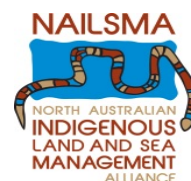


Action co-research project plan: Knowledge brokering for Indigenous land management

Rosemary Hill¹, Melissa George², Ava Kirkby¹, Pethie Lyons¹, Natalie Raisbeck-Brown¹ and
Christy Davies²

¹CSIRO Land and Water

²Northern Australia Indigenous Land and Sea Management Alliance



© CSIRO and NAILSMA 2017



Action co-research project plan: Knowledge brokering for Indigenous land management is licensed by the [organisation] for use under a Creative Commons Attribution 4.0 Australia licence. For licence conditions see: <https://creativecommons.org/licenses/by/4.0/>

This report should be cited as:

Hill, R., M. George, A. Kirkby, P. Lyons, N. Raisbeck-Brown, and C. Davies. 2017. *Action co-research project plan: Knowledge brokering for Indigenous land management* Cairns, Australia: CSIRO Land and Water and NAILSMA.

Cover photos:

Fitzroy River: R. Hill. Girringun Rangers: Girringun Aboriginal Corporation.

This report is available for download from the NESP Northern Australia Environmental Resources Hub website: www.nespnorthern.edu.au

The Northern Australia Environmental Resources Hub is supported through funding from the Australian Government's National Environmental Science Programme. The NESP NAER Hub is hosted by Charles Darwin University.

[ISBN]

[May, 2017]

Printed by Uniprint

Contents

Acronyms	iv
Abbreviations	Error! Bookmark not defined.
Acknowledgements	v
Executive Summary.....	1
1. Introduction	2
1.1 Background to the project and these plans.....	2
1.2 Aim of Research Project.....	4
1.3 Project Steering Group	4
2. Detailed project plan.....	5
2.1 Project logic.....	5
2.2 Project impacts.....	7
2.3 Project outcomes.....	7
2.4 Activity streams	8
2.4.1 Activity stream one: pan-northern knowledge-exchange among Indigenous land managers	8
2.4.2 Workshop June 2017: Knowledge Brokering for Indigenous Land Managers ..	10
2.4.3 Activity stream two: the case studies	12
2.4.4 Activity stream three: communications and research outputs	14
2.5 Project Final Outputs.....	14
2.5.1 'Our Knowledge Our Way': Guidelines on policy and practice for knowledge brokering among Indigenous land managers.....	14
2.5.2 Scientific papers.....	14
2.6 Project foundations.....	18
2.6.1 Research team.....	18
2.6.2 Steering Group and Research User Agreements	19
2.6.3 Project plans	19
2.6.4 Linkages with Indigenous land managers on country	19
2.6.5 Science of Indigenous knowledge brokering and planning	20
2.7 Project schedule.....	20
2.8 Project risk management.....	23
2.9 Linkages with other projects	23
The threats identified can be assessed in accordance with the maps of features of interest, without being explicit about location of features where this information needs to be protected	26
3. Communication Plan	27

3.1	Communication needs.....	27
3.1.1	Pathway to impact.....	27
3.1.2	Situational analysis-external.....	27
3.1.3	Public perceptions.....	27
3.2	Communication Activities	28
3.3	Communication plan scope	29
3.4	Stakeholder analysis	31
		32
3.5	Communication plan risks	36
4.	Monitoring Framework (MDSI).....	37
	References.....	41
	Appendix 1: Steering Group Draft Terms of Reference.....	43
	Appendix Two: Fitzroy River Declaration.....	45
	Appendix Three: Waanyi/Garawa Vision for Country	46
	Appendix Four: Workshop Information for Participants.....	47
	Appendix Six: Generic Research User Agreements	54
	Appendix Seven: Draft Longitudinal Surveys.....	55

List of Tables

Table 1. Steps in workshop preparation	11
Table 2. Scientific publications plan	16
Table 3. Key risks and mitigation strategies, highlighting remaining key risks	25
Table 4. Linkages between the Fitzroy River case study and Project 1.6 on Multi-objective planning in the Fitzroy catchment	26
Table 5. Knowledge Brokering for Indigenous Land Management Phase Broad Communication Milestones	30
Table 6. Stakeholder communications with 'consult' group	33
Table 7. Stakeholder communications with 'involve' group	34
Table 8. Stakeholder communication with 'empower' group	35
Table 9. Communication plan risks and mitigation strategies	36
Table 10. Project impacts and relevant evaluations	38
Table 11. Monitoring of project progress towards 10-15 year outcomes.....	38
Table 12. Diagnostic approach for the 3-year outcome	39
Table 13. Milestone reporting schedule.....	40

List of figures

Figure 1. Indigenous land across northern Australia	3
Figure 2. Case study locations in northern Australia	3
Figure 3. CSIRO Impact Framework.....	5
Figure 4. Project plan logic	6
Figure 5. Case study methods (based on Yin 2009)	10
Figure 6. Traditional Owner groups and PBCs (Prescribed Body Corporates) of the Fitzroy River	13
Figure 7. How knowledge brokering tools underpin the adaptive management cycle.....	29
Figure 8. IAP2 spectrum of participation	31
Figure 9. Stakeholder influence-interest matrix.....	32
Figure 10. Generic MERI Framework from Stockwell et al. 2016	37

Acronyms

CSIRO	Commonwealth Scientific and Industrial research Organisation
DOE	Department of the Environment
GBR	Great Barrier Reef
ILM	Indigenous Land Management
ILMs	Indigenous Land Managers
NAER	Northern Australian Environmental Resources Hub
NAILSMA	Northern Australian Indigenous Land and Sea Management Alliance
NESP	National Environmental Science Programme
RRRC	Reef and Rainforest Research Centre Limited
TOs	Traditional Owners
TWQ	Tropical Water Quality

Acknowledgements

This research was supported by investment from the Northern Australia Environmental Resources Hub of the Australian Government's National Environmental Science Programme. We would also like to acknowledge the invaluable co-investment and support from our co-research partners the Northern Australia Land and Sea Management Alliance (NAILSMA), and CSIRO Land and Water. Collectively as authors of this report, we would like to acknowledge the members of the Steering Group who made invaluable contributions to developing and reviewing the project plan: Will Durack from the Kimberley Land Council; Julie Melbourne from Nyamba Buru Yawuru; Matt Salmon from the Northern Land Council (NLC); Mike Winer from Cape York Partnerships, Liz Davies and Jacqui Doyle from the Department of the Environment (DoE); David Hinchley from The Nature Conservancy.

Equally, we would like to thank the many Traditional Owner groups and organisations involved in shaping this project plan, particularly the Ngurrara, Bunuba, Nyikina Mangala, Gooniyandi, Wilinggin, Jaru, Warwa, Kija and Kurungal peoples from the Kimberley region, and the Waanyi-Garawa people from the Northern Territory. We acknowledge and thank Ms Emma Woodward for editorial input into finalising this report, and the Steering Group members Professor Natalie Stoeckl and Dr Jane Addison for feedback on an earlier draft. Special thanks are due to Anthea Brecknell from the Department of the Environment Science Partnership section for her invaluable contributions to supporting development of a detailed plan to underpin our innovative research.

Co-author contributions: Melissa George of NAILSMA and CSIRO's Rosemary (Ro) Hill have provided overall project co-leadership and development of the detailed project plan through the Steering Group and stakeholder liaison. Ava Kirkby undertook the development of the communications plan sections, including through liaison with the Steering Group over the stakeholder analysis. Pethie Lyons, Natalie Raisbeck-Brown and Christy Davies contributed to the design and development of the project plan. Ro led writing of the final report, with contributions through review by the other co-authors.

Executive Summary

Indigenous peoples have responsibility for management of lands across almost 60% of northern Australia and an enormous stake in ensuring a sustainable future that supports their communities and natural and cultural environments. The NESP NAER Hub aims to bring science and knowledge to assist those responsible for making decisions that will shape this future. Unique characteristics and contexts affect the decision-making of Indigenous land managers (ILMs) and their priorities for research support from the NAER Hub. This project responds to priorities of ILMs, identified through an earlier project, for research that: 1. Uses models that enable Indigenous people to be centrally involved and gain greater benefit from research; 2. Enables both Indigenous knowledge and science to be more accessible and useful to Indigenous decision makers (Hill et al. 2016).

The “Knowledge Brokering for Indigenous Land Management” Project aims to involve Indigenous peoples centrally through an action co-research model that is being co-designed to: (1) design and test culturally tailored knowledge brokering methods to incorporate science, Indigenous and local knowledge into on-ground land management and land-use decision making; (2) support knowledge sharing activities across northern Australia through workshops, and digital networking activities; (3) diagnose the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets; and (4) produce “Our Knowledge, Our Way: Guidelines for Knowledge Brokering with Indigenous Land Managers” to aid wider use and adoption of the lessons and findings from the project.

While action co-research is a well established method in social science, its application brings tensions between the delivery of the “actions” sought, alongside delivery of scientific rigour. This detailed project plan establishes the processes by which this tension is addressed and intended to be resolved. The Project Logic section of the report demonstrates how the inputs (foundation), and activity streams will produce interim and final outputs, leading to the desired outcomes from the project: These outcomes in turn support delivery of two impacts: (a) Indigenous people empowered to look after country our way; and (b) improved environmental conditions and multiple social, cultural and economic benefits from effective Indigenous adaptive management of country. Co-research methods, using participatory case study data collection, analysis and validity approaches, are explained as part of the activity streams, the science of Indigenous knowledge and planning foundation and the scientific publication outputs.

The Communication Plan section is based on an interest/influence analysis that assigns stakeholders to three different sectors related to our communication goals: empower; involve; and consult. Specific key messages and communication tactics are targeted to each of these sectors. The final section of the plan sets out our innovative “Monitoring Diagnosis Sharing and Improvement” framework which enables clarity in how the actions and co-research are linked. We hope that production of this detailed plan will foster further interest in action co-research as an approach that can involve Indigenous peoples centrally while producing rigorous science.

1. Introduction

1.1 Background to the project and these plans

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Northern Australia Indigenous Land and Sea Management Alliance (NAILSMA) have received funding from the Department of Environment and Energy's National Environmental Science Program (NESP) to undertake Project 5.4: "Knowledge Brokering for Indigenous Land Management". This project forms part of the research of the Northern Australia Environmental Resources (NAER) Hub, and is being conducted in response to the high priority knowledge gap identified by NAER Project 5.2: "Research priorities for IPAs across Northern Australia". Project 5.2 identified five priority research questions, of which one was related to knowledge brokering: "how can both science and Indigenous knowledge be made more accessible and useful to Indigenous decision makers? (Hill et al. 2016). This project also responds to another of the five priority questions: "what innovations and adaptations to environmental research models can enable Indigenous people to be central and gain greater benefit from current and new research? In response to this question, we are applying an innovative action co-research approach.

The research project includes a pan-northern focus on developing knowledge-sharing amongst Indigenous land management decision-makers, together with two area-specific case studies. Indigenous land interests are very substantial in northern Australia, and in October 2016 made up 57.6% of the region, incorporating:

- Indigenous tenure
 - o Aboriginal Reserve, Aboriginal Deed of Grant, Aboriginal Freehold Land (inalienable and alienable)
 - o Aboriginal Local Government Lease, Aboriginal held lease (other than pastoral)
 - o Aboriginal held pastoral lease, Multi feature Aboriginal freehold – National Parks)
- Indigenous Protected Areas
- Native Title Determinations (exclusive and non-exclusive).

With the inclusion of Indigenous Land Use Agreements, the Indigenous land extends to 68.9% of northern Australia (Figure 1).

One of the case studies is in the Fitzroy River area of the Kimberley in Western Australia. This region was chosen due to the initial involvement and interest of several Indigenous land managers and Traditional Owners (TOs) of the area; Ngurrara, Bunuba, Nyikina Mangala and Gooniyandi peoples. Other Indigenous land managers and TOs in the catchment have now expressed their interest to be involved: Wilinggin (Ngarinyin), Jaru, Warrwa, Kija and Kurungal. The second case study is in the Nicholson River region of the Northern Territory. This region was chosen due to the interests and involvement of the Waanyi Garawa people (Figure 2).

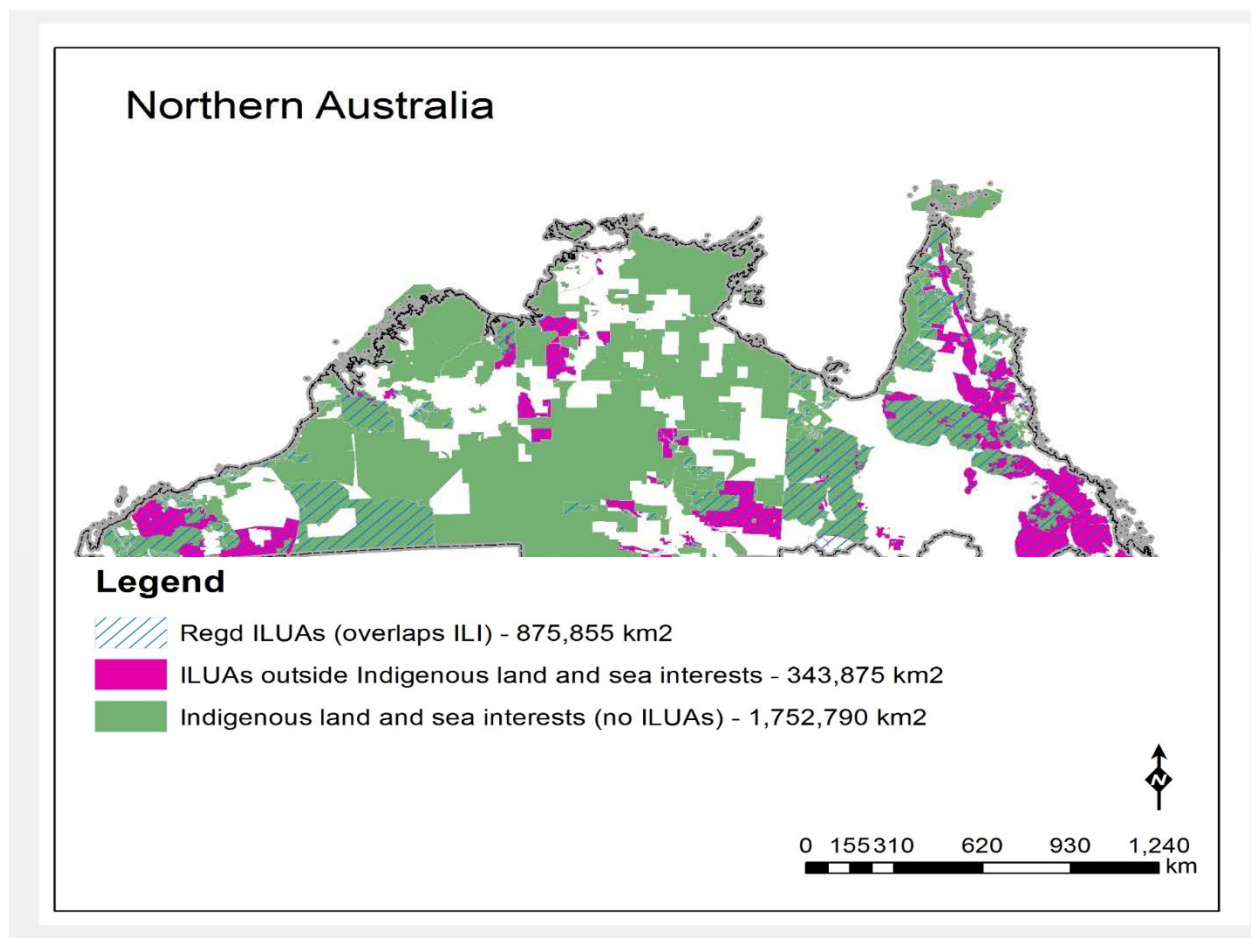


Figure 1. Indigenous land across northern Australia

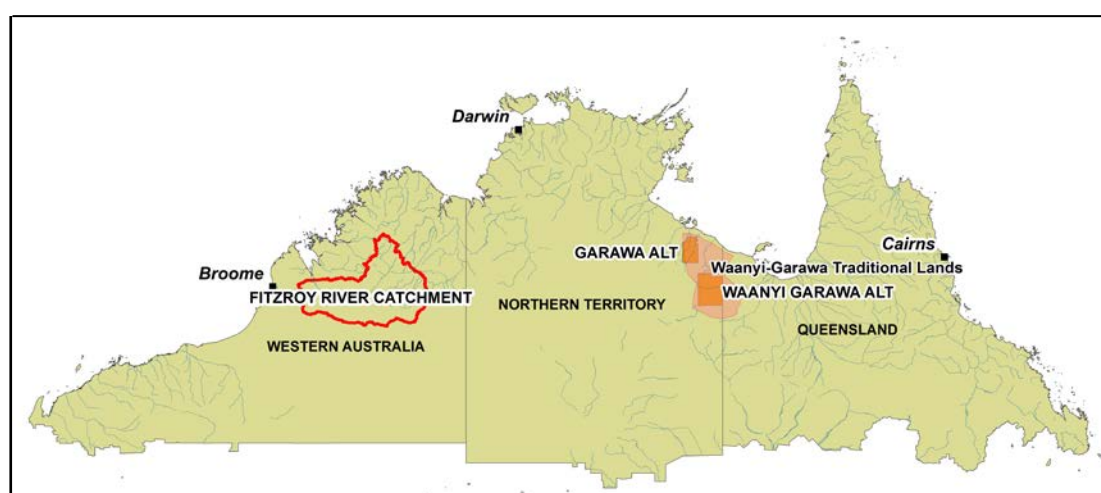


Figure 2. Case study locations in northern Australia

As part of Phase 1 of the project, a detailed project and communications plan is required. The detailed project plan establishes the pathway to impact for the science, based on a project logic, and describes the foundation (inputs), activities, outputs, outcome and impacts sought. A Steering Group has been established to guide the project, with Terms of Reference that establishes membership broadly from Indigenous land managers and research users across northern Australia (Appendix One). The communication plan outlines relevant stakeholders and techniques/tool to facilitate effective communication between the Steering Group, researchers and the stakeholders. This project and communications plan can be used across the four phases of the project, and will be updated as the project proceeds.

