Multiple co-benefits of Indigenous land and sea management programs across northern Australia

Final report

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Cover photographs

Front cover: Ancestral wisdom © iStock.com/sebastianbourges

Back cover: Funding for ILSMPs flows to Indigenous households and businesses, stimulating multiple capitals, inspiring co-contributions from Indigenous households, businesses and communities thus contributing to prosperous Indigenous communities and multiple other benefits.

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Contents

List of tables

List of figures

Acronyms

ALEC	Arid Lands Environment Centre
AW RNM	Alinytjara Wilurara NRM Board
BDAC	Bunuba Dawangarri Aboriginal Corporation RNTBC
BH	Bush Heritage
CFC	Caring for Country
CLC	Central Land Council
CVA	Conservation Volunteers Australia
DBCA	Department of Biodiversity, Conservation and Attractions
DOEE	Department of the Environment and Energy
DSS	Desert Support Services
EAC	Ewamian Aborigional Corporation
EK	Environs Kimberley
GAC	Gooniyandi Aboriginal Corporation RNTBC
IDA	Indigenous Desert Alliance
III	Indigenous Impact Investment
ILC	Indigenous Land Corporation
ILSMP	Indigenous land and sea management program
IPA	Indigenous Protected Area
KJ	Kanyirninpa Jukurrpa
KLC	Kimberley Land Council
NAILSMA	North Australian Indigenous Land and Sea Management Alliance Ltd
NESP	National Environmental Science Program
NGRMG	Northern Gulf Resource Management Group
NRM	Natural Resource Management
NRS	National Reserve System
NWAC	Nyangumarta Warrarn Aboriginal Corporation
PBC	Prescribed Body Corporate
PCT	The Pew Charitable Trusts
RNRM	Rangeland Natural Resource Management
SGNRM	Southern Gulf Natural Resource Management
TNC	The Nature Conservancy
TO	Traditional Owners
WAC	Walalakoo Aboriginal Corporation
WCC	World Conservation Congress
YNAC	Yanunijarra Ngurrara Aboriginal Corporation

Acknowledgements

1. Executive summary

Six key findings

1. ILSMPs contribute to northern development and help close the (income) gap
2. ILSMPs promote Indigenous business development and thus Indigenous economic independence
3. ILSMPs can help Indigenous communities meet their wider aspirations
4. ILSMPs promote Indigenous wellbeing
5. ILSMPs facilitate knowledge exchange, which is important to Indigenous wellbeing
6. Existing monitoring activities are unlikely to adequately measure ILSMP benefits and progress towards objectives

The problem

Indigenous Australians have managed their country sustainably for tens of thousands of years. Formal recognition of the critical role Indigenous peoples play in land management is codified in the Environmental Protection and Biodiversity Conservation (EPBC) Act (1999) and there is widespread scientific recognition of the environmental benefits associated with Indigenous land and sea management programs (ILSMPs), including, among others, Indigenous Protected Areas (IPAs) and the federally funded Working on Country (WOC) program, now called the Indigenous Ranger Program (IRP).

That said, there is a problem with only framing Indigenous people's role as Land and Sea Management.

> *Management of water is linked to land management, but Indigenous rights are limited to land management and not inclusive of water rights and responsibility to water management for both sustainable life and sustainable development. Water particularly different to cultural flow is the recognition of 'Living Water' which includes rivers, tributaries, soaks, billabongs. This is a big issue as many Indigenous people are saying that Native title not only must recognise land but water rights through customary laws and practice*

<div align="right">

Dr Anne Poelina (Nyikina-Warwa)

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Evidently, what is called for is a holistic approach – not just for thinking about land, sea, and water management – but also for highlighting the diverse and complex benefits of supporting Indigenous people to manage land, sea and water.

Although numerous social and economic co-benefits of ILSMPs have been recognised, relatively few have been quantified (Farr et al. 2016). This failure may lead to underinvestment in ILSMPs. A lack of comparable information about co-benefits also complicates the assessment of the relative 'efficiency' of ILSMPs by governments, Indigenous organisations and other stakeholders. The policy danger here, is that lacking information about the value of co-benefits may lead us to invest in programs which generate the most easily quantified benefits – not necessarily programs that generate the most benefits overall.

