’ve done. Ten years ago, they [would have] just rammed it through! It’s little things, not major things.” NECMA interviewee Penelope was also confident of the collaborative opportunities available with agencies such as NECMA:

“We’re about to go into developing proposals for the next five-year funding bid that starts in 2020. And that’s where NECMA technically should be talking with organisations and stakeholders and that sort of thing and work out what our priorities are and what everyone else wants to do.”

## Chapter 4: Conclusions and recommendations

### Conclusions

While both ILWS and NECMA have a broad common interest in NRM in northeast Victoria, each organisation operates independently in a competitive, contested space that addresses a commonly held suite of complex socio-ecological interests and issues in regional NRM. From analysis of the interviewees' transcripts, it was found that the following were considered to be commonly agreed barriers, and possible sources of conflict, to successful collaboration:

#### Lack of commonality

- differing jurisdictional and institutional boundaries and constraints;
- differing internal organisational cultures and drivers;
- lack of common and shared goals for NRM research projects;
- lack of mutual understanding, particularly of respective funding cycles, current operational requirements and time constraints;
- negative past experiences and relationships.

#### Communication

- poor communication and lack of links between organisations;
- inflexible collaborators with poor understanding of organisational contexts;
- poor tacit knowledge of available expertise and relationships in both organisations;
- poor regard for past experiences and historic context of projects and organisations;
- absence of long-term, established working relationships.

#### Competition

- competition for limited and often declining funding and resources between prospective collaborators;
- tensions between different groups and agencies in collaborations;
- internal tension and competition in organisations.

#### External drivers and pressures

- resourcing and timing implications of policy and political pressures from policy makers, particularly Ministers and State and federal funding agencies;
- lack of sufficient time for relationships and trust to develop between staff and organisations.

#### Personal traits

- egos and personal self-interest of possible collaborators;
- poor leadership that limits opportunities for collaboration;
- poor respect for collaboration partners.

The above themes and detailed barriers and hindrances identified by interviewees are broadly consistent with the authors' adaptation of the Unifying Negotiation Framework, based on Bond's (2014), with data translating readily into the proposed framework.

## Recommendations

These barriers to collaboration can be addressed through a range of measures including:

- The identification, development of, and agreement to common goals and objectives for NRM and NRM research in North East Victoria;
- The development of an operational memorandum of understanding (MoU) to reflect the above, outlining the context of the proposed relationship, working relations, and processes for initiating discussions and developing proposals between staff;
- The joint and collaborative development of an overarching NRM research strategy for North East Victoria, including priorities for research and identification of available resources and expertise;
- Development of a shared and ongoing understanding and acknowledgement of the respective organisational policy and funding contexts;
- Commitment by both organisations to allow sufficient time to develop and maintain relationships and networks through improved communication and joint activities;
- High level leadership and commitment by both organisations to develop a collaborative organisational culture at all levels.

## Actions arising from recommendations

1. Present key findings and highlight opportunities to senior managers to facilitate discussions of areas of mutual interest and identification of opportunities for future collaboration.
2. Face to face presentation of a short summary of the findings of the project to all staff meetings in both organisations.
3. Organise a face-to-face ‘speed dating’ opportunity involving senior organisational managers and administrative staff of ILWS/CSU and NECMA to quickly develop shared understanding of each organisation and the context within each operates, and to establish mutual contacts at a range of levels across both organisations.
4. ‘Speed dating’ participants can then identify existing and potential barriers to collaboration and identify how collaboration could work at a personal and organisational level, including on issues such as (but not exclusively), funding cycles, research limitations, informal arrangements for research and education, student ‘internships’, and future networking opportunities. These outcomes of these considerations can be incorporated in an MoU between the organisations.

## Study limitations

While some data also directly referred to other regional, State and federal organisations, this case study applies specifically to collaboration between ILWS and NECMA. Findings from this study will need to be adapted to the contexts of other NRM agencies and research institutes in Australia, however concurrence with past literature and verification within the UNF indicates that this study provides robust research questions, findings and conclusions suitable for investigations of similar collaborations between such organisations across regional Australia.