1.2 Aim of Research Project

The “Knowledge Brokering for Indigenous Land Management” Project aims to undertake action co-research with Indigenous land managers to: (1) design and test culturally tailored knowledge brokering methods to incorporate science, Indigenous and local knowledge into on-ground land management and land-use decision making; (2) support knowledge sharing activities across northern Australia through workshops, and digital networking activities; (3) diagnose the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets; and (4) produce “Our Knowledge, Our Way: Guidelines for Knowledge Brokering with Indigenous Land Managers” to aid wider use and adoption of the lessons and findings from the project.

1.3 Project Steering Group

A Steering Group has been established and held its initiation meeting on 10th October and its first face-to-face meeting in 11th November 2016, with two meetings since. The Steering Group will meet approximately every 3 months. The overall function of the Steering Group is to provide information and advice to the project team with specific functions, roles and operational arrangements as set out in the Draft Terms of Reference (Appendix One).

2. Detailed project plan

2.1 Project logic

The project logic establishes a pathway to impact, based on the CSIRO Impact Framework (Figure 3), which clearly establishes the ‘action’ components and how the co-research is embedded across the activity streams.

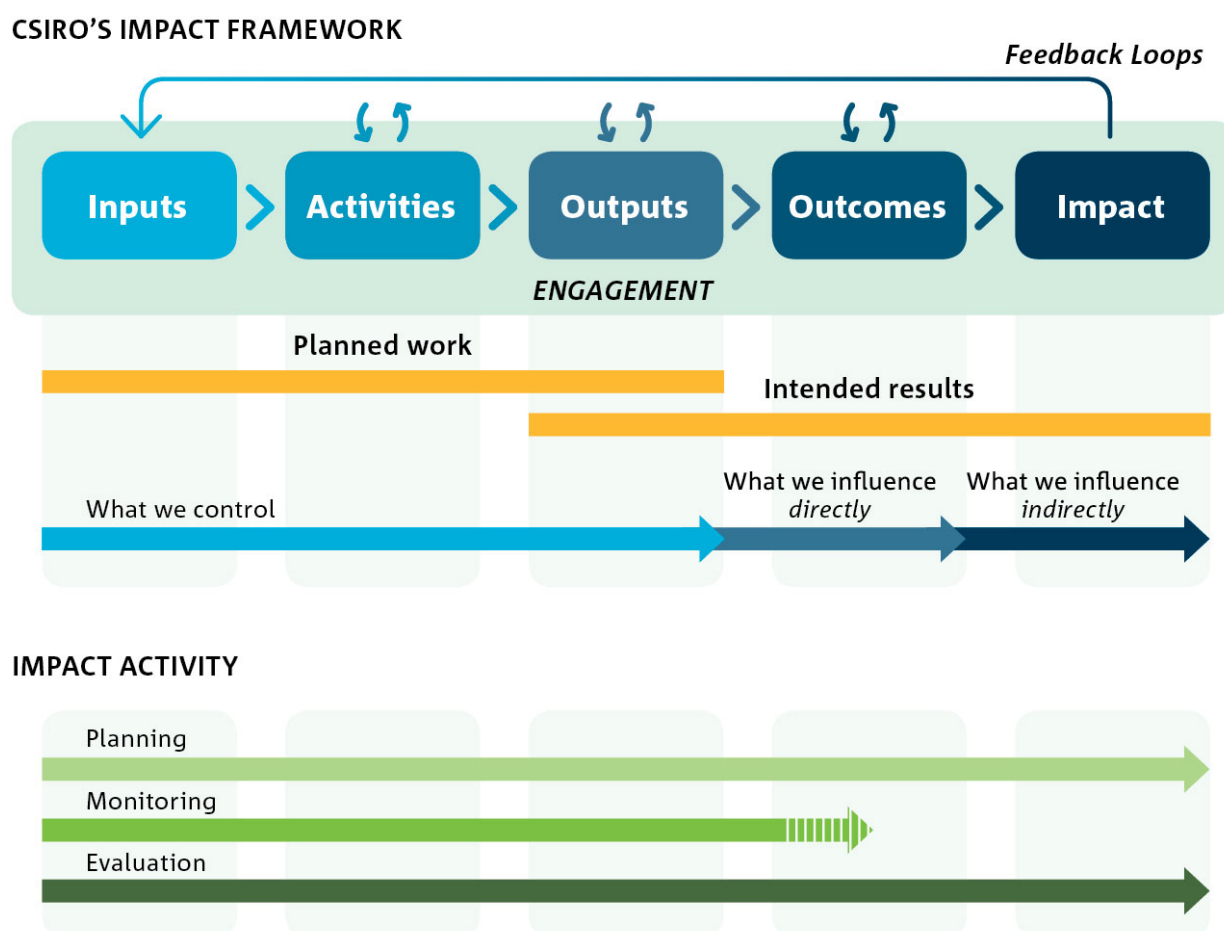
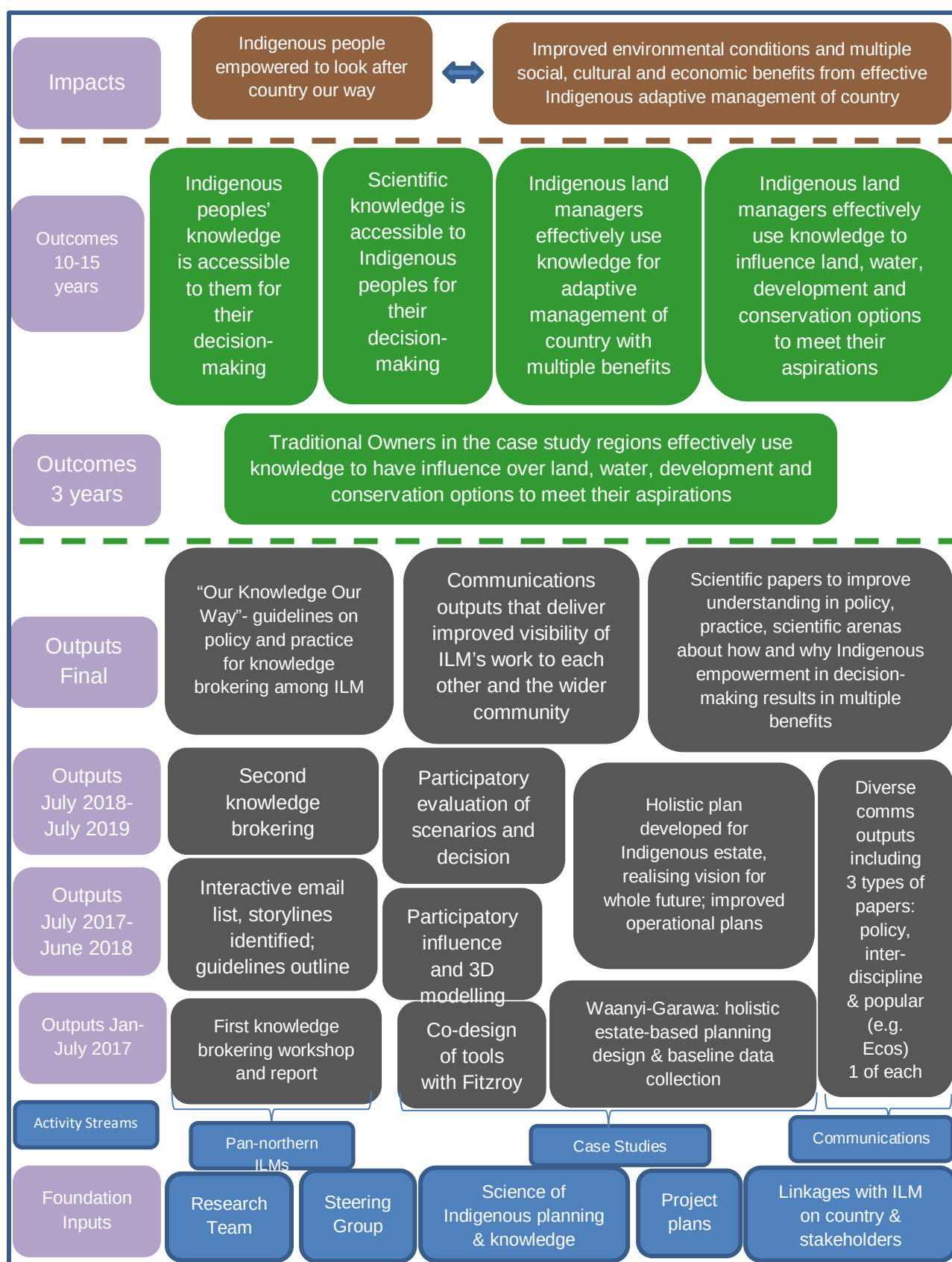


Figure 3. CSIRO Impact Framework

The project logic model is developed through three activity streams: pan-northern knowledge-exchange among Indigenous land managers; two case studies; and communications with stakeholders and research users (Figure 4). The outputs in these three streams over the life of the project are included in the logic model, together with short-term and mid-term outcomes, and the overall impact sought. Details of what is involved in each of the elements in Figure 4 are presented on the following pages. Information about research methods is provided in the activity streams section (2.4) , and further elaborated in presentation of the MDSI monitoring framework (section 4). The Steering Group helped develop and revise the project logic in November 2016 and again in reviewing the draft of this report.

Figure 4 Project plan logic



2.2 Project impacts

The impacts sought by the project are two-fold: Indigenous people empowered to “look after country our way”; and improved environmental conditions together with multiple social, cultural and economic benefits from effective adaptive management improvements (Figure 4). These impacts set out in the project logic are sought by all three major investors, the [National Environmental Science Program](#) (NESP), CSIRO and the Northern Australian Indigenous Land Management Alliance (NAILSMA). NESP focuses on assisting decision-makers to understand, manage and conserve Australia’s environment through funding world-class biodiversity and climate science. Indigenous land managers (ILMs) in northern Australia are the primary decision-makers that this project aims to assist. As noted above, Indigenous land interests now extend over almost 70% of northern Australia, and good decision-making underpinned by effective adaptive management by ILMs is critical for improving environmental conditions.

NAILSMA is a leader in supporting Indigenous peoples to manage their land and sea resources into the future. Empowering Indigenous people to be “[looking after country our way](#)” is central to NAILSMA’s role and to its co-investment in this project. For CSIRO, co-investment in this project forms part of its [Indigenous Futures](#) initiative which is focused on working with Indigenous communities to ensure sustainable futures for Indigenous people, country and culture. Solutions for sustainable development of land, water, ecosystems and communities in Australia are valued at over \$12 billion per annum in triple bottom line benefits. CSIRO’s co-investment in this science reflects its desired impact of: *improved state of biodiversity and ecosystem assets*¹.

The common impacts sought were co-developed over an eighteen month period, beginning with discussions through NESP Northern Australian Environmental Resources Hub (NAER) [Project 5.2](#) which identified research priorities for Indigenous land managers across northern Australia.

2.3 Project outcomes

The outcomes targeted over a 10-15 year time-frame are in four broad areas: improved access of Indigenous land managers (ILMs) to Indigenous knowledge; improved access of ILMs to scientific knowledge; improved use of this (two-way) knowledge by ILMs in their own land management decisions; and improved ability of ILMs to use this (two-way) knowledge to influence the decisions of others about land management and use.

ILMs face challenges in utilising both science and their own Indigenous knowledge as detailed in the NAER Approved Projects Research Plan (Version 2) Attachment A.3 Project 5.4. Barriers that impede effective knowledge uptake include: **technological** barriers, such as unreliable internet access and a lack of plain English Information; **social** barriers such as poor

¹ Associated CSIRO activities: Novel technologies, tools and approaches for improving the state of biodiversity assets and ecosystem services are generated through the fields of the biophysical, economic and social sciences, including Indigenous science and knowledge systems, resulting in implementation by land and water managers.

health and other commitments that hinder senior custodians' participation in knowledge-sharing; and **organisational** barriers such as excessive demands on staff to act as cultural brokers. Knowledge brokering assists overcoming such barriers in turning knowledge into decisions through activities across five broad areas: problem identification; context analysis; knowledge development and selection; knowledge exchange work; and knowledge use.

In addition to these longer term outcomes, the project aims to deliver specific 3-year outcomes for the Indigenous land managers involved in the case studies, as work with these groups will be more intensive. Traditional Owners in the Fitzroy Catchment have recently come together to give a clear statement of their aspirations (Appendix Two²), which will enable an evaluation of 3 year outcomes. The Waanyi-Garawa have established a vision for their country as part of their Ganalang Mindibirr Indigenous Protected Area Plan of Management 2015-2020 (Gambold and Kerins 2015), which also provides a basis for evaluation of three year outcomes (Appendix Three).

2.4 Activity streams

The project logic advances activities through three streams, each with diverse outputs during the project life:

- o pan-northern knowledge-exchange among Indigenous land managers;
- o two case studies; and
- o communications with a range of stakeholders and research users.

The activities will involve Indigenous peoples as co-researchers to develop tools that will assist them to identify useful knowledge resources and explore ways they can use different types of knowledge for decision-making. They will deliver:

- tailored knowledge brokering tools and guidelines for their use;
- knowledge-sharing among Indigenous land managers across northern Australia through workshops and digital networking activities;
- a diagnosis of the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets; and
- "Our Knowledge, Our Way: Guidelines for Knowledge Brokering with Indigenous Land Managers" to aid wider use and adoption of the lessons and findings from the project.

2.4.1 Activity stream one: pan-northern knowledge-exchange among Indigenous land managers

The co-research approach places Indigenous people as central to driving the design and testing of the knowledge brokering tools, and supports the sharing of their findings with other Indigenous people, through peer-to-peer knowledge exchange, and with others through digital means. Outputs to be delivered in support of the pan-northern knowledge exchange include: two knowledge-brokering workshops, and an interactive email list to link Indigenous land-managers between workshops. More information about this email list and its purpose is provided in the communications plan.

² <http://www.klc.org.au/news-media/newsroom/news-detail/2016/11/15/kimberley-traditional-owners-unite-for-the-fitzroy-river>

The pan-northern knowledge exchange workshops and digital dialogue will provide essential material for the “Our Knowledge Our Way” Guidelines that will form the major final output of the project, and underpin the pathway to impact. In terms of research design, this activity can be considered as a single case study, within which the other two case studies are spatially nested, in the overall co-research (Yin 2009). This design provides for an overarching “emergent proposition” which will be tested across the case studies, together with specific propositions that are being tested through tools applied in each of the case studies (Figure 5). The research team identified an initial set of overarching emergent propositions at a workshop in October 2016. These propositions will be further co-developed with the Indigenous participants in case studies and pan-northern network, underpinned by the dialogic processes of planning and reflection central to co-design (Parsons, Fisher, and Nalau 2016). These emergent propositions were influenced by data gathered during project 5.2 (Hill et al. 2016), in addition to the knowledge and experience of the team shared during the workshop.

The initial overarching emergent propositions provide a basis for diagnosis of the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets. The current working version of these propositions are:

Knowledge brokering can improve Indigenous adaptive management of environmental assets when:

1. *The following conditions are in place:*
 - *Indigenous people are able to drive the planning and choose the issues/content of knowledge brokering;*
 - *Indigenous governance arrangements support both effective Indigenous organisational governance and effective cultural governance;*
 - *A “planning window” exists that allows a fit between Indigenous goals and opportunities for knowledge brokering;*
 - *Opportunities exist for stepping back into the cultural sphere to build decision-making; and*
2. *The following barriers are able to be overcome:*
 - *Lack of understanding about how to use available knowledge to leverage “planning windows”;*
 - *Failures of alignment between the Indigenous goals and the policy/planning windows; and*
 - *Institutional fragmentation among both Indigenous and nation-state systems.*

Specific knowledge-brokering tools are being tested through the pan-northern knowledge exchange, and the two case studies, and each of these also have specific emergent propositions. For the pan-northern knowledge exchange, the specific tools being tested are based on the following working propositions:

- *Indigenous peer-to-peer exchange is the preferred method of learning among Indigenous land managers; and*
- *Indigenous people are able to self-organise using digital means to promote their learning about areas of significant interest.*