Aim

Our aim is to generate information that can be used to help design, monitor, and/or select ILSMPs to help meet the goals of key stakeholders. We focus on goals above and beyond environmental goals – i.e. those that can be considered to be co-benefits. These diverse goals include seeking to enhance individual wellbeing, help communities meet their aspirations, support the development of Indigenous businesses and/or promote regional economic development.

Key definition

When determining what an 'Indigenous land and sea management program' is, we visualise a Venn diagram with intersecting sets.

- Set one: There are innumerable traditional Indigenous land and sea management activities or practices that have been going on for tens of thousands of years – these include, but are not limited to getting out on country, looking after waterholes, hunting and burning (Section 2.1.1).
- Set two: Government and non-government organisations fund a variety of different programs, some of which support Indigenous people and some of which support land management (Section 2.1.2). Not all land mangagement programs facilitate Indigenous practices, and not all Indigenous programs facilitate land management.

For the purposes of this project, we focus on the intersection of those two sets, defining an ILSMP as a program that funds or supports traditional Indigenous land management activities.

Contents and findings

Chapter 1 (*Introduction, overview and definitions*) introduces the problem addressed by this research, along with the overarching research aim, definition/clarification of key terms used in this report and overview of the research design.

Chapter 2 (*Background*) provides background information, relevant to all investigations. Section 2.1 gives examples of ILSM activities and ILSM programs, allowing us to differentiate between them, and to understand what is meant by the phrase 'Indigenous land and sea management program'. Section 2.2 describes our regions of interest: northern Australia in general; the Kimberley, the Northern Territory and far north Queensland in particular; and finally the traditional country of our Indigenous partners, which includes Ewamian country (Qld) and areas within the Fitzroy River catchment (WA) – our case study regions. These different overviews, undertaken at different scales, reflect the different scales at which our investigations take place. Section 2.2.4 gives an overview of the different ILSMPs operating across northern Australia and in our case study regions, taking the opportunity to identify key characteristics of each (e.g. funder, purpose, activities supported) that allow us to generically describe relevant programs in our case study area (the generic descriptions being subsequently used when synthesising research findings). More detailed information on ILSMPs in general, and on those relevant to our study areas is provided in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-2-supplementary-material-Background-Esparon.pdf.

Our next six chapters each report on separate (but related) activities that provide six overarching research outcomes.

1. ILSMPs contribute to northern development and help close the (income) gap

In **chapter 3** (*Regional economic benefits of ILSMPs*)**,** we adapt three existing input-output models to analyse data on ILSMP expenditure within the Kimberley, the Northern Territory and far north Queensland, showing that the multipliers (numbers describing potential economic impact) associated with expenditure on ILSMPs are generally greater than those associated with agriculture and mining, and the money flowing to Indigenous households (counting direct and indirect impacts) exceeds that flowing to non-Indigenous households

The work we report on in this chapter is based on material described in detail in: Jarvis, D., Stoeckl, N., Hill, R., Pert, P. (2018) Indigenous land and sea management programs: Can they promote regional development and help 'close the (income) gap'?, *Australian Journal of Social Issues*, available for download at: http://dx.doi.org/10.1002/ajs4.44

ILSMPs promote Indigenous business development and thus Indigenous economic independence

In **chapter 4** (*Links between ILSMPs and Indigenous business development*)**,** we use eight years of data across 2000+ Australian postcodes relating to ILSMP expenditure, Indigenous business activity and other factors known to influence business activity within a (statistical) panel data model to show that expenditure on ILSMPs generates positive spill-overs for Indigenous businesses (even those not engaged in land management) – albeit with a three-year lag.

The work we report on in this chapter is based on material described in detail in: Jarvis D, Stoeckl N, Addison J, Larson S, Hill R, Pert P & Watkin Lui F. (2018) Are Indigenous land and sea management programs a pathway to Indigenous economic independence? *The Rangeland Journal* 40(4) 415-429, available for download at: https://doi.org/10.1071/RJ18051.

ILSMPs can help Indigenous communities meet their wider aspirations

In **chapter 5** (*The role of ILSMPs in supporting community aspirations*) we use qualitative information collected from workshops/focus group discussions in our case-study regions and from documents relating to ILSMPs to show that communities generally see development as 'control, leadership, empowerment and independence' (what development scholars refer to as 'freedom'). Communities seek freedom, firstly, so they have the ability to then choose for themselves the particular combination of 'functionings' (or development sub-components). Most communities stated that programs had contributed towards their understanding of development ('freedom'). There is evidence that this is because some communities have been able to use programs to help them overcome pre-existing access constraints.