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# Appendices

## Appendix 1: Themes and categories derived from literature review of peer-reviewed papers

| Theme                           | Category  | Citations <sup>2</sup>   |
|---------------------------------|---|--|
| Relations between collaborators | Trust built on relationships between collaborators  | Ayre et al. (2018); Benham, Beavis, and Hussey (2015 (I)); Cooke, Langford, Gordon, and Bekessy (2012); Curtis et al. (2014); Gianatti and Carmody (2007 (F)); Green and Dzidic (2014 (F)); Hart and Bubb (2016); Head et al. (2016); Mackay, Allan, Colliver, and Howard (2014); Millar and Curtis (1999 (F)); Mitchell et al. (2017); Pfeiffer et al. (2017 (F)); Vella, Sipe, Dale, and Taylor (2015); Wallington and Lawrence (2008 (F)); Wyborn (2015) <sup>3</sup> |
|                                 | Trust in the information and knowledge provided   | Allan and Curtis (2005 (F)); Conallin, Dickens, Hearne, and Allan (2017); Cooke et al. (2012); Ens et al. (2016 (I)); Gianatti and Carmody (2007 (F)); Hart and Bubb (2016); Head et al. (2016); Howard (2018); Millar and Curtis (1999 (F)); Pannell et al. (2006 (F)); Vella et al. (2015)   |
|                                 | Competitive funding arrangements (inhibitor)  | Allan and Curtis (2005 (F)); Carter (2008 (I)); Green and Dzidic (2014 (F)); Lockwood, Davidson, Curtis, Stratford, and Griffith (2009); Robins (2009, p. (I)); Vella et al. (2015)  |
|                                 | Background knowledge / empathy of collaborators   | Conallin et al. (2017); Green and Dzidic (2014 (F)); Lockwood et al. (2009); Mitchell et al. (2017)  |
|                                 | Respectful relations  | Durant and Knight (2019); Green and Dzidic (2014 (F)); Hart and Bubb (2016); Lockwood et al. (2009); Mitchell et al. (2017); Pannell et al. (2006 (F)); Wyborn (2015)  |
|                                 | Able to accept various views, expectations, motivations within collaboration to develop shared understandings | Cooke et al. (2012); Curtis et al. (2014); Durant and Knight (2019); Harrington, Curtis, and Black (2008); Hart and Bubb (2016); Howard (2018); Mackay et al. (2014); Margerum (2007); Millar and Curtis (1999 (F)); Mitchell et al. (2017); Wyborn (2011)   |
|                                 | Access to financial assistance  | Curtis and DeLacy (1995); Durant and Knight (2019); Hart and Bubb (2016); Mitchell et al. (2017); Wyborn (2015)  |
|                                 | Time to form relations and build shared understanding   | Carter (2008 (I)); Cooke et al. (2012); Curtis et al. (2014); Durant and Knight (2019); Gianatti and Carmody (2007 (F)); Green and Dzidic (2014 (F)); Head et al. (2016); Mackay et al. (2014); Mitchell et al. (2017); Robins (2009); Vella et al. (2015); Weiss et al. (2013 (I)); Wyborn (2015)   |
|                                 | Develop social networks with complex relations and partnerships   | Carter (2008 (I)); Cooke et al. (2012); Curtis et al. (2014); Gianatti and Carmody (2007 (F)); Greiner and Gregg (2011); Harrington et al. (2008); Mackay et al. (2014); Pannell et al. (2006 (F)); Pfeiffer et al. (2017 (F)); Robins (2009); Robins and Kanowski (2011); Sobels, Curtis, and Lockie (2001); Weiss et al. (2013 (I)); Wyborn (2015)   |

<sup>2</sup> Full citations for these references are located in the References section.