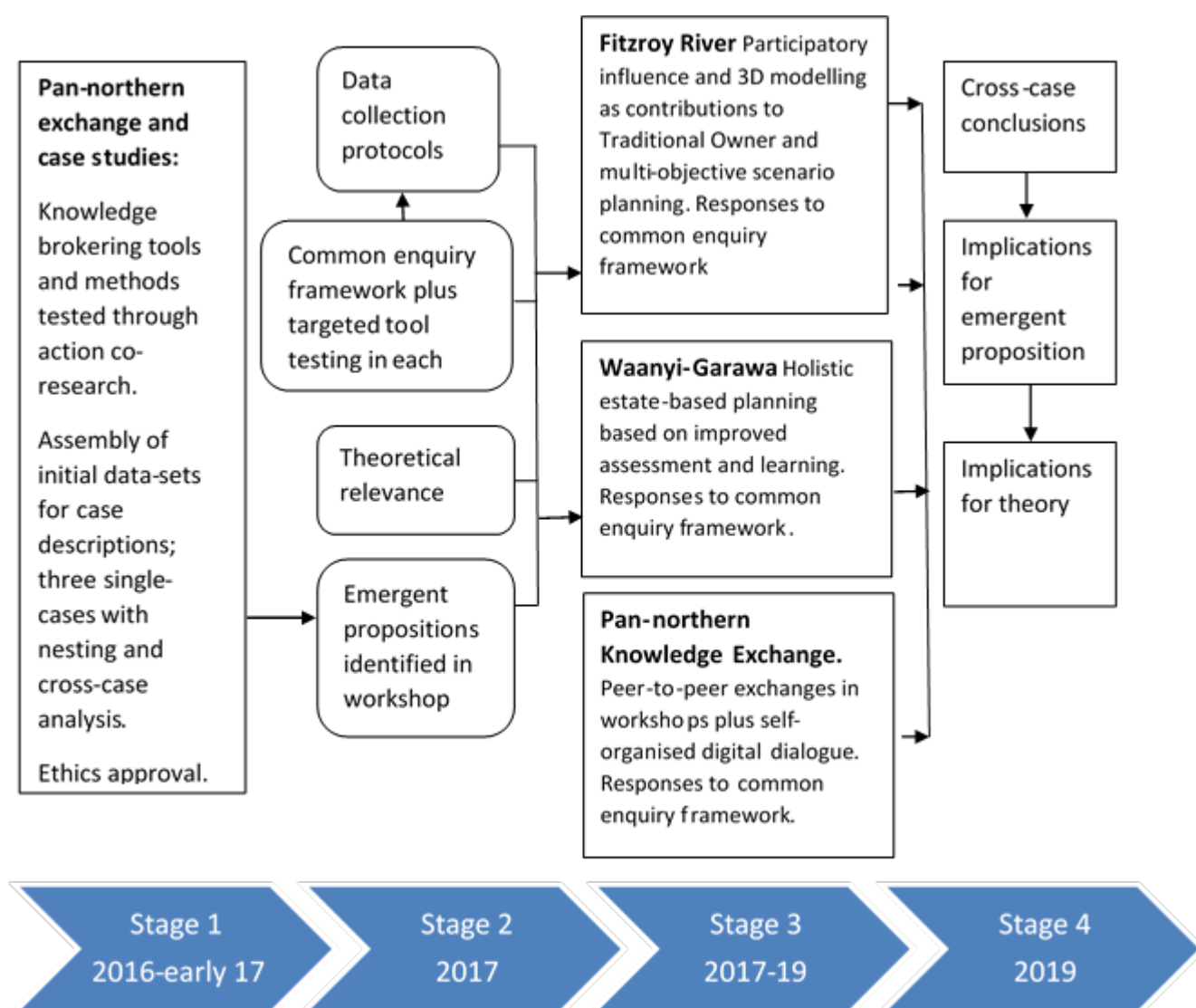


Figure 5. Case study methods (based on Yin 2009)

2.4.2 Workshop June 2017: Knowledge Brokering for Indigenous Land Managers

The first workshop is organised to be held at the Batchelor Institute near Darwin on 28/29 June 2017, with the previous and following days for travel by participants. This venue has been selected to provide for an indoor/outdoor approach, enabling the groups to sit outside and use different tools (such as posters) and different approaches, such as singing, dancing, drawing, and using craft or other objects, to share knowledge. Retreating indoors in case of inclement weather is also planned.

The workshop was scheduled to be held on 7/8 February, but that date proved unsuitable due to personnel availability and a very wet period that precluded travel from northern Indigenous communities. In addition to the meeting on the 28/29 June, a Steering Group meeting will be held on 27th June and a project team meeting on 30th June.

Table 1. Steps in workshop preparation

Date	Steps
Aug-Sep 2016	Research team preparation of workshop design, call for nominations, and guidelines for participants
September	Venue secured and booked for 7-8 February 2017
10 October	Steering Group approval of Call for Nominations
24 th October 2016	NAILSMA eNews disseminated the Call for nominations http://us1.campaign-archive1.com/?u=33d928b7aeb17804ab4e0cba0&id=03d66050bc&e=ec3a1d7fd7 This was widely shared among the networks of the research team and Steering Group.
11 th November	Steering Group selected participants from the nominations, and agreed to invite further participants to fill gaps.
11 th November	Steering Group considered and revised the workshop design, including the draft Guidelines for Participants and for Theme Leaders
November	Participants were notified that their nominations had been accepted.
December 6 th	Final Guidelines for Participants and Theme Leaders, together with Poster Templates, was approved by the Steering Group (see example of Participant Information in Appendix Four and Theme Leader Guidelines in Appendix Five) and subsequently disseminated.
January 24-Feb 7 2017	Notifications received of unavailability of key staff due to ill-health, of key Steering Group members due to other commitments, and also of key participants due to weather conditions. Decision to postpone to future date.
March-May 2017	Options for new dates and availability of venues canvassed
April 6 2017	Steering Group (SG) meeting held and workshop arrangements discussed
May 4	Date and venue of re-scheduled workshop finalised and SG notified
May 16 2017	Participants emailed with invitations to the Knowledge Brokering workshop in June, with details of logistics to enable travel and accommodation
June 2017	Ongoing communications with participants and SG to organise logistics and prepare workshop materials.

The workshop will involve an opening session, six thematic discussion sessions, and a closing session. Theme Leaders will facilitate the thematic discussions, including an introductory session that frames the discussion, and brings attention a set of focus questions at an appropriate time. Theme Leaders prepare a poster with a summary of the introductory material, which is used to assist their discussion and also placed on the wall throughout the workshop. Workshop themes were initially identified through consideration of priorities from Project 5.2, and through discussion with the Steering Group. The Themes and Theme Leaders are:

- a) Empowerment – Matt Salmon and Danielle Campbell
- b) Conservation governance models – Liz Davies, Julie Melbourne
- c) Tenure and alternative tenure models – Will Durack, Polly Grace, Julie Melbourne
- d) Planning approaches – David Hinchley and Melissa George
- e) Indigenous enterprises – Mike Winer, Jane Addison/Diane Jarvis

f) Participatory tools and cultural recording – Julie Melbourne, Chris Parker, Ro Hill

The Theme Leader Guidelines provide some background materials, and the research team is working with the Leaders to help prepare posters for display at the workshop. Options are currently being explored for a video recording of the workshop.

2.4.3 Activity stream two: the case studies

Two in-depth participatory case studies will support Indigenous land managers to:

- explore stakeholder influence mapping and build a 3-D model of country to assess risks and opportunities in the Fitzroy River catchment of Western Australia; and
- undertake Indigenous-driven evaluation of current land management, and use the results to drive new, more holistic planning in the Nicholson region of the Northern Territory.

The outcomes targeted in the three-year time frame are specifically for the ILMs involved in these two case studies. These case studies are focused on the real-world contexts and land management decisions facing the Traditional Owners in each area. The in-depth support is aimed at enabling the participants to effectively use knowledge to have influence over land, water, development and conservation options to meet their aspirations. The social science theory and methods will test the extent to which this occurs, and the conditions under which it occurs. Detailed plans for each of the case studies are currently being co-developed with the Traditional Owners, for submission in the September milestone report. Initial planning for the case studies contributed to the overarching propositions presented above and specific propositions for each of the case studies.

For the Fitzroy Case Study, these initial specific propositions are:

- *Influence mapping provides Indigenous land managers with the ability to identify other critical decision-makers and mobilise knowledge to influence their decisions, and*
- *Participatory 3D modelling provides an effective interface to mobilise, translate, negotiate, and synthesise between Indigenous knowledge and science.*

These propositions contribute to and build on the model of five stages of working across knowledge systems recently presented in Tengö et al. (2017). Key features of the participatory modelling that underpin its identified potential as an effective interface include that it: is community-constructed; can involve children and a diversity of community members; can be co-designed without text-heavy or software-heavy tools; and can connect with a “black box” of GIS data and models.

A series of meetings was held during November 2016, with the four organisations representing the Traditional Owners associated with the parts of the Fitzroy River where current activities are proposing land use change. These peoples are the Ngurrara, Bunuba, Nyikina Mangala and Gooniyandi groups, as represented through the Yanunijarra Aboriginal Corporation, the Bunuba Dawangarri Aboriginal Corporation, the Walalagoo Aboriginal Corporation and the Gooniyandi Aboriginal Corporation respectively. Since the production of the Fitzroy River Declaration (Appendix Two), and further discussions, it has become clear that the participatory modelling and knowledge-exchange activities will be most useful if all the TOs along the river

are included. This requires working with additional groups in the upper reaches including the Kija (Yurriyangem Taam), Jaru (also Ngarrawanji), Warrwa, Wilinggin (Ngarinyin), and Kurungal. The first three groups are represented by the Kimberly Land Council, and the last two by the Wanjina-Wunggurr Aboriginal Corporation and the Tiyatiya Aboriginal Corporation respectively (Figure 6). The Nookanbah group, represented by the Yungngora Aboriginal Corporation, have not yet confirmed their interest in involvement. Further discussions with these groups occurred on April 19th and a planning meeting bringing all 9 groups together is being organised for 2 days during the 24th July to 4th August 2017. Research Agreements with relevant groups are underway, facilitated by the NESP Coordinator Karen Dayman and the Kimberly Land Council. The detailed schedule needed to finalise these agreements will not be available until after the July-August meeting.

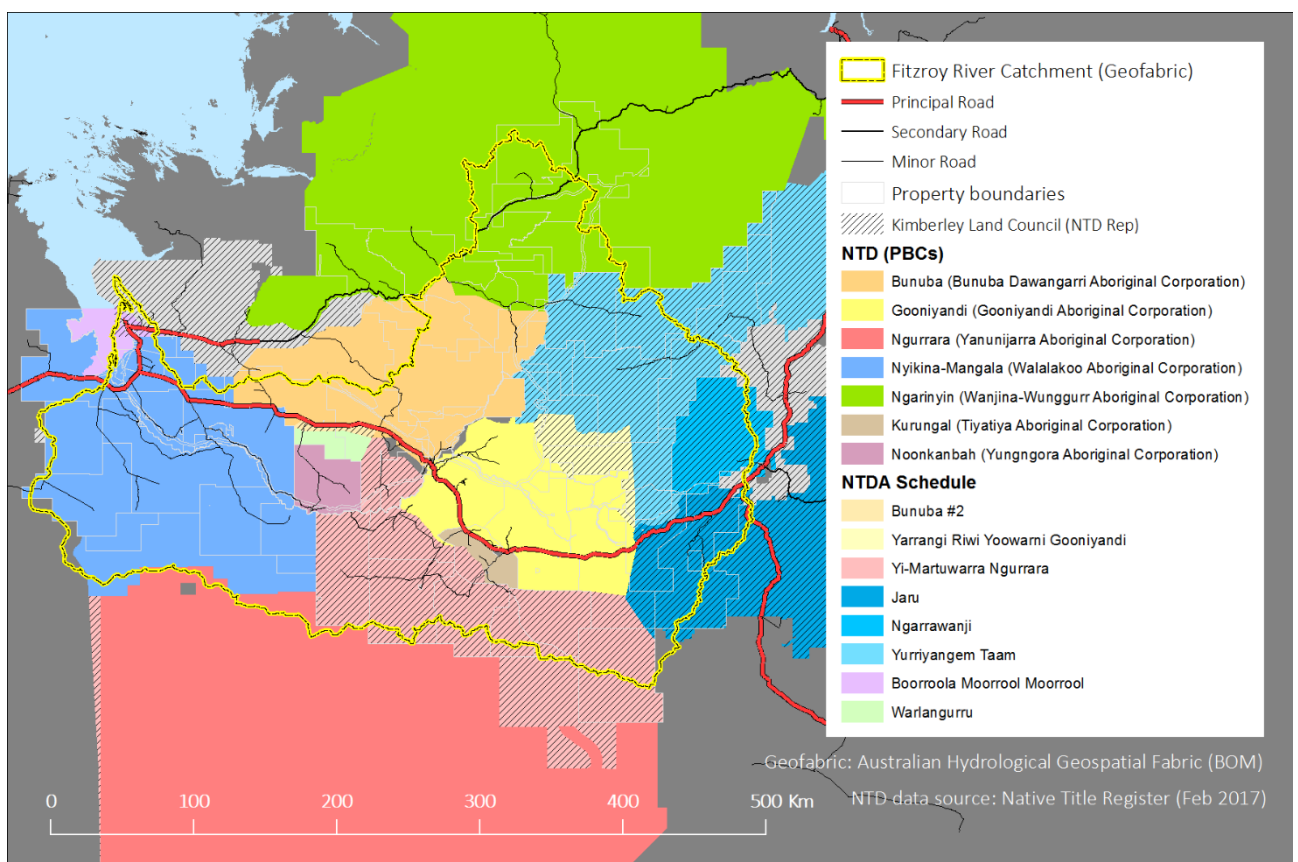


Figure 6. Traditional Owner groups and PBCs (Prescribed Body Corporates) of the Fitzroy River

In the Waanyi-Garawa case study, the initial specific propositions are:

- *Holistic estate-based planning provides Indigenous land managers with the ability to understand options for all their traditional country, including where you have influence and how to use it, and*
- *Customised I-Tracker tools provide Indigenous land managers with effective methodologies for assessment of country that are simplified, robust and linked to their end-game (goals).*

Key features of the customised I-Tracker tools that underpin their identified potential as an effective methodology include that it: has visual strength through use of icons, photos, and

diagrams; is not text-heavy; enables co-design of data gathering that is culturally appropriate and scientifically sound; provides links from the field data to a common GIS platform; and links directly to specific activities conducted by Indigenous land managers for an established purpose (Dobbs et al. 2015).

2.4.4 Activity stream three: communications and research outputs

Activities in this stream are detailed in the communications plan in the next section.

2.5 Project Final Outputs

2.5.1 ‘Our Knowledge Our Way’: Guidelines on policy and practice for knowledge brokering among Indigenous land managers

The Guidelines are a key output for ensuring that the research has value beyond the life of the project, and beyond the direct participants in the project. The Guidelines will be developed gradually through the life of the project, to enable maximum input, review, collaboration and ownerships among Indigenous land managers and their partners. The format of the Guidelines will be based on the [IUCN Best Practice Guidelines Series](#), for example Borrini-Feyerabend, Kothari, and Oviedo (2004). Benefits of this format include the inclusion of:

- background material related to understanding knowledge brokering
- analysis of the context and policy that drive the need for knowledge brokering
- options for action and advice
- multiple case studies reflecting different contexts
- thematic sections in the Guidelines
- multiple photographs, diagrams, and tables
- specific step-wise processes where relevant
- options for policy
- recognition of ongoing challenges
- links to other material, and
- a table to direct people to specific sections related to their specific needs.

The key target audience for the Guidelines will be Indigenous land managers, including those involved in co-management and other partnerships, with a secondary audience being those partners. Initial discussions with the Australian Committee for IUCN about their involvement in the Guidelines have received a very positive response, with suggestions about how to ensure its development as part of their Best Practice Series. They have identified a critical need for more information about knowledge brokering given the global interest in working between Indigenous knowledge and science, and the relative strength of Australia’s work in this field. The knowledge brokering workshops and networking activities and the case studies will all contribute to the Guidelines.

2.5.2 Scientific papers

The paper publication strategy is segmented into three sets of target journals:

- Interdisciplinary sustainability science journals that are ISI listed;
- Indigenous policy journals; and

- Popular science journals.

The publications plan is set out in Table 2. These papers will be delivered using established action research methods from social science (McNiff and Whitehead 2006). Action co-research activities also deliver specific outcomes identified in the project logic. It draws on mutual interrogation of the propositions presented above, through dialogue, and the testing and delivery of the new tools and approaches, using qualitative data collection and analysis (Robinson 1998) including through:

- Place-based dialogue: to build the relationships of trust and respect as the necessary foundation for the action co-research approach, and underpin cycles of planning, action and reflection (Woodward and McTaggart 2015)
- Documentary review: a document register will be established using a password-protected End-note file that includes diverse materials including reports, minutes of meetings, previous and current plans, policies, plans, legislation, histories, cultural and natural heritage assessments.
- Spatial analysis: a collection of relevant spatial data will be established using a password-protected online system, in collaboration with other NESP projects in the catchment
- Focus groups discussions: discussions held during the conduct of the participatory activities associated with the two area-specific case studies, and the pan-northern workshop, will be recorded, using both digital and written forms.
- Longitudinal surveys: An online survey will be conducted 4 times during the project with members of the Steering Group (Appendix 7).

Content analysis will be undertaken of these materials to identify common themes and factors associated with the testing and the delivery (or otherwise) of the outcomes sought from the project in terms of empowerment, application of Indigenous knowledge and governance, and improved environmental conditions with associated multiple benefits. This content analysis will be undertaken using N-Vivo software, which provides for a range of analytical approaches, such data visualisation, word association, cross-factor matrices, and word frequency analyses. Processes of ongoing dialogue and reflexivity with the co-researchers and Steering Group will contribute to the theme identification.

Several validity procedures will be applied to establish confidence in the findings from the inquiry including: testing for convergent triangulation between data sources; prolonged engagement in the workshops and discussions, their preparation and follow-up; and the engagement with the Steering Group and participants to provide critical reflexivity (Creswell and Miller 2000). The findings of the study will be used to expand our knowledge about the science of Indigenous knowledge brokering and planning (see 2.6.5).