This work is based on material described in detail in Addison, J., Stoeckl, N., Larson, S. Jarvis, D., Bidan Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation RNTBC, Ewamian Aboriginal Corporation, Gooniyandi Aboriginal Corporation RNTBC, Yanunijarra Ngurrara Aboriginal Corporation RNTBC, Esparon M. (2019) The ability of community based natural resource management to contribute to development as freedom, and the role of access, available at https://doi.org/10.1016/j.worlddev.2019.04.004

ILSMPs promote Indigenous wellbeing
ILSMPs facilitate knowledge exchange, which is important to Indigenous wellbeing

In **chapters 6** (*The role of ILSMPs in promoting Indigenous wellbeing*) and **7** (*Knowledge exchange as both an outcome and facilitator of ILSMP benefits*), we use quantitative and qualitative data collected during interviews with more than 200 people from our case study regions to show that some of the most significant, positive, changes to factors that Indigenous people have identified as being important to their well being, have direct links to ILSMPs – specifically, having legal access to country, knowing that country is being looked after and having more (positive) role models in communities with specific reference to Indigenous rangers.

The work we report on in chapter 6 is based on material, described in detail in Larson, S., Stoeckl, N., Jarvis, D., Addison, J., Prior, S., Esparon, M. (2018) Using measures of wellbeing for impact evaluation: proof of concept developed with an Indigenous community undertaking land management programs in northern Australia, *AMBIO*, May, pp 1-10. https://doi.org/10.1007/s13280-018-1058-3. More detailed information on the data relevant to the Fitzroy River Valley (WA) is also provided in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch6-supplementary-material-Wellbeing-Larson.pdf.

We find that (a) knowledge exchange (KE) is an important contributor to wellbeing; that (b) ILSMPs facilitate and encourage different types of knowledge exchange; and that the ILSMP-facilitated knowledge exchange is, indeed, seen as beneficial to respondents (although diferent types of KE are seen as most beneficial in different regions).

The work we report on in chapter 7 is based on material, described in detail in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-7-supplementary-material-Knowledge-Exchange-Larson.pdf. A more detailed analysis is also published in: Jarvis, D., Stoeckl, N., Larson, S., Grainger, D., Addison, J., Larson, A., (2021) The learning generated through Indigenous natural resources management programs greatly increases quality of life for Indigenous people – improving numerous contributors to wellbeing, Ecological Economics, 180, https://doi.org/10.1016/j.ecolecon.2020.106899

Existing monitoring activities are unlikely to measure the benefits of ILSMP and progress towards objectives

In **chapter 8** (A holistic view to monitoring ILSMPs) we combine insights from (a) an analysis of documents relating to the ILSMPs in which our partner organisations are involved, (b) a broader review of literature relevant to monitoring and (c) insights from our investigations above, to show that data relating to (relatively easy-to-measure) outcomes such as 'employment' are much more frequently collected and evaluated than data relating to other factors (such as governance/empowerment, promotion of economic independence, support of community and/or regional development) which may be associated with even higher overall socio-economic benefits.

The work we report on in this section is based on material, described in detail in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-8-supplementary-material-Monitoring-Esparon.pdf.

Chapter 9 (*Synthesis and conclusions*) provides an overall synthesis, intended to help stakeholders improve the design, monitoring, and/or selection of ILSMPs to help meet their goals. We use insights from our separate, but related investigations to develop a 'whole of system' conceptual model that highlights the way in which ILSMPs, Indigenous Impact Investments and knowledge systems work collectively to generate a diverse range of co-benefits that accrue to individuals, businesses, Indigenous communities and/or Australia as a whole – the trick being to first identify one's goals, and then use the model to help identify key (design and monitoring) characteristics of an ILSMP that will help meet those goals, and monitoring systems that will allow one to track progress towards them.

Finally, a journal article describing and holistic method for selecting programs (e.g. ILSMP, housing on country, tourism ventures) for social 'wellbeing', trialled with one of our Indigenous partners (EAC) is currently in review; monitor the NAER website for updates on this publication.