<sup>3</sup> Research that addressed relations between special groups are noted as (F) for farmer - agency relations, and (I) for Indigenous landholder - agency relations.

| Theme               | Category  | Citations   |
|---------------------|---|---|
| Personal attributes | Friendliness, introversion / extroversion   | Gianatti and Carmody (2007 (F)); Pannell et al. (2006 (F))  |
|                     | Active listening  | Lockwood et al. (2009)  |
|                     | Understand importance of language   | Carter (2008 (I)); Curtis et al. (2014); Durant and Knight (2019); Ens et al. (2016 (I)); Millar and Curtis (1999 (F)); Pfeiffer et al. (2017 (F))  |
|                     | Leadership  | Curtis and DeLacy (1995); Curtis et al. (2014); Mitchell et al. (2017); Pfeiffer et al. (2017 (F))  |
|                     | Personal/past experience  | Green and Dzidic (2014); Head et al. (2016); Pannell et al. (2006 (F)); Weiss et al. (2013 (I))   |
|                     | Demographics  | Pfeiffer et al. (2017 (F))  |
|                     | Conflict resolution skills  | Curtis et al. (2014)  |
|                     | Ability to seek information   | Allan and Curtis (2005 (F)); Carter (2008 (I)); Durant and Knight (2019); Pannell et al. (2006 (F)); Weiss et al. (2013 (I))  |
|                     | Capacity and education  | Allan and Curtis (2005 (F)); Carter (2008 (I)); Ens et al. (2016 (I)); Green and Dzidic (2014 (F)); Hart and Bubb (2016); Howard (2018); Mackay et al. (2014); Pfeiffer et al. (2017); Robins (2009 (F)); Wyborn (2015) |
|                     | Cultural/social empathy   | Carter (2008 (I)); Cooke et al. (2012); Green and Dzidic (2014 (F)); Robins (2009 (I)); Weiss et al. (2013 (I)); (I)  |
|                     | Willingness to collaborate  | Carter (2008 (I)); Curtis et al. (2014); Ens et al. (2016 (I)); Gianatti and Carmody (2007 (F)); Head et al. (2016); Lockwood et al. (2009); Robins (2009); Weiss et al. (2013); Wyborn (2011)                          |
|                     | Intrinsic motivation / stewardship  | Cooke et al. (2012); Greiner and Gregg (2011 (F)); Lawrence, Richards, and Cheshire (2004 (F)); Wallington and Lawrence (2008 (F))  |
|                     | Adaptability / flexibility  | Carter (2008 (I)); Gianatti and Carmody (2007 (F)); Lockwood et al. (2009); Mitchell et al. (2017)  |
|                     | Honesty   | Lockwood et al. (2009)  |
|                     | Experience in collaboration   | Mackay et al. (2014); Robins (2009)   |
| Experience in NRM   | Durant and Knight (2019); Ens et al. (2016 (I)); Paton, Curtis, McDonald, and Woods (2004); |   |

| Theme                     | Category   | Citations  |
|---------------------------|--|--|
| Organisational attributes | Transparent access to information and literature   | Allan and Curtis (2005 (F)); Carter (2008 (I)); Durant and Knight (2019); Hart and Bubb (2016); Howard (2018); Lockwood et al. (2009);   |
|                           | Led by personalities   | Head et al. (2016); Margerum (2007)  |
|                           | Well-developed communication within and between institutions   | Cooke et al. (2012); Curtis and DeLacy (1995); Gianatti and Carmody (2007 (F)); Lockwood et al. (2009); Millar and Curtis (1999 (F)); Weiss et al. (2013 (I)); Wyborn (2011 (I); 2015) |
|                           | Trust in organisational capability (finance, human resources, planning, governance)                        | Allan and Curtis (2005); Curtis et al. (2014 (F)); Lockwood et al. (2009); Robins (2009)   |
|                           | Physical proximity to agency/land  | Ens et al. (2016 (I)); Harrington et al. (2008 (F)); Mitchell et al. (2017); Pannell et al. (2006 (F)); Pfeiffer et al. (2017 (F));  |
|                           | Instability / uncertainty in human and financial resources in regional organisations, including monitoring | Curtis et al. (2014); Durant and Knight (2019); Head et al. (2016); Pfeiffer et al. (2017 (F)); Robins and Kanowski (2011); Wyborn (2015);   |
|                           | Value of knowledge broker / bridge / "translator"  | Durant and Knight (2019); Mitchell et al. (2017)   |
|                           | Differences in language and organisational culture   | Mitchell et al. (2017)   |