Table 2. Scientific publications plan

Proposed title and/or short description	Proposed authors	Proposed journal	Target submission date	Optional comment (eg links to project outputs, IP, dependencies)
<i>Interdisciplinary sustainability science journals</i>				
<i>Weaving knowledge systems in IPBES, CBD and beyond—lessons learned for sustainability.</i> Presents a 5-step approach for working across science and Indigenous and local knowledge (ILK), advancing theory about the critical roles of ILK actors, institutions and practices	Maria Tengö, Rosemary Hill, Pernilla Malmer, Christopher M. Raymond, Marja Spierenburg, Finn Danielsen, Thomas Elmqvist, and Carl Folke	Current Opinion in Environmental Sustainability	Published February 2017	Provides a significant foundation for the project science
<i>Bridging science and Indigenous knowledge for sustainable fire management in tropical landscapes. Drawing on the theories and practices presented in</i> Tengö et al. 2017 (paper 1 above), and the review work conducted in project “lessons from Top End Indigenous Fire Management”.	Robinson, Barber, Hill, James, Gerrard, and others	PNAS	June 2017	
<i>Participatory modelling, evaluation and prioritisation with Indigenous peoples in Australia.</i> Drawing on previous participatory modelling/prioritisation work (including Project 5.2) to develop theoretical contribution and framework for testing in this research	Hill, Talbot, George, Davies, Lyons, Raisbeck-Brown, Buissereth and others	Ecology and Society; target journal will be reviewed during writing	December 2017	
<i>Indigenous-driven approaches to knowledge brokering for improved land management.</i> Presenting results on the multi-case analysis of the conditions under which knowledge brokering leads to improvements in ILM.	Lyons, George, Hill, Davies, Raisbeck-Brown and others	As above	June 2019	

Proposed title and/or short description	Proposed authors	Proposed journal	Target submission date	Optional comment (eg links to project outputs, IP, dependencies)
<i>Policy</i>				
<i>Influence mapping to mobilise Indigenous contributions to multi-stakeholder decision-making in the Fitzroy Valley.</i> Implementation by Indigenous peoples of their goals on country is often made difficult by time taken responding to the initiatives of other stakeholders. Influence mapping is being tested as a tool to enable TOs to more efficiently drive their goals into other actors' agendas	Lyons, Hill, George, Davies, Lyons, Raisbeck-Brown and others	Australian Aboriginal Studies Journal	December 2018	
<i>Indigenous cultural and organisational governance: opportunities and mis-matches in northern Australian land management decision-making.</i> Presenting results on the multi-case investigation of our working proposition that effective cultural and organisational governance are one of the key conditions for ILM	Hill, Talbot, George, Davies, Lyons, Raisbeck-Brown and others	Indigenous Law Bulletin	December 2019	
<i>Popular</i>				
<i>3D modelling for sustainable planning in the Fitzroy Valley</i>	Raisbeck-Brown, Hill, Talbot, George, Davies, Lyons and others	Ecos	June 2018	
<i>Holistic Indigenous estate-based planning unlocks the economic potential of northern Australia</i>	George, Davies, Hill and others	The Conversation	June 2019	

2.6 Project foundations

2.6.1 Research team

Six researchers from CSIRO and NAILSMA are currently working on the project (May 2017). The project is based on a collaborative leadership model, with two project co-leaders, one in CSIRO and one in NAILSMA.

Ms Melissa George (NAILSMA), co-leader, is a Wulgurukaba woman and the CEO of the North Australia Indigenous Land & Sea Management Alliance Ltd (NAILSMA) and has been involved in both on ground activity, program and policy development around land and sea management for over two decades. As project co-leader, Ms George will have oversight over the project direction and also participate in key research activities - convening the Steering Group, and leading the Waanyi Garawa case study. She will lead brokerage activities with Indigenous peoples.

Dr Ro Hill, co-leader, (CSIRO) is a principal research scientist who has been leading projects on Indigenous land and sea management issues for more than 3 decades and has published widely on Indigenous co-management and land management issues. As project co-leader, Ro will have oversight of the project direction and also participate in key research activities - convening the Steering Group, supporting the development of science theory and methods and leading the Fitzroy River catchment case study.

Dr Matalena Tofa began working on the project with NAILSMA but departed in October 2016. Matalena has experience in social science and qualitative research, collaborative environmental management, and participatory planning, and was supporting the Waanyi Garawa case study.

Dr Peter Yates (NAILSMA) is now a researcher with NAILSMA for the project. Dr Yates is an anthropologist with an extensive background in working with Indigenous peoples, particularly in central Australia, and also in South America. Peter has investigated many aspects of ILM, including the generation of multiple benefits through activities such as wild harvest and domestication. He is leading the Waanyi-Garawa case study science and impact, and supporting the pan-northern knowledge network.

Dr Lyons (CSIRO) is a social scientist with over ten years' experience working with Indigenous peoples in participatory research in environmental management. She has led projects with Aboriginal groups on climate adaptation and in citizen science projects that also directly address intellectual property concerns. Pethie will focus on leading the influence mapping in the Fitzroy River case study, and developing the knowledge-sharing workshops and networks.

Ms Christy Davies (NAILSMA) has been supporting Indigenous communities through the multi-award winning I-Tracker program since 2011. This initiative involved developing a suite of new tools to help Indigenous land and sea managers improve their collection and management of data about natural and cultural resources across remote north Australia. Christy will contribute to innovative on-ground planning methods and tools for the Waanyi Garawa case study, and supporting brokerage activities with Indigenous peoples.

Ms Raisbeck-Brown (CSIRO) is a spatial analyst and GIS practitioner specialising in environmental and land management. She has worked extensively with land managers and communities in the Kimberley region of Western Australia, particularly across the southern Kimberley from Jarlmadangah to Kupartiya (Bohemia Downs). Nat will work with Indigenous communities from the Fitzroy Valley to build a 3D model of the local region and to support TOs to review and interpret physical and digital maps to assist relevant decision-making.

The co-research team has established regular team meetings by telephone/video every ~3 weeks and has conducted one face-to-face meeting in 2016 with another planned for mid-2017.

2.6.2 *Steering Group and Research User Agreements*

As noted above, a Steering Group for the project has been established. Membership of the Steering Group includes delegates from the Kimberley Land Council (Will Durack), Cape York Partnerships (Michael Winer), Northern Land Council (Matt Salmon), Department of Environment and Energy (Jacqui Doyle), The Nature Conservancy (David Hinchley), Wardekken IPA (Dean Yibarbuk), Nyamba Buru Yawuru (Julie Melbourne), Fitzroy Catchment Traditional Owners (to be advised), Wannyi Garawa (to be advised), Department of Prime Minister & Cabinet (Rick Taylor), and two additional scientific experts Natalie Stoeckl/Jane Addison/Diane Jarvis (economists) and Jorge Alvarez (spatial and multi-objective planning scientist).

Research User Agreements are currently being developed with each of the Steering Group members, based on the generic agreement in Appendix Four, developed through discussions with the group. Two signed agreements have been received and are provided as attachments to the Milestone Report. Longitudinal Surveys (four throughout the life of the project) will be completed with the Steering Group members to evaluate whether the envisaged use of the research has occurred (Wild-River and Lowe 2006). Significant change stories may also be collected from selected participants in the knowledge network and case study activities, depending on their interest and willingness.

2.6.3 *Project plans*

The Ethics Application, detailing the plans for managing risks to human participants, was submitted to the CSIRO Social Science Human Research Ethics Committee and received ethics clearance on 12th September for the period 31/08/16 to 30/09/2019.

The final overall Project Plan was approved for the work to commence by the Department of Environment and Energy on 9th September 2016. The March 2017 Milestone requires delivery of a detailed project plan (this document) and a communications plan (latter part of this document). More detailed plans for the two case studies are required for the September 2017 Milestone. These plans are internal working documents.

2.6.4 *Linkages with Indigenous land managers on country*

NAILSMA is a non-for-profit company with extensive networks among Indigenous land managers and a large data-base of contacts to which it distributes regular E-news Bulletins. NAILSMA is also currently engaged by the Australian Government's Department of Environment and Energy to work together with Indigenous peoples across Australia to establish a National Indigenous Land and Sea

Network. These roles of NAILSMA provide the critical foundation for ensuring the new tools and knowledge developed in this project are disseminated widely. In addition, the Steering Group involves members from three organisations with deep linkages with Indigenous land managers across the Kimberley, Cape York Peninsula and the Northern Territory. CSIRO and other members of the Steering Group also have a long history of working in partnership with Indigenous land managers. These positive relationships and networks are a vital part of the foundational platform for achieving impact from the project.

2.6.5 Science of Indigenous knowledge brokering and planning

The project will undertake a diagnosis of the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets. This diagnosis draws and seeks to build on emerging theory in the sustainability science literature regarding the influence of Indigenous governance and leadership in improving the ability of Indigenous land managers to effectively bring knowledge into management decision-making. In particular, evidence is accumulating that:

- Indigenous-driven and Indigenous-controlled planning can help Indigenous people maintain their control over their resources, their own unique relations and distinct cultural orders; and drive greater equity in co-governance arrangements (Lane and Hibbard 2005, Hill 2011);
- Community-based comprehensive planning offers Indigenous peoples an holistic process to build a roadmap to sustainability, self-sufficiency and improved governance capacity with empowerment as key outcome (AANDC 2013, Hibbard, Lane, and Rasmussen 2008, Bentrupperbäumer et al. 2001)
- Indigenous governance and Indigenous-driven co-governance provides better prospects for integration of IEK and western science into decision-making (Hill et al. 2012).

Evidence is also growing that participatory modelling is a key tool for Indigenous peoples uptake and negotiation of knowledge into decisions (Robinson et al. 2015, Hill et al. 2017). Also known as Community-based Participatory Research (CBPR), Participatory Learning and Action (PLA), Participatory Learning Methods (PALM), and Participatory Action Research (PAR), participatory modelling is used here as an overarching term describing sharing and applying diverse traditional, cultural, scientific and spatial knowledge in a visual format. The visual materials can act as boundary objects, which when appropriately designed and delivered, can increase commonality between interested parties and fulfil knowledge requirements by being flexible enough to connect with the diverse frames of multiple actors (Star and Griesemer 1989, Robinson et al. 2015). The co-research design ensures that the testing of propositions through this project will contribute to the development of these theories, adding weight to certain aspects and dis-proving others.

2.7 Project schedule

While the project logic sets out the pathway to impact, and provides the basis for evaluation, a high-level project schedule is also required to guide the timing and coordination of activities. The project is designed to occur through four major phases, each with a number of steps. Phase 1 is complete, and phase 2 underway

Phase One: Establishment. July – December 2016.

This phase is focused on establishing the action co-research arrangements to enable the research to proceed and will include:

1. Project governance:

- Steering Committee to guide the research (building on the Steering Group established for the “Research priorities for IPAs across northern Australia)
2. Ethics Clearance:
 - Elaboration of potential mutual benefits, benefit-sharing and common goals with community research partners.
 - Collaboration agreements drafted with communities engaged in the research, including ensuring protection of intellectual and cultural property rights.
 - Arrangements to respond to the protocols identified in Project 5.2 for the project to be adaptive and collaborative, based on a genuine desire of the community to engage, involve training and tools, be holistic and facilitate ownership, communication and effectiveness with communities.
 3. Literature analysis
 - Review of literature relevant to “Knowledge systems that empower TOs”.
 - Compilation and analysis of the scientific and other documentation of information relevant for the two case studies.
 4. Data collection
 - Stakeholder analysis to underpin the compilation and collection of data relevant to influence mapping (organisations, partnerships, networks etc.)
 - Compilation of data base of participants in the face-to-face meeting, and of other participants relevant to the knowledge network.
 - Spatial data, including relevant tenure and native title rights, ways of classifying tenure.
 5. Communication plan
 - A set of appropriate communication tools for IPA and ILMP practitioners and partners. E.g. Catalogue or Booklet or Fact Sheet. These will be staggered throughout the project.
 - A set of briefings on policy-relevant findings from the project.
 - Peer-reviewed publications from the project.
 6. Project Plan
 - Visits to the communities to scope and establish detailed timelines for case study activities.
 - Schedules for knowledge network workshops.

Phase Two: Knowledge brokering co-design. January- June 2017

This phase is focused on the establishment of the knowledge-network and co-design of the two knowledge brokering tools for testing and will include 3 steps.

1. Preparation for and hosting of the knowledge-network workshop of selected IPA and ILMP practitioners and partners across the north.
 - Workshop logistics and participant selection.
 - Initial tool co-designs for discussion at the workshop.
 - Workshop design (e.g. World Café).
 - Topics for multi-case sharing e.g. conservation models, tenure, empowerment etc.
 - Small focus-group activities at the workshop to self-organise thematic-based teams interested in ongoing knowledge-networks and the identification of activities to facilitate these.
2. Initiation of the co-research case studies

- Final co-design of the (adaptive) process to develop, test and evaluate the *Collaborative spatial influence mapping* and *Indigenous holistic estate-based planning*.
3. Initiation of data collection and common enquiry protocols for the cross-case analysis and synthesis:
- Community visits, dialogue, interviews, focus groups, documentary analysis, data identification and collection.
 - N-Vivo, GIS, and other computer applications to support the analysis.
 - Generation of practitioner-derived propositions for testing through the cross-case analysis.
 - Specification of relevant theory for the application of argumentative replication logic to the synthesis, the standard cross-case analytical technique.

Phase Three: Tool piloting, testing and evaluation. July 2017-December 2018

This phase is focused on piloting, testing and evaluating the two knowledge brokering tools, and will be broken into two parallel strands of work.

Collaborative spatial influence mapping.

Established steps in stakeholder influence mapping will form the pilot, with the spatial and collaborative elements added:

1. Co-define policy and practice focus, the key time period/s, identify stakeholders at meeting being organised for late July/early August 2017. Map the (overlapping) spatial footprint of key stakeholders and institutions. Consider indicators for diagnosis of adequately informed decisions.
2. Prepare materials for the influence mapping e.g. printed mapping board, Net-Map materials (physical objects), GIS layers, models, projected visualisations, building of the 3D physical map (if required).
3. Collaboratively map stakeholder influence and relationships, and features of interest, including story lines, sites, natural resources, development opportunities etc.
4. Identify key moments and mechanisms for decision-making. Calculate influence score to identify top mechanism and narrow onto very specific information needs.
5. Translate, narrow and mobilise knowledge needed onto the specific, scale-related, information requirements for informed decisions, emerging from the influence mapping and scoring.
6. Apply the information to the decision, assess and communicate uncertainties. Evaluate indicators for diagnosis.

Holistic Indigenous estate-based planning

The holistic Indigenous estate-based planning will address the key gaps identified that include development of business opportunities for multiple sources of funding for IPAs and ILMP and that respond to outcomes from participatory integrated monitoring and evaluation systems. The pilot and test case/s will be developed through the following broad steps, more detail of which will be developed as the focus of this tool is narrowed through ongoing discussions:

1. Co-design the holistic Indigenous estate-based planning, together with relevant families and groups associated with the estates, for investigation together with the metrics for performance evaluation.
2. Ensure the design enables and maximises learning opportunities for a diverse group of the Aboriginal people who are responsible for the estate, and can be translated for others across the north.
3. Implement the holistic Indigenous estate-based planning through participatory methods. Currently a walking-country approach is being discussed with Waanyi-Garawa, reflecting

their priorities. The benefits of this approach were identified during project 5.2 (Hill et al. 2016).

4. Evaluate the outcomes according to the performance evaluation measures.

The scientific research that will occur as part of both pilots, will follow the methods outlined above. This knowledge network pilot will also provide opportunities for cross-case thematic analysis with an appropriate design of the workshops at the beginning and end of the research.

Phase Four: Synthesis, evaluation and impact analysis. July 2018-June 2019

Phase four overlaps with phase 3 as evaluation steps in each of the test cases will inform the overall evaluation of the project, and the analysis of the impact of the knowledge brokering tools. Key activities in this stage will include:

- Hosting of the second workshop to share results from the pilots and to learn about other relevant activities underway in the self-organised networks
- Completion of test cases, closure of activities or translation to our next phase.
- Synthesis of the results into scientific publications.
- Synthesis of the *Our Knowledge Our Way Guidelines*.
- Co-production of policy and practitioners briefs from the project³.
- Presentation of results into international and national conference venues (this will also occur in earlier stages of the project).

2.8 Project risk management

A full assessment was made of Project Management, Technical and Scientific, Intellectual Property and Commercialisation and Health, Safety and Environment risks before the project commenced. Significant risks related to Project Management and Intellectual Property require specific risk management strategies that have now been implemented and updated. While most of the risks have been minimised, key risks associated with dependency on key personnel, both staff and non-staff, remain (Table 3).

2.9 Linkages with other projects

The Fitzroy River case study is closely linked to Project 1.6 Multi-objective planning, and also to other NESP NAER projects Table 4). A number of activities are underway to maximise the benefits of these linkages, including development of a transdisciplinary research framework. Two cross-project meetings have been held, one in September, and a further meeting in November 2016. The Steering Group includes researchers from other NESP Projects (1.6 on [Multiple objective planning in northern Australia](#) and 5.3 on [Multiple benefits and knowledge systems of Indigenous land management programs](#)).

³ Co-production of policy and practitioners briefs will be based on the approaches used in the [NERP Indigenous co-management and biodiversity project](#) resulting in seven Final Fact Sheets.

Table 3. Key risks and mitigation strategies, highlighting remaining key risks

Risk	Impact	Mitigated by
Project complexity	Multiple stakeholders means that transaction costs delay the project beyond expected time frame	Steering Group has been established between key stakeholders. There is a high level schedule and financial plan for the whole life of the project. Project design is based on previously successful projects. Project leaders have a track record of successfully managing projects of this size.
Dependency on key staff	Key staff suffer illness or other personal circumstance that make their ongoing engagement impossible	Changes to CSIRO and NAILSMA staff profiles has weakened the availability of suitable staff. Recruitment of an Indigenous Cadet is underway at CSIRO. Sufficient documentation is available for potential replacements to come up to speed efficiently. Remains a key risk.
Conflict	Disputes are triggered by the project and knowledge-holders can agree on ways to bring together knowledge for integration	An external communications plan to pro-actively manage stakeholders has been established. Communications involve stakeholders in a group situation (including the Steering Group) as well as one-on-one. All stakeholders contacted to date are demonstrating high levels of commitment to the project
Key non-staff personnel dependency	Indigenous peoples are unable to engage due to competing priorities and resource constraints means that project timelines and milestones are unable to be met.	Time frame of the program over three years takes account of this risk; budget includes allocation of resources to support Traditional Owners engagement. Remains a risk.
Adoption pathway	Tools that are tested are not useful or adopted beyond the case study groups meaning that project results will not be adopted, undermining partner confidence	Project is co-led by an Indigenous organisation with a strong track record in brokerage of Traditional Owner priorities to achieve policy response and adoption; project is co-designed to foster adoption and is part of Research Program with a focus on transdisciplinary research for adoption. Interest of the IUCN in partnering with the Our Knowledge Our Way Guidelines strengthens the pathway to adoption.
Intellectual property	Agreements about protection of Indigenous IP is not able to be reached. Steering Group established to guide the process	Ethics Clearance has been obtained from the CSIRO Human Research Ethics Committee; project team have a track record in ethical research and agreement-making.