Project outputs

1. Multiple benefits of Indigenous land and sea management programs (wrap-up factsheet) https://www.nespnorthern.edu.au/wp-content/uploads/2019/02/Multiple-benefits-of-ILSMPs-wrap-up.pdf

2. Can Indigenous land & sea management programs contribute to 'development' as it is perceived by Indigenous communities? (policy note) https://www.nespnorthern.edu.au/wp-content/uploads/2018/11/Can-ILSMPs-contribute-to-development-as-perceived-by-Indigenous-communities-policy-note-Nov-2018.pdf

3. Using measures of wellbeing for evaluating the impact of Indigenous land & sea management programs (policy note) https://www.nespnorthern.edu.au/wp-content/uploads/2018/07/Project-5.3-policy-note-June-2018.pdf

4. Are Indigenous land & sea management programs a pathway to Indigenous economic independence? (policy note) https://www.nespnorthern.edu.au/wp-content/uploads/2018/08/Project-5.3-policy-note-May-2018.pdf

5. Improving our understanding of the multiple benefits of Indigenous land & sea management programs (science summary) https://www.nespnorthern.edu.au/wp-content/uploads/2018/09/Project-5.3-science-summary-May-2018.pdf

6. Can Indigenous land and sea management programs help 'close the gap'? (policy note) https://www.nespnorthern.edu.au/wp-content/uploads/2018/08/Project-5.3-policy-note-Dec-2017.pdf

7. Multiple benefits of Indigenous land and sea management programs (start-up factsheet) https://www.nespnorthern.edu.au/wp-content/uploads/2017/06/WEB-Multiple-benefits-knowledge-systems-of-Indigenous-Land-Management-Programs-ILMPs-Economic-perspectives.pdf

1. Introduction

Natalie Stoeckl, Silva Larson, Daniel Grainger, Michelle Esparon, Marina Farr, Christina Hicks, Diane Jarvis, Jane Addison

1.1 The problem we are trying to address

Aboriginal and Torres Strait Islanders (hereafter referred to as Indigenous people) have managed their country sustainably for tens of thousands of years. Formal recognition of the critical role Indigenous peoples play in land management is codified in the Environmental Protection and Biodiversity Conservation (EPBC) Act (1999) and there is widespread scientific recognition of the environmental benefits associated with Indigenous land and sea management programs (ILSMPs), including, inter alia, Indigenous Protected Areas (IPAs) and the Indigenous Ranger Program (IRP).

That said, there is a problem with only framing Indigenous people's role as Land and Sea Management.

> *Management of water is linked to land management, but Indigenous rights are limited to land management and not inclusive of water rights and responisibility to water management for both sustainable life and sustainable development. Water particularly different to cultural flow is the recognition of 'Living Water' which includes rivers, tributaries, soaks, billabongs. This is a big issue as many Indigenous people are saying that Native title not only must recognise land but water rights through customary laws and practice*

<div align="right">Dr Anne Poelina (Nyikina-Warwa)</div>

Evidently, what is called for is a holistic approach – not just for thinking about land, sea, and water management – but also for highlighting the diverse and complex benefits of supporting Indigenous people to manage land, sea and water.

Although numerous social and economic benefits of ILSMPs (hereafter, 'co-benefits') have been recognised, relatively few have been quantified (Farr et al. 2016). This failure may lead to underinvestment in ILSMPs. Moreover, a lack of comparable information about co-benefits complicates the assessment of ILSMPs' relative 'efficiency' by governments, Indigenous organisations and other stakeholders. The policy danger here, is that information deficiencies may lead us to invest in programs which generate the most easily quantified benefits – not necessarily the programs that generate the most benefits per se.

1.2 Our overarching research aim

Our aim is to generate information that can be used to help design, monitor, and/or select, ILSMPs to help meet the goals of key stakeholders. We focus on goals above and beyond environmental goals – i.e. those that can be considered to be co-benefits. These diverse goals include: enhancing Indigenous wellbeing; helping Indigenous communities meet their aspirations; supporting the development of Indigenous business; and/or promoting regional economic development.

1.3   Definition/clarification of key terms

1.3.1   Indigenous land and sea management programs

When determining what an 'Indigenous land and sea management program' is, we visualise a Venn diagram with intersecting sets.