## PARTICIPANT INFORMATION SHEET

### **Investigating opportunities and barriers for collaboration between research and implementing institutions in regional areas**

You are invited to participate in a research study on the collaboration to establish joint projects between the Institute of Land, Water and Society (ILWS) and North East Catchment Management Authority (NECMA). The study is being conducted by Dr Wesley Ward and Mr Michael Vanderzee from ILWS at Charles Sturt University (CSU).

Before you decide if you wish to participate in this study, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully and discuss it with others if you wish.

#### **1. What is the purpose of this study?**

ILWS and NECMA are exploring how they can improve and increase collaboration between the institutions and their staff, particularly through the planning and implementation of joint research projects into local and regional issues in natural resource management. In this process, ILWS has recognised an opportunity to investigate this as a case study regarding the opportunities and barriers presented by collaboration between research and implementing institutions in regional areas. These opportunities and barriers will be the basis for recommendations to be developed regarding collaboration generally between research and other partners in regional areas.

#### **2. Why have I been invited to participate in this study?**

We are seeking professional staff employed full-time or part-time by ILWS and NECMA to participate in this research.

#### **3. What does this study involve?**

If you agree to participate, you will be:

- observed during joint meetings of ILWS and NECMA staff to be convened to discuss further collaboration between the organisations: Venue: \_\_\_\_ Date: \_\_/\_\_/2019 Time: \_\_ am/pm

While participating in the meetings, the researchers will observe the interactions, behaviours and attitudes between NECMA and ILWS staff that enable and hinder collaboration between the institutions, which will be collected in an audio recording of the meeting. Meeting participants will be required to sign the attached 'Participant Consent form' to participate in the research – those who do not wish to participate will have all recorded meeting input deleted from the meeting transcript and research reports. Furthermore, if participants require confidential discussions the researcher will remove themselves and audio recording devices from the meeting.

- invited to be interviewed for one-hour, face-to-face and confidentially by one member of the research team: Venue: \_\_\_\_ Date: \_\_/\_\_/2019 Time: \_\_ am/pm

The interview will include questions that identify:

- conditions, at the interpersonal and institutional levels, that you consider can or do nurture effective collaborative relations and joint projects between ILWS and NECMA staff;
- interpersonal and institutional barriers that you consider can or do hinder collaboration between these staff; and,
- possible measures that could address these opportunities and barriers for collaboration.

The interviewee will also be asked to provide data in length and level of employment and past experience in project collaboration.

#### **4. Are there risks and benefits to me in taking part in this study?**

During the meeting, it is anticipated you will benefit from discussions regarding possible joint projects to address NRM opportunities and issues in North East Victoria. While there is little risk of restricted personal information or attributable opinions being shared without your prior consent, all data will be stored and reported in an anonymous format to maintain your anonymity. If you participate in the meeting and you do not wish to participate in the research, your input into the meeting will be deleted from the meeting transcript before it is distributed to other meeting participants for verification.

During the one-hour interview, we anticipate that you will benefit from having time to reflect on your personal capabilities for nurturing and barriers to participating in collaborative projects, as well as those of their institution. In addition, you can suggest methods and tools for addressing opportunities and barriers at a time when relations between ILWS and NECMA are still in their infancy. There is little risk of restricted personal information or attributable opinions being shared without your prior consent, and all data will be stored and reported in an anonymous format to maintain your anonymity.

#### **5. How is this study being paid for?**

The study has been funded by the Institute for Land, Water and Society, Charles Sturt University.