Table 4 Linkages between the Fitzroy River case study and Project 1.6 on Multi-objective planning in the Fitzroy catchment

Steps in co-design of collaborative spatial influence mapping	Module in multi-objective planning	Opportunities for exchange
1.Co-define policy and practice focus; issues, interests, opportunities and risk	1.Understanding landscape values and management objectives	Information can be provided to the multi-objective planning about issues, stakeholders, interests, opportunities and risk. Stakeholder analysis techniques and results can be shared.
2.Prepare materials and data for the influence mapping	2. Generating spatial models of environmental and socioeconomic values	Data preparation activities can be shared.
3. Collaboratively map stakeholder influence and relationships, and features of interest	3. Assessing threats to values and compatibility of uses	The threats identified can be assessed in accordance with the maps of features of interest, without being explicit about location of features where this information needs to be protected
4. Identify key moments and mechanisms for decision-making	4. Assessing management cost-efficiency and feasibility	The key moments and mechanism can both inform the assessment feasibility and vice versa
5. Translate, narrow and mobilise knowledge needed	5. Developing land-use and management scenarios	The scenarios can be evaluated using the collaborative map
6. Apply the information to the decision, assess and communicate uncertainties	6. Assessing outcomes and informing decisions	Evaluation of decisions can be shared

3. Communication Plan

3.1 Communication needs

3.1.1 *Pathway to impact*

Achievement of the impact desired for Project 5.4 requires effective communication processes to facilitate the sharing of knowledge resources for the improvement of ILM and land-use decision-making across Northern Australia. This communication is to occur between the Steering Group, TOs, Indigenous land management groups and individuals, NRM bodies, government (Federal/state) agencies, vested and community interest organisations. Evidently, this diverse range of stakeholders requires reliable and transparent communication from the research team, guided by the Steering Group. However, the research team must also receive feedback from the stakeholders. Thus, a range of tools/techniques will be employed to facilitate effective communication between stakeholders and to generate communications that can be managed and adapted to the differing phases of the project.

Key points:

- TOs hold substantial amounts of knowledge regarding land and its subsequent economies. However, they have identified that their knowledge resources are not yet empowering their decision making for land management.
- TOs experience barriers in accessing and utilising the scientific knowledge resources that are available to assist their decision-making.
- The “Knowledge Brokering for Indigenous Land Management Project” aims to identify new methods and tools for applying this knowledge to ILM decision-making for on-ground action and land use planning.
- The communications plan aims to bring forward a synthesised method for communicating with the diversity of stakeholders and end research users to enable the new methods and tools to be widely adoptee.

3.1.2 *Situational analysis-external*

- A knowledge gap identified through the previous project: “Research priorities for IPAs across Northern Australia” relates to the lack of resource empowerment in ILM due to weaknesses in linking existing cultural and scientific knowledge to opportunities and decisions in ILM.
- The variety of stakeholders involved in this project generates the need for multiple pathways of communication.
- There is a wide-spread need for improved knowledge brokering strategies in ILM across Indigenous land managers in northern Australia (Hill et al. 2016). This requires communications plan to address pathways/potential barriers in stakeholder communication to ensure effective uptake of the new methods and tools from this project.

3.1.3 *Public perceptions*

- CSIRO and NAILSMA are seen by the stakeholders as the facilitators of the project who are thus accountable to the Department of the Environment and Energy.
- NAILSMA is a trusted and respected facilitation of Indigenous peoples across the north.

- CSIRO is respected as a trusted provider of scientific information with a record in facilitation of Indigenous peoples.
- Stakeholders expect the initiation of communication from the operating bodies.
- Steering Group is welcoming a two-way communicative relationship with all relevant stakeholders identified through influence/interest analysis.
- Operating bodies have transparent and accountable representation that is to be upheld throughout this project through the guidance of the communications plan and the Codes of Conduct of the operating bodies.

3.2 Communication Activities

The communication plan focuses on three groups, identified through influence-interest stakeholder analysis conducted with the Steering Group (Reed et al. 2009). The tools of communication vary with the differing stakeholders who require differing levels of engagement and differing forms of communication. The first groups of stakeholders (high influence, high interest) are those whom the Steering Group wishes to 'empower' and with whom they are actively working to generate the knowledge brokering approaches and tools to enable their wider adoption. The second group consists of stakeholders who are grouped at an 'involve' level (low interest and high influence), including many who partner with Indigenous decision-makers in diverse contexts. Information will be exchanged to enable these stakeholders to support Indigenous decision-makers in using the tools and approaches. The last group of stakeholders (high interest, low influence) are grouped into a 'consult' assemblage. The three groups will be targeted with differing amounts of time and funding directed to networking and other activities, enabling streamlined communications to benefit stakeholders, the Steering Group and research end users. The broader community who may incidentally access information about the project are included in the "inform" assemblage (low interest and influence).

The communications plan is also an integral step, underpinning one of three activity streams, in facilitation of adoption of knowledge-brokering tools and achievement of the project outcomes and impacts established in the project logic (Figure 4). Effective Indigenous adaptive management of country is recognised as one of the key outcomes sought by the project, and underpins the achievement of the other outcomes. Knowledge is at the centre of all adaptive management cycles and the role of knowledge brokering is to enable use of that knowledge in each of the five phases of the cycle. For Indigenous land managers, both scientific and Indigenous knowledge are critical sources (Figure 7). The 'Our Country Our Way Guidelines for Australian Indigenous Protected Area Plans' is one example of an existing knowledge brokering tool that help ensure uptake of scientific and Indigenous knowledge into the 'plan' and 'do' stages of adaptive management for IPAs. The new tools that will be developed in this project target phases 3 to 5 of the cycle. This communication plan aims to ensure that all relevant Indigenous land managers are aware of these new tools and able to use them in their own work.

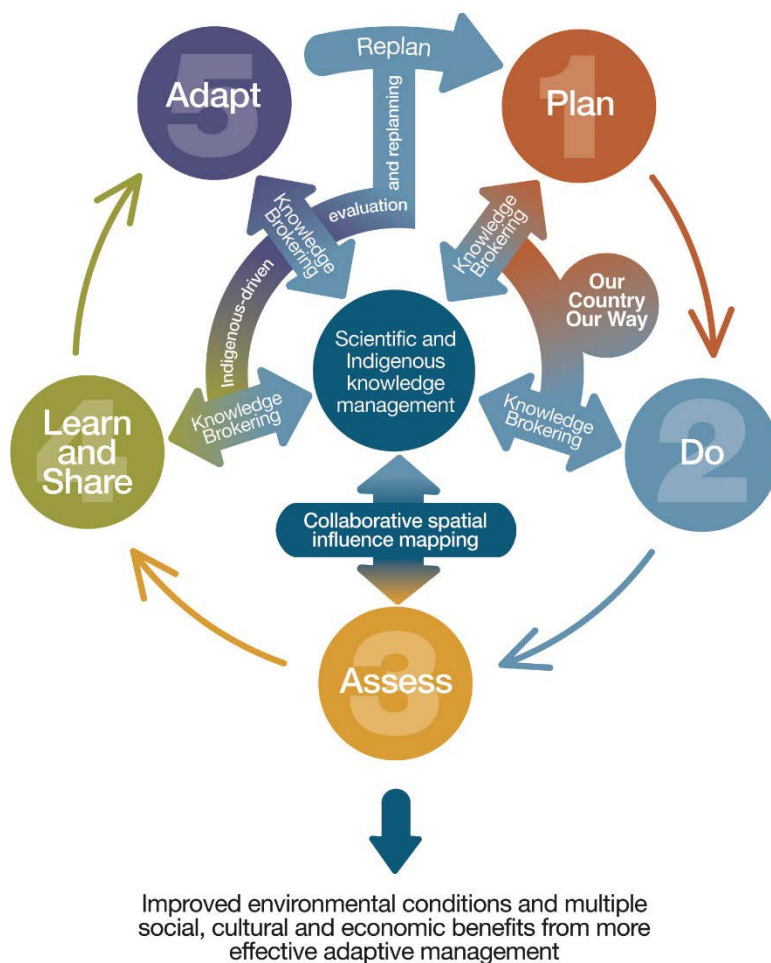


Figure 7 How knowledge brokering tools underpin the adaptive management cycle

This figure shows how the “Our Country Our Way” guidelines help broker knowledge into the adaptive management cycle for environmental management and how new knowledge brokering tools being developed within Project 5.4 are designed to support other stages of the cycle.

3.3 Communication plan scope

This communication plan covers all phases for the “Knowledge Brokering for Indigenous Land Management” Project, spanning from July 2016 to September 2019. Thus, this communications plan aims to highlight key stakeholders and their relationships to each other and the Steering Group whilst also detailing tools for effective communication between these groups within a time frame for action. The structure of the plan was generated on a flexible basis to allow for the plan to be evaluated during the project to increase the adaptive capacity of CSIRO’s project communications planning and execution. Broad communication milestones (Table 5) are tied to the project phases:

Phase One: Establishment. July – December 2016.

This phase is focused on establishing the action co-research arrangements to enable the research to proceed

Phase Two: Knowledge brokering co-design. January- June 2017

This phase is focused on the establishment of the knowledge-network and co-design of the two knowledge brokering tools for testing

Phase Three: Tool piloting, testing and evaluation. July 2017-December 2018

This phase is focused on piloting, testing and evaluating the two knowledge brokering tools, and will be broken into two parallel strands of work.

Phase Four: Synthesis, evaluation and impact analysis. July 2018-June 2019

Phase four overlaps with phase 3 as evaluation steps in each of the test cases will inform the overall evaluation of the project, and the analysis of the impact of the knowledge brokering tools.

Table 5. Knowledge Brokering for Indigenous Land Management Phase Broad Communication Milestones

Phase	Description	Key High-level Communications Message	Outputs
Phase 1: July-December 2016 “Establishment”	Establishment of the co-research arrangements to enable the research to proceed through the governance of the Steering Group	NAILSMA and CSIRO are starting a three-year project to involve Indigenous peoples as co-researchers to develop tools that will assist them to identify useful knowledge resources and explore ways they can use different types of knowledge for land management and land use decision-making. A knowledge-sharing workshop is being planned in this Phase.	• Fact Sheet to be uploaded to the CSIRO and NAILSMA web-pages and emailed to stakeholders on the Empower and Involve Stakeholder lists. • Invitation to nominate people for participation in the Workshop.
Phase 2: January-June 2017 “Knowledge brokering co-design”	Establishment of the knowledge-network and co-design of the two knowledge brokering tools for testing.	1. Connecting Indigenous peoples to share knowledge and learn together through an interactive email lists for the Stakeholder as part of the ‘Empower’ engagement group. 2. Involving Indigenous peoples and partners in understanding ways to support Indigenous decision-making through an email update list. 3. We’re working to help plan around the results from the Pan-northern workshop which identified key knowledge priorities for Indigenous-decisions makers around tenure and conservation models.	• Launch the interactive email list and the consult email list with introductory emails. • Report on the Pan-Northern Knowledge Workshop. • Fact sheet (potentially video) from the Workshop released and distributed. • Media release • Email list in operation.
Phase 3: July 2017-December 2018 “Tool piloting, testing and evaluation”	Focus on piloting, testing and evaluating the two knowledge brokering tools acquired from Phase 2. This will be completed through two simultaneous strands of work: 1. Collaborative spatial influence: stakeholder participatory influence mapping. 2. Holistic Indigenous estate-based planning: working with ILMP and IPA practitioners to address gaps identified in Project 5.2	1. Traditional Owners have built models of biophysical and social relationships in the Fitzroy Catchment to aid decision-making about future development 2. Fitzroy River Traditional Owners have evaluated scenarios for land use change across the catchment 3. Traditional Owners use holistic estate-based planning to generate ecosystem services framework for economic development on the Nicholson River	• Developed “revised project outputs for the two case studies” - due in September of 2017. • Newsletters highlighting key events • Ecos and The Conversations articles on the Fitzroy and Waanyi-Garawa cases respectively
Phase 4: July 2018-June 2019 “Synthesis, evaluation and impact analysis”	This phase overlaps with the previous through the evaluation procedures and analysis of the knowledge brokering tools.	February 2019 will be the second workshop: The Pan-northern workshop will share new tools and approaches for bringing knowledge about tenure, traditional resources, science to land management and land use decisions by Indigenous people: 1. The Workshop contributed to evaluation of the pilots 2. Evaluation of the pilots found that XXXXX The conclusion will see NAILSMA, CSIRO and IUCN launch knowledge-brokering guidelines to support Indigenous peoples in making land-management and land-use decisions for northern Australia and distribute through-out the research-end users.	• Report and Fact Sheets on the Pan-Northern Knowledge Workshop • Media release when it is being held • <i>Our Knowledge Our Way Guidelines</i> and fact sheet to be released. • Report on the project including evaluation.

3.4 Stakeholder analysis

The influence-interest matrix systematically categorises the diversity of stakeholders involved in the project into manageable units. These units have diverse levels of communication and interaction from the 'inform' level to the 'empower' level according to the IAP2's Public Participation Spectrum (Figure 8). Analysis using the influence-interest matrix is designed to assist with the selection of the level of participation that defines the public's role in any community engagement program. The communications plan is focussed on the 'involve', 'consult' and 'empower' groups who will consequently be managed differently in terms of communication (Figure 9). The different communication goals are to undertake two-way communications with the:

- 'Consult' group, to obtain their feedback on analyses, options and research results. Regular email updates seeking input but without the opportunity for phone calls (Table 6).
- 'Empower' group, to enable them to make better decisions that improve environmental conditions. Regular meetings, workshops, phone calls, with an interactive email list to be established after the first knowledge-sharing workshop (Table 7).
- 'Involve' group to ensure their concerns and aspirations are consistently understood and considered to enable them to use the research results. Regular email updates seeking input and follow-up phone calls (Table 8).

Some of the communications tailored for these three groups will also be accessible to an 'inform' group of the general public, which the Steering Group has chosen not to list. The acknowledgement of the differing interests and influences stakeholders have will streamline the communications process to avoid duplication and increase time efficiency.

INCREASING IMPACT ON THE DECISION 					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

© IAP2 International Federation 2014. All rights reserved.

Figure 8. IAP2 spectrum of participation

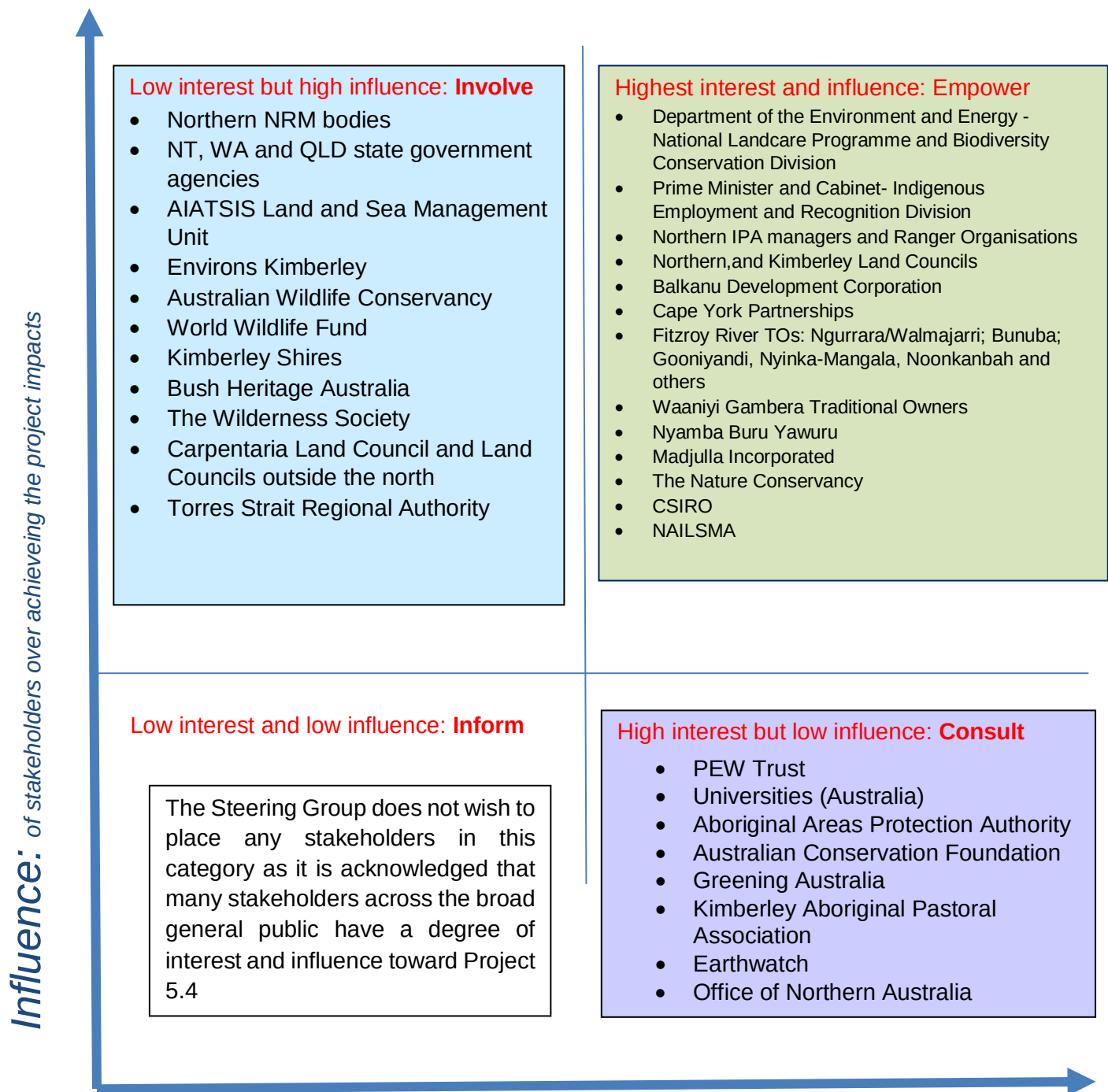


Figure 9. Stakeholder influence-interest matrix

Table 6. Stakeholder communications with 'consult" group

Stakeholder Plan: Consult high interest but low influence	Key message from steering committee	Communication objective	Responsibilities of stakeholder group	Communication tactics	Contact times
	<i>Focus of why SG and SH are working together in project</i>	<i>Main goal of SG in working with SH group and vice versa</i>	<i>Communication responsibilities of the group and SG</i>	<i>Effective ways to carry out communication</i>	
Non-government sector • PEW Charitable Trust • Bush Heritage Australia • Earthwatch • Greening Australia • Australian Conservation Foundation	SG wish to enable the knowledge and experience of the adjacent organisations. Their on-ground methodologies for empowerment if Indigenous knowledge is valuable to the SG.	The SC wishes to utilise information from these stakeholders but also aims to keep them informed on the project. This may instigate direct communication on practice and experience to generate greater perspective in the project.	SG is to keep these consultation stakeholders up-to-date with information throughout the project.	Email list to be generated that incorporates both consultation and involve stakeholders. These are the "Update Email Lists" Newsletters sent seeking input from the beginning and conclusions of consecutive phases of the Project to be sent out.	Regular through email. With updates twice per phase at the least after Phase One.
Government and industry sector • Office of Northern Australia • Kimberley Aboriginal Pastoral Association • Aboriginal Areas Protection Authority	To work in consultation with for the formulation of an adaptively managed plan through stakeholders experiences in conserving Australian landscapes and culture.	Share knowledge and information of Indigenous land management and key contacts.	Both parties to keep each other informed and in process of consultation to generate a feedback loop of adaptive management.	As above	As above
Research sector • Universities (Australia)	The relationship between the tertiary institutes and the SG is mainly academic and will involve communication of research outputs and possible method pathways to goals.	Objectives include communication and recommendations of contact persons for specialisation knowledge throughout the project. This will be especially important for the connection to Northern universities such as James Cook and Charles Darwin.	SG to keep universities informed on project research progress.	As above	As above