#### **6. Will taking part in this study (or travelling to) cost me anything and will I be paid?**

It will require one hour of your time for the interview, and up to three hours for the meeting.

#### **7. What if I don't want to take part in this study?**

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate is your decision and will not impact on your relationship with North East CMA or Charles Sturt University. If you do decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing data, including interview recordings and written transcripts prior to data analysis. Nothing that identifies you will be kept in the data set if you choose to withdraw.

#### **8. What if I participate and want to withdraw later?**

You may withdraw from the study at any time until data analysis. However, if a journal article has been published with data from your interview or meeting input and attributed to you under a pseudonym, it cannot be withdrawn from the publication.

## **9. How will my confidentiality be protected?**

The research data will be stored on the Charles Sturt University network drive and will only be accessed by the research team, except as required by law. They will be stored for 5 years after the last publication resulting from the data has been published. They may be used for subsequent research projects which stem from this study.

## **10. What will happen to the information that I give you?**

Firstly, the information from this study will be used by you and others in NECMA and CSU to build collaboration between the organisations. These are your ideas, and you can use them as a springboard to action. The data will also be reported in a briefing note and meeting for ILWS and other CSU research institutes; and in articles for academic journals and conferences. Interviewees will not be identified in any communication products arising from the project, unless explicit permission is given. The briefing note and academic articles will be shared with participants in further meetings.

## **11. What should I do if I want to discuss this study further before I decide?**

If you would like further information, contact Dr Wesley Ward on (02) 6051 9343 or [wward@csu.edu.au](mailto:wward@csu.edu.au)

## **12. Who should I contact if I have concerns about the conduct of this study?**

Charles Sturt University's Human Research Ethics Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through:

The Executive Officer

Human Research Ethics Committee

Tel: (02) 6338 4628

Email: [ethics@csu.edu.au](mailto:ethics@csu.edu.au)

Any issues that you raise will be treated in confidence and investigated fully. You will be informed of the outcome.

**Thank you for considering this invitation.**

**This information sheet is for you to keep.**

## PARTICIPANT INFORMATION SHEET

### **Investigating opportunities and barriers for collaboration between research and implementing institutions in regional areas**

You are invited to participate in a research study on the collaboration to establish joint projects between the Institute of Land, Water and Society (ILWS) and North East Catchment Management Authority (NECMA). The study is being conducted by Dr Wesley Ward and Mr Michael Vanderzee from ILWS at Charles Sturt University (CSU).

Before you decide if you wish to participate in this study, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully and discuss it with others if you wish.

#### **1. What is the purpose of this study?**

ILWS and NECMA are exploring how they can improve and increase collaboration between the institutions and their staff, particularly through the planning and implementation of joint research projects into local and regional issues in natural resource management. In this process, ILWS has recognised an opportunity to investigate this as a case study regarding the opportunities and barriers presented by collaboration between research and implementing institutions in regional areas. These opportunities and barriers will be the basis for recommendations to be developed regarding collaboration generally between research and other partners in regional areas.

#### **2. Why have I been invited to participate in this study?**

We are seeking professional staff employed full-time or part-time by ILWS and NECMA to participate in this research.

#### **3. What does this study involve?**

If you agree to participate, you will be invited to be interviewed for one-hour, face-to-face and confidentially by Dr Ward at CSU on \_\_\_/2/2019 at \_ am/pm.

The interview will include questions that identify:

- conditions, at the interpersonal and institutional levels, that you consider can or do nurture effective collaborative relations and joint projects between ILWS and NECMA staff;
- interpersonal and institutional barriers that you consider can or do hinder collaboration between these staff; and,
- possible measures that could address these opportunities and barriers for collaboration.

The interviewee will also be asked to provide data in length and level of employment and past experience in project collaboration.