Table 7. Stakeholder communications with 'involve' group

Stakeholder Plan: Involve Low interest but high influence	Key message from steering group <i>Focus of reason why SG and SH are working together in project</i>	Communication objective <i>Main goal of SG in working with SG group and vice versa</i>	Communication tactics <i>Effective ways to carry out communication</i>	Responsibilities of stakeholder group <i>Communication tasks of the group and SG</i>	Contact times
NT, WA and QLD state government agencies	The Project is to work within the boundaries of State departments and relevant legislative pieces.	The SC are to inform the relevant departments of specific progress. The aim is to keep departments aware and informed at beginning and conclusion of Project phases.	Email updates of project at beginning of phases and completion of phases. Done through email of newsletters seeking input and follow-up phone calls. Scheduling of phone calls by project team members.	Responsibility of SC to keep SH informed but also responsibility of relevant departments to provide feedback to SC on Project progress.	As above
NRM bodies: • Rangelands (WA) • Cape York NRM • North Qld Dry Tropics • Terrain • Torres Strait Regional Authority • Territory NRM	For Rangelands NRM, the SC will communicate closely due to the projects location in the catchment. Surrounding Northern NRMs are to be informed of progress at conclusion of phases to allow for other regions to observe the progress and apply the Project to their own region	The SC aims to keep NRM bodies closely informed on socio-ecological observations from the project to allow for adaptive management in other Indigenous land management programs in neighbouring catchments.	Email updates throughout phases that included more detailed scientific (Western and Indigenous) on the programs progress. Phone conversation welcomed between SC and NRM bodies, particularly Rangelands.	It will be the responsibility of the SC to inform the NRM bodies of progress through email communication. It is, however, the responsibility of the NRM bodies to analyse the information and adapt/observe from own perspective.	As above
• AIATSIS Land and Sea Management • Environs Kimberley • Australian Wildlife Conservancy • World Wildlife Fund • Kimberley Shire's • Bush Heritage Australia	These stakeholders are comprised of mostly not-for-profit organisations or government funded agencies. The Steering Group is thus focused on creating communicative relationships for resource sharing.	The Steering Group through Project 5.4 are able to update these organisations on their work in the Kimberley and North Australia. In return, the organisation may wish to become more heavily involved in the project at later stages and thus, must have knowledge on current project status.	Email updates through contact lists that detail any updates with the project. In addition, the fact sheets for beginning and conclusions of phases will also be administered. Phone conversation can be scheduled, likewise for possible Skype conference calls.	It will be the responsibility of the SG to send these email up-dates on Project 5.4, however, it will be the responsibility of the organisation to contact the SG to obtain more information on the Project.	As above

Table 8. Stakeholder communication with 'empower' group

Stakeholder Plan: Empower Highest interest and influence:	Key message from steering committee <i>Focus of why SG and SH are working together in project</i>	Communication objective <i>Main goal of SG in working with SG group and vice versa</i>	Responsibilities of stakeholder group <i>Communication responsibilities of the group and SG</i>	Communication tactics <i>Effective ways to carry out communication</i>	Contact times
Department of the Environment: National Landcare Programme and Biodiversity Conservation Division Prime Minister and Cabinet- Indigenous Employment and Recognition Division	Funding received by operating bodies to allow the execution of the project. The SC aims to generate an adaptive and successful project from these funds to close the gap between Western and Indigenous Knowledge communication.	SG to keep Depts. informed and up to date with progress throughout project.	Both parties to be transparent and accountable.	Regular and periodic meetings via web-ex. Annual meet with SC and Dept. reps. Active email list with regular updates from SC Review of project outputs	Steering Group Meetings (every 4-6 months) Workshops in 2017 and 2019
Surrounding Northern IPA managers: o Balangarra, Bardi Jawi Oorany, Bardi Jawi, Dambimangari, Gooniyandi, Karajarri, Kija, Ngurrara, Nyikina Mangala, Nyul Nyul, Paruku, Uunguu, Wunggurr, Nyamba Buru Yawuru Land Councils: - Kimberly Land Council - Carpentaria Land Council Aboriginal Corporation - Cape York Land Council - North QLD Land Council - Northern Land Council	This project is focused in the Fitzroy Catchment, however, surrounding NRM practitioners will be involved to maximise the flow on effects of the project across Northern Australia.	The SG aims to provide insight to surrounding land councils/IPA managers about the status of the project and its success/hardships to enhance the learning across Northern Australia IPAs/land councils.	SG to keep managers and councils informed of progress through forms of communication that can be understood from a Indigenous and Western knowledge perspective. Highlight areas of key influence that the project strikes for surrounding land managers	Frequent and periodic phone calls Periodic face-to-face meetings Workshops Quarterly updates via the active email list	Interactive email list to be established following the first Workshop.
Traditional Owners - Ngurrara TO's and managers - Bunuba TO's and managers - Waanyi- TOs	To collaboratively work to generate culturally tailored knowledge brokering methods for Indigenous knowledge.	The SG wishes to empower TOs of the Fitzroy and surrounding Indigenous lands through practical and communicative involvement to assist TOs in decision making for their land.	SG and TO's to keep both parties informed and to voice queries/comments. To understand an act on	Frequent and periodic phone calls Annual face-to face meetings Active presence over email Workshops with participatory elements.	
The Nature Conservancy Cape York Partnerships	To work collaboratively towards research end goals and outputs	The Nature Conservancy, CSIRO and NAILSMA are to communicate their experiences of Northern Land Management to generate a diverse, adaptive project	Joint vision of the research end goals are to provide pathways of communication between the SH and SC.	These pathways will be achieved through: Face-to-face meetings Web-ex calls Phone calls	

3.5 Communication plan risks

Specific risks have been identified for the communication plan, together with relevant mitigation strategies. No key remaining risks were identified.

Table 9. Communication plan risks and mitigation strategies

Risk	Impact	Mitigated by
The 3 levels of engagement may cause prioritisation of stakeholders instead of communication method differentiation.	If this was to occur, full transparency between the SG and specific Stakeholders could occur. This may hinder the success of sharing and utilising knowledge between parties.	This issue can be resolved through following the rubrics for each stakeholder engagement groups (Tables 5, 6 and 7) and reverting back to the common goals, methods/times of communication and between the stakeholders and SG.
Stakeholders may wish to receive more/less information on Project 5.4.	This would mean that stakeholders may have to be shifted around the levels of engagement. This should have no negative impact on the Project.	This can be mitigated by being aware of the vested and community interests of organisations and fulfilling their needs of information, whether it be a greater level of incorporation in the project, or less.
New stakeholders may enter the Project at different phases seeing lack of separation of organisations into a level of engagement.	This may cause marginalisation of stakeholders wishing to become part of the project which would be detrimental to both the SG, the future of the Project and for the network of stakeholders.	If new stakeholders enter at a particular phase it is important to sort them into a level of engagement: consult, involve, empower. At the minimum, they should be put into the 'consult' group and if they wish to receive more information and become more involved then they will move into the higher levels.

4. Monitoring Framework (MDSI)

Generically, Monitoring, Evaluation, Reporting and Improvement (MERI) frameworks are expected to clearly articulate the ongoing monitoring, evaluation, reporting and improvement activities to be conducted, who will do them and when they will happen for a particular project and program. Stockwell et al. (2016) provide a generic framework which clearly separates these activities (Figure 10). Evaluations are generally expected to be conducted by parties independent to those conducting the project or program (Menon, Karl, and Wignaraja 2009).

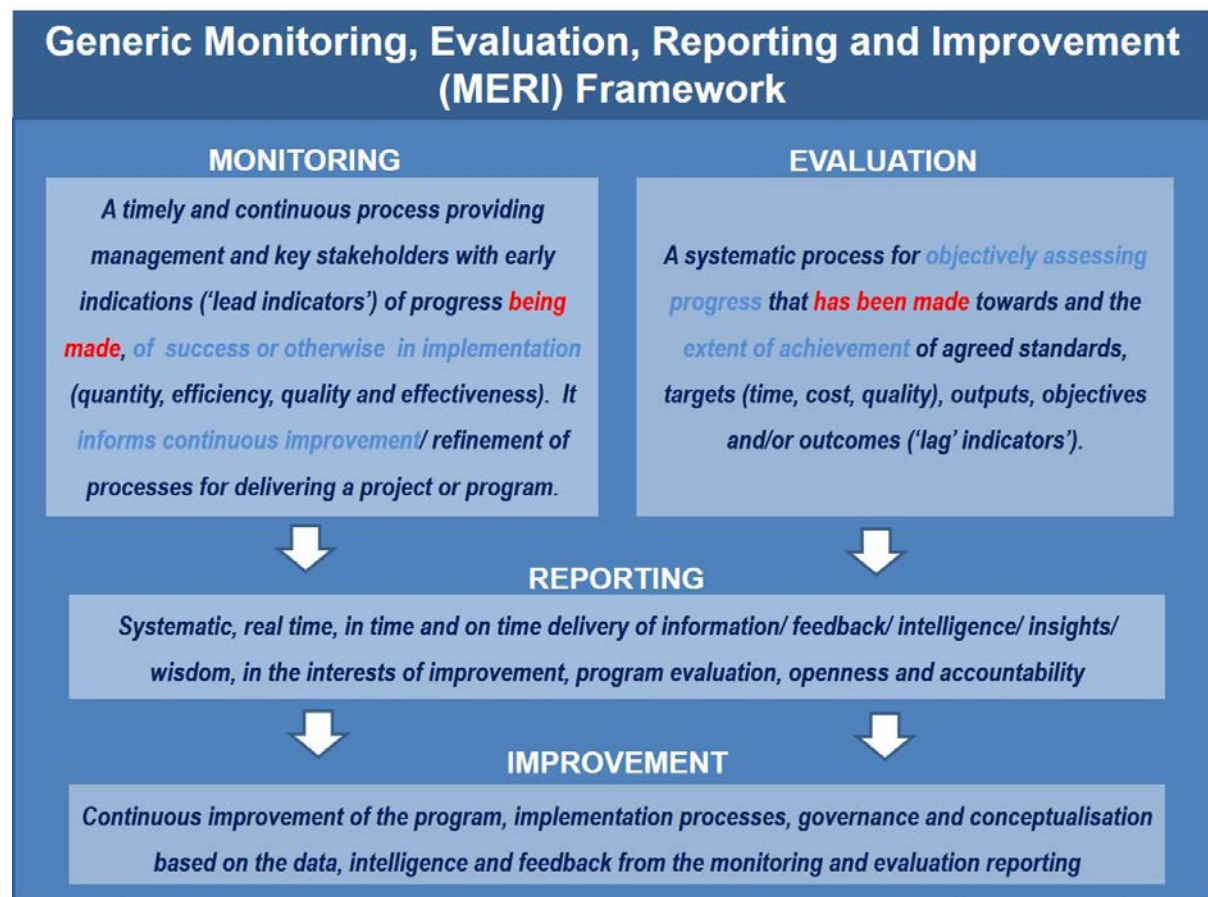


Figure 10 Generic MERI Framework from Stockwell et al. 2016

In this action research process, an independent evaluation of the project is not resourced, although the project will be included in independent evaluations of the NESP Northern Australia Hub resourced by the Department of Environment and Energy. Instead, the scientific methods for diagnosing the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets underpin our ability to learn from the project. Diagnosis, rather than independent evaluation, adds the dimension of building on existing theory in the scientific literature about what works, why and how in the domain under investigation. Sharing our findings and lessons with a wide audiences beyond those interested with responsibility for improvement and accountability is key to our project. Hence our framework is better considered Monitoring, Diagnosis, Sharing and Improvement (MDSI).

Monitoring requires indicators that can detect trends relevant to the change being sought, as set out in the project logic (Figure 4). Monitoring of impacts will not be undertaken through this project, as a number of existing programs provide relevant evaluation of trends, and it is beyond the project mandate and resources to augment or analyse these. Monitoring of three-year outcomes will be undertaken through the longitudinal surveys (Appendix 7) conducted with the Steering Group members.

Table 10 Project impacts and relevant evaluations

Impact	Existing programs with relevant evaluation of trends
Indigenous people empowered to look after country our way	Regular reports by the Australian Government to the <i>Convention on Biological Diversity</i> regarding progress on Aichi Target 18 regarding Indigenous involvement (Australian Department of the Environment 2014); Reporting to the UN Permanent Forum on Indigenous Issues by Australian Indigenous organisations – see for example http://www.klc.org.au/docs/default-source/Media-Releases/170501--un-intervention?sfvrsn=2
Improved environmental conditions and multiple social, cultural and economic benefits from effective Indigenous adaptive management of country	Regular (5 yearly) State of the Environment reports by the Australia Government; Evaluations of the multiple benefits from Indigenous land management by commissioned by both non-government organisations (Country Needs People 2017, van Beuren et al. 2015) and governments (Hill et al. 2013).

Table 11 Monitoring of project progress towards 10-15 year outcomes

10-15 year outcome	Survey questions themes	Data collection methods, indicators and analysis	Audiences
Indigenous peoples' knowledge is accessible to them for their decision-making	Accessibility of Indigenous knowledge	Ongoing place-based dialogue and reflection	NESP through milestone reports.
Scientific knowledge is accessible to Indigenous peoples for their decision-making	Accessibility of scientific knowledge	Online surveys conducted 4 times during project.	Co-investors CSIRO and NAILSMA similarly through milestone reports.
Indigenous land managers effectively use knowledge for adaptive management of country with multiple benefits	Use of knowledge in adaptive management	Likert scale responses and open-ended questions used to detect trends across 4 interviews as lead indicators	Information will be used by the project team, in discussion with the Steering Group, to improve relevant project aspects.
Indigenous land managers effectively use knowledge to influence land, water, development and conservation options to meet their aspirations	Use of knowledge to influence the land management/use decisions of others	Analysis undertaken by project team and reviewed by Steering Group	

Monitoring of the three year outcome in the case study regions will occur as part of the action research aimed at diagnosing effective conditions for knowledge brokering, and using these to develop relevant science theory with practical applications. This outcome is “Traditional Owners in the case study regions effectively use knowledge to have influence over land, water, development and conservation options to meet their aspirations”. Insight into how, and why knowledge use is effective will be diagnosed to using key theories, initial propositions, data collection and analysis approaches from social science (Table 12).