#### **4. Are there risks and benefits to me in taking part in this study?**

During the interview, we anticipate that you will benefit from having time to reflect on your personal capabilities for nurturing and barriers to participating in collaborative projects, as well as those of their institution. In addition, you can suggest methods and tools for addressing opportunities and

barriers at a time when relations between ILWS and NECMA are still in their infancy. There is little risk of restricted personal information or attributable opinions being shared without your prior consent, and all data will be stored and reported in an anonymous format to maintain your anonymity. **5. How is this study being paid for?**

The study has been funded by the Institute for Land, Water and Society, Charles Sturt University.

**6. Will taking part in this study (or travelling to) cost me anything and will I be paid?**

It will require one hour of your time for the interview.

**7. What if I don't want to take part in this study?**

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate is your decision and will not impact on your relationship with North East CMA or Charles Sturt University. If you do decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing data, including interview recordings and written transcripts prior to data analysis. Nothing that identifies you will be kept in the data set if you choose to withdraw.

**8. What if I participate and want to withdraw later?**

You may withdraw from the study at any time until data analysis. However, if a journal article has been published with data from your interview or meeting input and attributed to you under a pseudonym, it cannot be withdrawn from the publication.

**9. How will my confidentiality be protected?**

The research data will be stored on the Charles Sturt University network drive and will only be accessed by the research team, except as required by law. They will be stored for 5 years after the last publication resulting from the data has been published. They may be used for subsequent research projects which stem from this study.

**10. What will happen to the information that I give you?**

Firstly, the information from this study will be used by you and others in NECMA and CSU to build collaboration between the organisations. These are your ideas, and you can use them as a springboard to action. The data will also be reported in a briefing note and meeting for ILWS and other CSU research institutes; and in articles for academic journals and conferences. Interviewees will not be identified in any communication products arising from the project, unless explicit permission is given. The briefing note and academic articles will be shared with participants in further meetings.

**11. What should I do if I want to discuss this study further before I decide?**

If you would like further information, contact Dr Wesley Ward on (02) 6051 9343 or email [wward@csu.edu.au](mailto:wward@csu.edu.au)

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The Executive Officer, Human Research Ethics Committee

Tel: (02) 6338 4628, Email: [ethics@csu.edu.au](mailto:ethics@csu.edu.au)

Any issues that you raise will be treated in confidence and investigated fully. You will be informed of the outcome.

**Thank you for considering this invitation.**

**This information sheet is for you to keep.**

## PARTICIPANT CONSENT FORM

### **Investigating opportunities and barriers for collaboration between research and implementing institutions in regional areas**

#### **Researchers:**

Dr Wes Ward, Researcher, Institute for Land, Water and Society at Charles Sturt University

Mr Michael Vanderzee, PhD student, School of Environmental Sciences at Charles Sturt University

I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Participant Information Form, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing.

#### **I consent to participating in a one-hour face-to-face interview Yes / No (circle yes or no)**

I understand that my personal information will remain confidential to the researchers, unless I consent to having my contact information (professional affiliation, email address and phone number) shared with other research participants. I understand that I will be consulted about my preference for anonymity or acknowledge in regard to reports or other material published from this research.

I have had the opportunity to have questions answered to my satisfaction.

Print name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Charles Sturt University's Human Research Ethics Committee has approved this project.

If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Officer:

The Executive Officer  
Human Research Ethics Committee  
Tel: (02) 6338 4628  
Email: [ethics@csu.edu.au](mailto:ethics@csu.edu.au)

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.

## **Question Schedule (NECMA)**

### **Introduction**

Good morning/afternoon, my name is Wes Ward and I am a researcher with the Institute for Land, Water and Society at Charles Sturt University.

I would like to ask you some questions regarding collaboration between organisations that work on opportunities and issues regarding natural resource management in our region. These questions should take [up to one hour].

This interview is part of a project to investigate how collaborations work between a research institution such as ILWS and an on-ground organisation such as NECMA. In this interview you will reflect on what helps and what hinders collaborations between our organisations. The transcript of the interview will be analysed with others from ILWS and NECMA to indicate better ways for supporting collaboration between ILWS and NECMA. It could also help you in your collaborations with other NRM organisations, local, State-wide and national.