Table 12 Diagnostic approach for the 3-year outcome

Cases	Key theories	Initial propositions	Data collection and analysis
Waanyi-Garawa	Indigenous-driven and Indigenous-controlled planning can help Indigenous people maintain their control over their resources, their own unique relations and distinct cultural orders; and drive greater equity in co-governance arrangements (Lane and Hibbard 2005, Hill 2011)	<i>Holistic estate-based planning provides Indigenous land managers with the ability to understand options for all their traditional country, including where you have influence and how to use it. Customised I-Tracker tools provide Indigenous land managers with effective methodologies for assessment of country that are simplified, robust and linked to their end-game (goals).</i>	Collection See 2.5.2. Includes place-based dialogue; documentary review, spatial analysis and focus groups discussions. Analysis See 2.5.2 Thematic and factor analysis using a range of analytical approaches such
Fitzroy Catchment	Participatory modelling is a critical tool for Indigenous peoples uptake and negotiation of knowledge into decisions (Robinson et al. 2015, Hill et al. 2017).	<i>Influence mapping provides Indigenous land managers with the ability to identify other critical decision-makers and mobilise knowledge to influence their decisions. Participatory 3D modelling provides an effective interface to mobilise, translate, negotiate, and synthesise between Indigenous knowledge and science.</i>	data visualisation, word association, cross-factor matrices, and word frequency analyses. Validity tested through convergent triangulation between data sources; prolonged engagement in the workshops and discussions, their preparation and follow-up; and the engagement with the Steering Group and participants to provide critical reflexivity.
Pan-northern knowledge network	Indigenous governance and Indigenous-driven co-governance provides better prospects for integration of IEK and western science into decision-making (Hill et al. 2012).	<i>Indigenous peer-to-peer exchange is the preferred method of learning among Indigenous land managers. Indigenous people are able to self-organise using digital means to promote their learning about areas of significant interest.</i>	

In addition to the planned scientific publications detailed in Table 2, and the communication outputs detailed in Tables 6-8, regular milestone reports will be provided to the NESP Northern Australia Hub in accordance with the schedule in Table 13

Table 13 Milestone reporting schedule

Milestones	Due date
Milestone 1 Signed contract Production of initial project fact sheet based on a 500 word project summary (plain english) and a minimum of 3 photos	Due 1 Sep 2016
Milestone 2 Submission of copy of animal and/or human ethics approval Submission of signed research user agreement Steering Group, detailed project plan and Communication Plan. Workshop preparations complete Publications plan submitted	Due 1 Mar 2017
Milestone 3 Knowledge brokering tools Preparation and Co-design. Submission of revised project outputs and milestones for the case studies First knowledge-network workshop hosted and report and fact sheet submitted.	Due 1 Sep 2017
Milestone 4 Implementation of pilots of the Knowledge brokering tools. Reporting on progress according to revised milestones submitted Sept 18 Review of publication plan with update on status of publications	Due 1 Mar 2018
Milestone 5 Implementation of pilots of knowledge brokering tools. Reporting on progress according to revised milestones submitted Sept 18	Due 1 Sep 2018
Milestone 6 Evaluation of pilots, beginning of synthesis. Draft toolkit, draft fact sheet and report. Second workshop preparations complete.	Due 1 Mar 2019
Milestone 7 Second workshop held and report and fact sheet on workshop submitted, including feedback from presentation of the drafts guidelines/tools for feedback. Presentation of results at at least one NESP-organised forum in Canberra and one in northern Australia Production of project achievement summary report based on a 500 word project summary (plain english) and a minimum of 3 photos Final project report and final fact sheet submitted. Briefings on policy and practitioner-relevant findings submitted Peer reviewed scientific publications on the on the conditions under which collaborative knowledge tools support Indigenous decision-making for improved environmental management.	Due 1 Sep 2019

These research outputs together provide for ongoing reporting and information-sharing throughout the life of the project and the “Our Knowledge Our Way” guidelines, together with the scientific papers, will ensure this sharing can continue beyond the life of the project. The Steering Group will take the most significant role in guiding the project team to ensure that any issues and opportunities identified through ongoing monitoring results in improvements to the project design and delivery.

References

- AANDC. 2013. CCP Handbook - Comprehensive Community Planning for First Nations in British Columbia Second Edition. Vancouver, Canada. Online: https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-BC/STAGING/texte-text/ccphb2013_1378922610124_eng.pdf: Aboriginal Affairs and Northern Development, Canada, BC Region.
- Australian Department of the Environment. 2014. Australia's Fifth National Report to the Convention on Biological Diversity. Canberra, Australia. Online: http://www.environment.gov.au/system/files/resources/fd293bd1-c8b8-4ef3-9178-315d06a1663d/files/5th-national-report-final_0.pdf: Department of the Environment.
- Bentrupperbäumer, J. M., R. Hill, C. Peacock, and T. Day, and the Mossman Gorge Community Bamanga Bubu Ngadimunku Inc.,. 2001. *Bama Bubu Nganjin Djuma Ngajal Bama Bubu Sees the Future Mossman Gorge Community-Based Planning Project*. Cairns: Consultancy Report from the Rainforest CRC to Bamanga Bubu Ngadimunku Inc.
- Borrini-Feyerabend, G., A. Kothari, and G. Oviedo. 2004. *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*. Gland, Switzerland and Cambridge, UK: IUCN. World Commission on Protected Areas. Best Practice Protected Area Guideline Series No. 11.
- Country Needs People. 2017. Protecting Nature for All of Us. Environmental benefits of Australia's Indigenous Protected Areas and Indigenous rangers. Online at <http://www.countryneedspeople.org.au/>: Country Needs People Campaign.
- Creswell, J. W., and D. L. Miller. 2000. "Determining validity in qualitative inquiry." *Theory into Practice* 39 (3):124-130.
- Dobbs, Rebecca J, Christy L Davies, Michelle L Walker, Neil E Pettit, Bradley J Pusey, Paul G Close, Yoshi Akune, Ninjana Walsham, Brendan Smith, and Albert Wiggan. 2015. "Collaborative research partnerships inform monitoring and management of aquatic ecosystems by Indigenous rangers." *Reviews in Fish Biology and Fisheries*:1-15.
- Gambold, N.J., and S. Kerins. 2015. Ganalanga-Mindibirrira Indigenous Protected Area Plan of Management 2015-2020. Darwin, Australia. Online: http://www.imags.com.au/Ganalanga_Mindibirrira/#8/z: Prepared by Tamarind Consultants and the Centre for Aboriginal Economic Policy Research, ANU, with assistance from the Caring for Country Branch of the Northern Land Council.
- Hibbard, M., M.B. Lane, and K. Rasmussen. 2008. "The Split Personality of Planning: Indigenous Peoples and Planning for Land and Resource Management." *Journal of Planning Literature* 23 (2):136-151.
- Hill, R. 2011. "Towards equity in Indigenous co-management of protected areas: Cultural planning by Miriung-Gajerrong people in the Kimberley, Western Australia." *Geographical Research* 49 (1):72-85.
- Hill, R., C. Grant, M. George, C.J. Robinson, S. Jackson, and N. Abel. 2012. "A typology of Indigenous engagement in Australian environmental management: Implications for knowledge integration and social-ecological system sustainability." *Ecology and Society* 17 (1):23 <http://dx.doi.org/10.5751/ES-04587-170123>.
- Hill, R., P.L. Pert, J. Davies, C.J. Robinson, F. Walsh, and F. Falco-Mammone. 2013. Indigenous Land Management in Australia. Diversity, scope, extent, success factors and barriers. Cairns, Canberra: CSIRO Ecosystem Sciences. <https://publications.csiro.au/rpr/download?pid=csiro:EP124759&dsid=DS5>.
- Hill, R., C.J. Robinson, P.L. Pert, M. Barber, I. Lyons, K. Maclean, L.D. Talbot, and C. Moran. 2017. "Integration science for impact: fostering transformations towards sustainability " In *Social Sciences and Sustainability*, edited by I. Walker and H. Schandl. Melbourne, Australia: CSIRO Publishing.

- Lane, M.B., and M. Hibbard. 2005. "Doing It for Themselves: Transformative Planning by Indigenous Peoples." *Journal of Planning Education and Research* 25:172-184.
- McNiff, J., and J. Whitehead. 2006. *All you need to know about action research*. London: Sage Publications.
- Menon, Saraswathi, Judith Karl, and Kanni Wignaraja. 2009. "Handbook On Planning, Monitoring And Evaluating For Development Results." *UNDP Evaluation Office, New York, NY*.
- Parsons, Meg, Karen Fisher, and Johanna Nalau. 2016. "Alternative approaches to co-design: insights from indigenous/academic research collaborations." *Current Opinion in Environmental Sustainability* 20:99-105. doi: <https://doi.org/10.1016/j.cosust.2016.07.001>.
- Reed, M. S., A. Graves, N. Dandy, H. Posthumus, K. Hubacek, J. Morris, C. Prell, C. H. Quinn, and L. C. Stringer. 2009. "Who's in and why? A typology of stakeholder analysis methods for natural resource management." *Journal of Environmental Management* 90 (5):1933-1949. doi: 10.1016/j.jenvman.2009.01.001.
- Robinson, C.J., K. Maclean, R. Hill, E. Bock, and P. Rist. 2015. "Participatory mapping to negotiate usable Indigenous knowledge for assessing environmental risk " *Sustainability Science*:DOI 10.1007/s11625-015-0292-x.
- Robinson, G. M. 1998. *Methods and Techniques in Human Geography*. Chichester: John Wiley & Sons.
- Star, S.L., and J.R. Griesemer. 1989. "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39." *Social Studies of Science* 19 (3):387-420.
- Stockwell, B., R. Eberhard, P. Bycroft, and J. Coutts. 2016. Reef Plan Best Management Program Monitoring and Evaluation Review and Practice Change for MERI. Brisbane, Australia. Online: <http://www.ehp.qld.gov.au/assets/documents/agriculture/sustainable-farming/reef/rp150p-a-review-reef-catchment-best-mgmt-programs.pdf>: Watershed Australia and the Queensland Government.
- Tengö, Maria, Rosemary Hill, Pernilla Malmer, Christopher M. Raymond, Marja Spierenburg, Finn Danielsen, Thomas Elmqvist, and Carl Folke. 2017. "Weaving knowledge systems in IPBES, CBD and beyond—lessons learned for sustainability." *Current Opinion in Environmental Sustainability* 26–27:17-25. doi: <http://dx.doi.org/10.1016/j.cosust.2016.12.005>.
- van Beuren, M., Worland T., Svanberg, and J. Lassen. 2015. Working for our Country. A review of the economic and social benefits of Indigenous land and sea management. Online at https://d3n8a8pro7vhmx.cloudfront.net/thecountryneedsitspeople/pages/131/attachments/original/1452565983/Working_for_Our_Country_report_2016.pdf?1452565983: Pew Charitable Trusts and Synergies Economic Consulting.
- Wild-River, S., and A. Lowe. 2006. Surveys for Principal investigators to use with project stakeholders: Monitoring and Evaluation of the Social and Institutional Research Program of Land and Water Australia. Canberra: Land and Water Australia.
- Woodward, E., and P.M. McTaggart. 2015. "Transforming Cross-Cultural Water Research through Trust, Participation and Place." *Geographical Research* 54 (1):129-142 doi: 10.1111/1745-5871.12136.
- Yin, R. 2009. *Case Study Research Design and Methods Fourth Edition, Applied Social Research Methods Volume 5*. Thousand Oaks California: Sage Publications.

Appendix 1: Steering Group Draft Terms of Reference

Updated 10th October 2016

Background

The project aims to involve Indigenous peoples as co-researchers to develop tools that will assist them to identify useful knowledge resources and explore ways they can use different types of knowledge for decision-making. It will deliver:

- tailored knowledge brokering tools and guidelines for their use;
- knowledge-sharing among Indigenous land managers across northern Australia through workshops and digital networking activities;
- a diagnosis of the conditions under which knowledge brokering can improve Indigenous adaptive management of environmental assets.

A team of researchers from NAILSMA, and CSIRO will work with project partners.

Function of the Steering Group

The Steering Group will provide information and advice to the project team and take responsibility for:

- (1) supporting good collaboration;
- (2) supporting ethical and culturally appropriate implementation of the research in accordance with particular TO protocols;
- (3) supporting the protection of Intellectual and Cultural rights;
- (4) helping ensure the project is useful to IPA managers and partners and has influence beyond the life of the project
- (5) making sure the research priorities are identified through a strong fair process;
- (6) supporting review and evaluation of project outputs and outcomes;
- (7) addressing any issues that might arise.

Roles of the Steering Group

- Meet on a timely basis to ensure the members are up-to-date with project progress
- Consider and approve joint badging of project material as appropriate
- Provide advice and collaboration on research focus, design and methods
- Working with the team to address any issues that have significant implications for the project
- Assist the project team to negotiate changes to the project scope related to timing, other responsibilities, and other emergent issues when/if necessary
- Assist the project team to recognise differences in opinion and approach and to find common ground and ways of resolving any disputes arising

Membership of the Steering Group

- | | |
|--|----------|
| • Kimberley Land Council (Will Durack) | 1 member |
| • Nyamba Buru Yawuru Ltd (Julie Melbourne) | 1 member |
| • Northern Land Council (Matt Salmon) | 1 member |
| • Cape York Partnerships (Michael Winer) | 1 member |
| • Wardekken IPA (Dean Yibarbuk) | 1 member |
| • Fitzroy River Traditional Owners (TBA) | 1 member |

• Waanyi Garawa Traditional Owners (TBA)	1 member
• Department of the Environment and Energy (Australian) (Jacqui Doyle)	1 Member
• The Nature Conservancy (David Hinchley)	1 member
• PM&C (Rick Taylor)	1 member
• Scientists: Natalie Stoeckl/Jane Addison/Diane Jarvis; Jorge Alvarez	Additional

Project leaders from NAILSMA and CSIRO will provide secretarial support

Convenor/Chair

Chairing and minute-taking roles will be agreed after the Steering Group convenes for the first time (rotating).

Role of individual Working Group members

The roles of the individual members include:

- appreciate the significance of the project for some or all major stakeholders and communicate their interests where appropriate
- have a broad understanding of project management issues and the approach being adopted
- be committed to, and actively involved in pursuing the project's outcomes
- actively communicate two-way (back and forward) about the project with stakeholders

In practice, this means they:

- guide the cultural and other requirements of project
- will use appropriate opportunities at forums and other meetings to pro-actively communicate two-way (back and forward) about the project progress and outcomes
- help balance conflicting priorities and resources
- provide guidance to the Project Team and users of the project's outputs
- consider ideas and issues raised
- review the progress of the project
- check adherence of project activities to standards of best practice.

Agenda Items, Meeting Papers and Minutes

Draft agenda and meeting papers will be circulated prior to the meeting by the project leaders, at least 3 working days before the meeting and ideally at least one week. The format of the minutes shall be as simple action items and key decisions.

Frequency and location of Meetings

The Steering Group will meet at least six times during the project. Other meetings will be convened where necessary.

Appendix Two: Fitzroy River Declaration



Traditional Owners from the Fitzroy River catchment area met on the 2nd and 3rd of November 2016 in Fitzroy Crossing. Participants from that meeting developed the below statement:

Fitzroy River Declaration

Traditional Owners of the Kimberley region of Western Australia are concerned by the extensive development proposals facing the Fitzroy River and its catchment and the potential for cumulative impacts on its unique cultural and environmental values.

The unique cultural and environmental values of the Fitzroy River and its catchment are of national and international significance. The Fitzroy River is a living ancestral being and has a right to life. It must be protected for current and future generations, and managed jointly by the Traditional Owners of the river.

Traditional Owners of the Fitzroy catchment agree to work together to:

1. Action a process for joint PBC decision making on activities in the Fitzroy catchment;
2. Reach a joint position on fracking in the Fitzroy catchment;
3. Create a buffer zone for no mining, oil, gas, irrigation and dams in the Fitzroy catchment;
4. Develop and agree a Management Plan for the entire Fitzroy Catchment, based on traditional and environmental values;
5. Develop a Fitzroy River Management Body for the Fitzroy Catchment, founded on cultural governance;
6. Complement these with a joint Indigenous Protected Area over the Fitzroy River;
7. Engage with shire and state government to communicate concerns and ensure they follow the agreed joint process;
8. Investigate legal options to support the above, including:
 - 1) Strengthen protections under the EPBC Act National Heritage Listing;
 - 2) Strengthen protections under the Aboriginal Heritage Act; and
 - 3) Legislation to protect the Fitzroy catchment and its unique cultural and natural values.

Appendix Three: Waanyi/Garawa Vision for Country

Our Vision for our Country

To live on the Waanyi/Garawa Aboriginal Land Trust

All land owners working together to care for our country and culture

Using two knowledge systems (Indigenous and scientific) to manage and protect our country

To develop enterprises on country to create work for our people

To leave our country well cared for and healthy, for our children and grandchildren

Sustainable land-based enterprises like a tourism business focused on China Wall, and a viable cattle business.

Appendix Four: Workshop Information for Participants

Knowledge Brokering for Indigenous Land Managers

Information for Theme Leaders

I. INTRODUCTION

Date and time: Tuesday 7th and Wednesday 8th February, 2017 08:30-5:00

Eight 1.5-hours work sessions, including two hours break each day for lunch, morning and afternoon tea).

Venue: Batchelor Institute, Cnr Awilla Rd and Nurndina Crescent, Batchelor NT 0845

Participants

We expect around 40 attendees, including 26 Indigenous land managers, 7 project team members, and 7 members of the Steering Group.

A flexible format, designed for Indigenous participation

Good preparation helps ensure successful workshops. Flexibility on the day will also be essential.

Your role as Theme Leader

As Theme Leader you will have a 1.5 hour session to introduce, guide and facilitate knowledge-sharing and discussions relevant to your Theme, and pull together a summary at the end.

WHAT YOU NEED TO DO NOW

As Theme Leader/s we would like you to prepare a concise 10 minute introduction to the session. We have provided some background reading that covers some of the many complexities (see next few pages). The job is to distil these down into some short points that supports people with a range of different literacy levels and job experiences to understand what is at stake. Please send us your key points and statements **by 30th January** (to Ro.Hill@csiro.au). You may want to use the attached template as a visual tool for your presentation and we will then print it out on an A1 poster for the workshop. **We will send the dot points/poster to the presenters in your group, together with access to the background reading, at least a week before the workshop.**

2. WORKSHOP OVERVIEW

The workshop will involve an opening session, six thematic sessions, and a closing session. Theme Leaders will facilitate the Thematic sessions, including an introductory session that frames the discussion, and brings attention to the focus questions at an appropriate time.

3. OPENING AND CLOSING SESSIONS

The opening session will include:

- Welcome to country
- Introduction to NESP and the projects

- Introductions to participants
- Consent forms and process
- Anticipated Outputs and outcomes

The closing session will include:

- Completion of evaluation forms
- Opportunity for feedback and concluding comments
- Summing up
- Next steps

4. THEMATIC SESSION

How the Thematic Sessions will be run

Each Thematic session will have 1.5 hours for knowledge exchanges involving the whole group. This can be conducted outside or inside. Facilities will be made available including:

- Projector for inside sessions
- Whiteboards
- Butcher's paper, pens, sticky notes.