These questions and the research project have been approved by Charles Sturt University's Human Research Ethics Committee. [Before we start, have you received a copy of the Project information sheet, and have you signed the consent form?] Again I assure you, our conversation will remain confidential and any reference to what you say in our reports and papers will be under a pseudonym that won't identify you.

### **Questions**

Firstly, how long have been a part of NECMA?

How long have you worked in a natural resource management organisation of some sort?

Have you collaborated with other NRM organisations as part of your work? [What have you collaborated on? How long?]

For statistical purposes: can I ask you how old you are? [gender]? How many years is it since you completed your NRM or related degree?

Tell me about your position, what responsibilities do you have?

[Prompts: Do you deal with funding, manage projects, engage in legal contracts, negotiate with government departments, engage with local communities or groups?

Now, what do you think would makes a good collaboration? What makes a good collaboration for creating opportunities and addressing issues on NRM in the North East [region]?

Without mentioning names, what do you think are personal qualities of a good collaborator?

What do you think are personal qualities of collaborator that might hinder a working relationship?

What do you think are the qualities of an NRM organisation that encourages collaboration? [Have you an example?]

What qualities of such an organisation can hinder such collaboration? [Have you an example?]

What factors over which NECMA has no control can encourage or hinder collaboration with NECMA?

What would motivate you to take part in a collaboration?

What do you think could be done to improve collaboration between ILWS and NECMA?

Are there any methods or systems or tools that you think might help?

[Given what we have discussed, can you name three professionals in NECMA you think I should now go to ask these questions?]

I will send you a transcript of this interview for you to verify in the next few weeks.

## Question Schedule (ILWS)

### Introduction

Good morning/afternoon, my name is Wes Ward and I am a researcher with ILWS.

I would like to ask you some questions regarding collaboration between organisations that work on opportunities and issues regarding natural resource management in our region. These questions should take [up to one hour].

This interview is part of a project to investigate how collaborations work between a research institution such as ILWS and an on-ground organisation such as NECMA. In this interview you will reflect on what helps and what hinders collaborations between our organisations. The transcript of the interview will be analysed with others from ILWS and NECMA to indicate better ways for supporting collaboration between ILWS and NECMA. It could also help you in your collaborations with other NRM organisations, local, State-wide and national.

These questions and the research project have been approved by Charles Sturt University's Human Research Ethics Committee. [Before we start, have you received a copy of the Project information sheet, and have you signed the consent form?] Again I assure you, our conversation will remain confidential and any reference to what you say in our reports and papers will be under a pseudonym that won't identify you.

### Questions

Firstly, how long have been a part of ILWS?

How long have you worked in a natural resource management organisation of some sort?

Have you collaborated with other NRM organisations as part of your work? [What have you collaborated on? How long?]

For statistical purposes: can I ask you how old you are? [gender]? How many years is it since you completed your NRM or related degree?

Tell me about your position, what responsibilities do you have?

[Prompts: Do you deal with funding, manage projects, engage in legal contracts, negotiate with government departments, engage with local communities or groups?]

Now, what do you think would makes a good collaboration? What makes a good collaboration for creating opportunities and addressing issues on NRM in the North East [region]?

Without mentioning names, what do you think are personal qualities of a good collaborator?

What do you think are personal qualities of collaborator that might hinder a working relationship?

What do you think are the qualities of an NRM organisation that encourages collaboration? [Have you an example?]

What qualities of such an organisation can hinder such collaboration? [Have you an example?]

What factors over which ILWS has no control can encourage or hinder collaboration with ILWS?

What would motivate you to take part in a collaboration?

What do you think could be done to improve collaboration between ILWS and NECMA?

Are there any methods or systems or tools that you think might help?

[Given what we have discussed, can you name three professionals in ILWS you think I should now go to ask these questions?]

I will send you a transcript of this interview for you to verify in the next few weeks.



*research for a sustainable future*

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