We encourage alternative ways of presenting information – singing, dancing, drawing, using objects (e.g. craft items that people might like to bring).

The 1.5-hour session include the following:

- Introduction to the Theme—issues, challenges, opportunities (10 minutes)
- Sharing of stories from three previously invited/requested participants (30 minutes)
- Facilitated discussion around the key questions drawing in a wide range of comments (40 minutes)
- Identifying good options for policy and practice (at least 3) drawn out by the Theme Leader and recorded (10 minutes)

We have provided 2-3 key readings for each of the Themes to help you familiarise with the issue. Please feel free to use other material.

5. WORKSHOP THEMES

Workshop themes and Theme Leaders:

- g) Empowerment – Matt Salmon and Danielle Campbell
- h) Conservation governance models – Liz Davies, Julie Melbourne
- i) Tenure and alternative tenure models – Will Durack, Polly Grace, Julie Melbourne
- j) Planning approaches – David Hinchley and Melissa George
- k) Indigenous enterprises – Mike Winer, Jane Addison/Diane Jarvis
- l) Participatory tools and cultural recording – Julie Melbourne, Chris Parker, Ro Hill

Theme A. Empowerment

This theme will include presentations and discussions identifying what empowerment is on country, how empowerment of Indigenous peoples is linked to knowledge and indigenous futures.

Hunt, J. 2016. Let's talk about success: exploring factors behind positive change in aboriginal communities. CAEPR Working paper No. 109/2016 Centre for Aboriginal Economic Policy Research.
[http://caepr.anu.edu.au/sites/default/files/Publications/WP/Working%20Paper%2016-046-\(24May16\).pdf](http://caepr.anu.edu.au/sites/default/files/Publications/WP/Working%20Paper%2016-046-(24May16).pdf)

Empowered Communities. 2015. Empowered Communities, Empowered People: Design Report. Kununurra, Australia. Online: <http://empoweredcommunities.org.au/f.ashx/EC-Report.pdf>: Wunan Foundation.

Inputs:

- Knowledge of the Theme Leader about the issues (papers)
- Case studies presentations from three participants focused on the questions

Questions to help lead to consideration of good options for policy and practice in this Theme:

- What does empowerment look like on country?
- What are the different ways Indigenous knowledge is used by land managers to empower them to run country?
- What factors are important to empower communities to build strong futures?

Theme B. Conservation governance models

This theme will include presentations and discussions identifying some of the key challenges and opportunities in how different models of conservation governance affect use of knowledge.

Lyver, P.O., J. Davies, and R.B. Allen. 2014. Settling Indigenous Claims to Protected Areas: Weighing Maori Aspirations Against Australian Experiences. *Conservation & Society* 12 (1):89-106.

Hill, R., C. Grant, M. George, C.J. Robinson, S. Jackson, and N. Abel. 2012. A typology of Indigenous engagement in Australian environmental management: Implications for knowledge integration and social-ecological system sustainability. *Ecology and Society* 17 (1):23 <http://dx.doi.org/10.5751/ES-04587-170123>.

Inputs:

- Knowledge of the Theme Leader about the issues (papers above)
- Case studies presentations from three participants focused on the questions.

Questions:

- What sorts of principles can help Indigenous people to run joint-managed parks in ways that support Indigenous knowledge?
- How can Indigenous Protected Areas be strong in the face of development pressures like mining?
- What approaches help shift power towards Indigenous knowledge and governance?

Theme C. Tenure and alternative tenure models

This theme will include presentations and discussions identifying some of the key challenges and opportunities in how tenure affects use of knowledge.

Australian Human Rights Commission. 2016. Indigenous Property Rights Project - Garma Roundtable Background Paper. Sydney, Australia: Australian Human Rights Commission.

Senior Officers Working Group. 2015. Investigation into Indigenous Land Administration and Use. Canberra, Australia: Report to the Council of Australian Governments.

Expert Indigenous Working Group. 2015. COAG INVESTIGATION INTO INDIGENOUS LAND ADMINISTRATION AND USE EXPERT INDIGENOUS WORKING GROUP -STATEMENT OF INTENT.

Inputs:

- Knowledge of the Theme Leader about the issues (papers above)
- Case studies presentations from three participants focused on the questions.

Questions:

- How do the different types of tenure affect the way that Indigenous land managers can use their knowledge to run country?
- How can communal land tenure be strong for economic development?
- What sorts of better tenure arrangements could help Indigenous people to run country?

Theme D. Planning approaches

This theme will include presentations and discussions identifying some of the key challenges and opportunities in how planning brings indigenous knowledge into decision-making and actions.

AANDC. 2013. CCP Handbook - Comprehensive Community Planning for First Nations in British Columbia Second Edition. Vancouver, Canada. Online: https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-BC/STAGING/texte-text/ccphb2013_1378922610124_eng.pdf. Aboriginal Affairs and Northern Development, Canada, BC Region.

Davies, J., R. Hill, F.J. Walsh, M. Sandford, D. Smyth, and M.C. Holmes. 2013. Innovation in Management Plans for Community Conserved Areas: Experiences from Australian Indigenous Protected Areas. *Ecology and Society* 18 (2):14. Online: <http://www.ecologyandsociety.org/vol18/iss2/art14/>.

Inputs:

- Knowledge of the Theme Leader about the issues (papers above)
- Case studies presentations from three participants focused on the questions.

Questions:

- How can we build on planning for part of our country, like an IPA, to planning for our whole country?
- How can we build on planning for values and threats to charting a future for our Indigenous societies?
- How can planning be strong when facing every-day social issues?

Theme E. Indigenous on-country enterprises

This theme will include presentations and discussions identifying key challenges and opportunities for indigenous defined enterprise development and some of the key mechanisms that enable greater participation in Northern Australia.

Financial Services Council. 2015. Valuing native title in Australia: Native title agreements and trusts research. Final report. Australia: KPMG.

Project 5-3 Team also generously shared these reports: (see <http://www.nespnorthern.edu.au/projects/nesp/multiple-benefits-knowledge-systems-ilmps/>)

Project 5-3 team. 2016. Draft report: Multiple benefits and knowledge systems of Indigenous Land Management Programs (ILMPs): Economic perspectives. Project 5-3 December 2016 Update. Darwin, Australia: Project 5-3 Northern Australian Environmental Resources Hub, National Environmental Science Program. Unpublished draft.

Project 5-3 team. 2016. Draft report: Can Indigenous Land Management Programs provide Indigenous corporations with the opportunity to leverage Indigenous Impact Investments? A preliminary investigation. Darwin Australia: Project 5-3 Northern Australian Environmental Resources Hub, National Environmental Science Program. Unpublished draft.

Esparon, M., N. Stoeckl, D. Grainger, D. Jarvis, and S. Larson. 2016. Draft Report Enumerating the financial benefits of ILMPs and the distribution of those benefits within the broader community. Darwin, Australia: Project 5-3 Northern Australian Environmental Resources Hub, National Environmental Science Program. Unpublished draft.

Inputs:

- Knowledge of the Theme Leader about the issues (papers above)
- Case studies presentations from three participants focused on the questions.

Questions:

- What products and what markets are relevant for Indigenous country-based enterprises? How can we test the markets?
- How do different types of indigenous enterprise and governance models support communities' businesses on- country?
- What are some of the important principles in setting up indigenous-defined enterprises that empower communities?
- What is the market advantage of distinctively Indigenous enterprises?

Theme F. Participatory tools and cultural recording

This theme will include presentations and discussions identifying some of the benefits, future opportunities and challenges in using participatory tools and in doing cultural recording.

Dobbs, R.J., C.L. Davies, M.L. Walker, N.E. Pettit, B.J. Pusey, P.G. Close, Y. Akune, N. Walsham, B. Smith, and A. Wiggan. Collaborative research partnerships inform monitoring and management of aquatic ecosystems by Indigenous rangers. *Reviews in Fish Biology and Fisheries*: 1-15.

Buissereth, R. 2016. A literature review of participatory modeling methods as tools for Indigenous knowledge brokering and decision-making. Cairns: Report for CSIRO Land and Water and Environmental Science, Rice University.

Veland, Siri, Lynch, Amanda, Bischoff-Mattson, Zachary, Joachim, Lee, & Johnson, Noor. (2014). All Strings Attached: Negotiating Relationships of Geographic Information Science. *Geographical Research*, 52(3), 296-308

Inputs:

- Knowledge of the Theme Leader about the issues (papers above)
- Case studies presentations from three participants focused on the questions.

Questions:

- How do participatory tools affect the way land managers look after country?
- How can we make better use of participatory tools to make planning for country strong?
- How do we address issues of intellectual property when involved in cultural recording?

Appendix Six: Generic Research User Agreements

Research User Agreement – NESP Project 5.4

We have read the attached “Draft Detailed Project and Communications Plan” for the NESP Project 5.4. We have discussed and agreed on the list of outputs that will be produced by the project, on the timeline and format for the delivery of those outputs.

We have also discussed and agreed that if the outputs are delivered as per above, then **our organisation** intends to use these outputs to:

- help ensure Indigenous peoples’ knowledge is accessible to them for their decision-making;
- help ensure scientific knowledge is accessible to Indigenous peoples for their decision-making;
- assist Indigenous land managers to effectively use both scientific and Indigenous knowledge for adaptive management of country with multiple benefits;
- assist Indigenous land managers to effectively use both scientific and Indigenous knowledge to influence land and water development and conservation options to meet ILMs’ aspirations;
- Please add here any specific usage that you and your organisation envisage

We have also discussed and agreed on the following as the preferred method of engagement of the research users in the research project:

- Engage as a Member of the 5.4 Project Steering Group (**include your member’s name**)
- Complete four “Longitudinal Research Users Surveys” during the life of the project.

Our organisation agrees that at the time of signing this agreement the staff listed above will have sufficient time available to participate in these activities.

_____ Date _____
Organisation

Ro Hill and Melissa George, _____ Date _____
Project Leaders

Appendix Seven: Draft Longitudinal Surveys

Knowledge Brokering for Indigenous Land Managers

Based on Land and Water Australia (2006)

Draft Longitudinal Key Audience Survey (4 times throughout project)

Explanatory notes

Purpose

The surveys are designed to provide feedback from research users about whether and why/why not the research is useful to them.

Who to interview

Each of the organisations who complete a Research User Agreement will be interviewed.

When to conduct interviews

The table below is a guide to when interviews need to be conducted. The SIRP M&E team will also send reminders to you at suitable intervals.

Project duration	3 years
Inception interview	3 months after start
2 nd interview	Start of second year
3 rd interview	Start of third year
Final interview	Interview in time to submit results with final milestone

Conducting the interviews and submitting results

Ideally we will conduct the interviews face-to-face, and if not possible by telephone.

The consent form

Interviewees will be asked to read and sign the consent form

Survey questions and themes

The survey includes some generic questions and some specific questions related to the SIRP theme that your project fits.

- **Theme 1:** Accessibility of Indigenous knowledge

- **Theme 2:** Accessibility of scientific knowledge
- **Theme 3:** Use of knowledge in adaptive management
- **Theme 4:** Use of knowledge to influence the land management/use decisions of others
- **Theme 5:** Unintended impacts

The Thinking/Practice scale

The questions Longitudinal Survey have two parts, each containing a quantitative and a qualitative component. The first part queries changes to thinking, and the second part queries changes to practice that are occurring as a result of the project.

Thinking

Confusing, frustrating	No new knowledge	Confirms what I already thought	Some new knowledge	Valuable new knowledge
1	2	3	4	5

Practice

Waste of time	No influence	Mild influence	Moderate influence	Major, positive influence
1	2	3	4	5

Obtaining Consent

We will first explain the confidentiality issues and the consent form. The following is an example of such an explanation.

“We may like to use your stories for reporting to NESP, or sharing with other stakeholders”

“Do you, (the storyteller):

- want to have your name on the story and/or
- consent to us using your story for publication?”

“However, there is no pressure to be identified, and if you would prefer to remain anonymous that is fine.”

Could you please read and sign this consent form so that there is a record that you have agreed to take part, and that we will be protecting your identity in reporting results.

“We both need to keep a copy of these forms.”

Longitudinal Key Audience Survey - Inception Interview Cover Sheet

Name of project	
Project code	
Date project commenced:	
Date of interview	
Interviewer's name:	
Participant's name:	
Type of organization they work for (Delete those that don't apply if filling in electronically)	☐ Federal government ☐ State wide government ☐ Regional NRM body ☐ Non-government organization ☐ Industry body ☐ Community group member ☐ Other _____
Name of organization	
Job category best fit description (Delete those that don't apply if filling in electronically)	☐ Policy making ☐ Funding ☐ Program/project management ☐ Researcher ☐ Private land management ☐ Public land management ☐ Other _____

Longitudinal Key Audience Follow-Up Interview

Name of project	
Project code	
Date project commenced:	
Type of interview (See table in Explanatory Notes)	☐ Second ☐ Third ☐ Final
Date of interview:	
Interviewer's name:	
Contact details:	
Participant's name:	
Contact details:	
Type of organization they work for (Delete those that don't apply if filling in electronically)	☐ Federal government ☐ State wide government ☐ Regional NRM body ☐ Non-government organization ☐ Industry body ☐ Community group member ☐ Other _____
Name of organization	
Job category best fit description (Delete those that don't apply if filling in electronically)	☐ Policy making ☐ Funding ☐ Program or project management ☐ Conducting research ☐ Managing private land ☐ Managing public land ☐ Other _____
Has there been any change to the participant?	☐ Staff turnover – new person, same organisation ☐ Same participant – moved to a different organisation ☐ No same person, same organisation

Longitudinal Key Audience Survey

I. How did you find out about this project?

- Involvement in project development/submission ☐
- Attendance at seminar/event ☐
- Reading project outline ☐
- Networking/ direct contact with researcher ☐
- Other.....

Present and describe the thinking/practice gap analysis and scale, which is to be used throughout the interview

Thinking

Confusing, frustrating	No new knowledge	Confirms what I already thought	Some new knowledge	Valuable new knowledge
1	2	3	4	5
Waste of time	No influence	Mild influence	Moderate influence	Major, positive influence

Practice

Theme 1: Accessibility of Indigenous knowledge

I.1 Connecting Indigenous knowledge with Indigenous practitioners

To what extent is this project helping make Indigenous knowledge more accessible to Indigenous land managers?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers to use Indigenous knowledge?

Practice Score:

Comment:

Theme 2: Accessibility of scientific and other knowledge

2.1 Connecting scientific knowledge with Indigenous practitioners

To what extent is this project helping make scientific knowledge more accessible to Indigenous land managers?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers to use scientific knowledge?

Practice Score:

Comment:

2.2 Policy and other knowledge

To what extent is this project helping make policy and other knowledge more accessible to Indigenous land managers?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers to use policy and other knowledge?

Practice Score:

Comment:

Theme 3: Adaptive management of country for multiple benefits

3.1 Adaptive management of country

To what extent is this project giving land managers new insights about how to use Indigenous, scientific and other knowledge for adaptive management of country?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers that apply Indigenous, scientific and other knowledge for adaptive management of country?

Practice Score:

Comment:

3.2 Multiple benefits with country

To what extent is this project giving new insights about how to effectively use Indigenous, scientific and other knowledge for multiple benefits on country?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers that apply Indigenous, scientific and other knowledge for multiple benefits on country?

Practice Score:

Comment:

Theme 4: Influencing the decisions of others

4.1 Development decisions

To what extent is this project giving new insights to Indigenous land managers to use Indigenous, scientific and other knowledge to influence development decisions?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers to influence development decisions?

Practice Score:

Comment:

4.2 Conservation decisions

To what extent is this project giving new insights to Indigenous land managers to use Indigenous, scientific and other knowledge to influence conservation decisions?

Thinking Score:

Comment:

To what extent is this project influencing actions by Indigenous land managers to influence conservation decisions?

Practice Score:

Comment:

Theme 5: Other impacts

5.1 Unintended Impacts

To what extent is the project having other, unintended impacts on thinking?

Thinking Score:

Comment:

To what extent is the project having other, unintended impacts on practice?

Practice Score:

Comment:

5.2 Potential Indigenous land management outcomes from this project

If this project achieves its full potential, to what extent might it provide new insights for improving Indigenous land management?

Thinking Score:

Comment:

If this project achieves its full potential, how much might it change practices for better Indigenous land management?

Practice Score:

Comment:

5.3 Potential outcomes for ILM partners

If this project achieves its full potential, to what extent might it provide new insights for those who partner with Indigenous land managers?

Thinking Score:

Comment:

If this project achieves its full potential, how much might it change practices for better partnerships with Indigenous land managers?

Practice Score:

Comment:

Thinking

Confusing, frustrating	No new knowledge	Confirms what I already thought	Some new knowledge	Valuable new knowledge
1	2	3	4	5
Waste of time	No influence	Mild influence	Moderate influence	Major, positive influence

Practice

Re: Consent Form for participation in Research Users Longitudinal Survey

To:

Background

This research is being carried out as part of the Monitoring and Evaluation for the NESP Northern Australian Environmental Resources Hub Research Project “Knowledge brokering for Indigenous land management across norther Australia”.

Confidentiality of information:

Identification of individual participants will not be used in published material without prior authorisation. The names and demographic details will be classified with no specific reference to individual details.

This agreement concerns the interviewee and researcher, named below. The following points are agreed upon:

- Participation is voluntary and participants can withdraw at any time
- Individual details will remain confidential, and be unidentifiable both when storing data and in published form.
- I consent to participate in the project named above: the particulars of the periodic interview process have been explained to me.
- I authorize the Principal Researcher to interview me on up to four occasions.

Agreement entered into:

Participant

Name & Date:.....

Signature:.....

Principal researcher

PROJECT:

Name & Date:

Signature:.....

[Back page – this will be replaced in final version by graphic designer]