- Set one: Indigenous people have been undertaking a variety of land and sea management activities or practices that have been going on for tens of thousands of years --- these activities, reviewed briefly in section 2.1.1, include, but are not limited to getting out on country, looking after rivers, tributaries, soaks, billabongs as living systems (to maintain land water and people in a sustainable way), hunting and burning.
- Set two: Government and non-government organisations (NGOs) fund a variety of different programs, some of which support Indigenous people and some of which support land management. Not all land mangagement programs facilitate Indigenous practices and not all Indigenous programs facilitate land management (reviewed briefly in section 2.1.2).

For the purposes of this project, we focus on the intersection of those two sets, defining an ILSMP as a program that funds or supports traditional Indigenous land management activities. Examples of the types of programs that meet this defininition are provided in section 2.2.4.

1.3.2   Co-benefits

We use the term 'co-benefit' to describe the social and economic benefits that are associated with ILSMPs – leaving unattended, the problem of measuring the 'value' of their related, environmental benefits.

1.3.3   Costs, benefits and value

Different people attach different meanings to the word 'value'. In some of the social sciences (e.g. psychology), the word value is not associated with money, and is, instead, linked to notions of individual and social norms. Lay-people often think of value in purely monetary terms (e.g. the price or cost of a good) and many people seem to assume that economists also equate price with value. This is not true: economists generally think of value more broadly, acknowledging that something is of value, if it increases the welfare (or, more formally, the utility) of an individual. Many (but not all) economists assume that welfare cannot be properly measured, so they often measure the contribution that goods and services make to welfare indirectly – using *income compensations,* and hence money as a metric (Stoeckl et al. 2018). For an economist, 'value' is thus inextricably linked to welfare/wellbeing – money is just a proxy measure, used in some circumstances.

In this report, we use the word as economists most frequently do – noting that something is of value if it is important (and contributes to welfare/utility). We stress that value is not soley a monetary construct.

Consequently, we define:

- a 'benefit' as something which makes a positive contribution to welfare (utility)
- a 'cost' as something that detracts from welfare (utility) and
- a net benefit as benefits minus costs (thus a measure of the net impact, on welfare, of a change).

Other researchers have generated monetary estimates of the value of some co-benefits associated with ILSMPs (Social Ventures Australia Consulting 2014, 2016c, 2016b). We seek to complement (rather than replicate) those investigations – specifically aiming to consider co-benefits not analysed elsewhere. Wherever possible, we quantify (net) benefits, but only in some sections of this report do we use a monetary metric. Even when using money, our estimates are generally not 'income equivalent compensations' and thus cannot be considered as a measure of 'welfare' for use in Cost-Benefit-Analysis or (related) assessments of the Social Return on Investment.

1.3.4 Community

A community is commonly defined as a group of people with diverse characteristics who are linked by social ties. Communities are often assumed to be communities of place, that is, communities of people brought together by geographic boundaries. However, we also acknowledge existence of additional types of communities, specifically, communities of:

Interest, i.e. communities of people who share the same interest or passion;
Action, i.e. communities of people trying to bring about change; and
Practice, i.e. communities of people in the same profession or undertake the same activities.

Given the historic context of dispossession and resettlement of Indigenous people participating in this study, we extend our definition to include not only communities of place, but also members of the communities who share interests, action and practice. We therefore use the following to define community in this report: 'A group of people with diverse characteristics who are linked by social ties; are brought together by geographic boundaries; share common perspectives; and/or engage in joint action.'

1.3.5 Indigenous impact investments

People and private businesses are not always driven by profit alone. Nowadays, many organisations which aim to generate a financial return also have explicitly stated intentions to generate positive social and/or environmental 'impacts' (Bugg-Levine and Emerson (2011); Brest and Born (2013)).

We consider thus define an impact investment as being an investment that is intended to have positive social and/or enviornmental impact while generating a financial return.

Many of the Indigenous organisations that receive land management grants have strategic objectives that encompass much more than profit. Communities pursuing native title must, by law, set up a Prescribed Body Corporate (PBC) to coordinate between Aboriginal and Torres Strait Islander Traditional Owners (TOs) and the non-Indigenous Legal system. PBCs are explicitly tasked with "managing the native title rights and interests of all TOs" and "performing any other function relating to the native title rights and interests as directed by

the TOs" (ORIC, 2014).[1] PBCs thus have a social goal, the achievement of which is, in many cases, contingent upon also meeting cultural and environmental goals (given the crucial importance that many Indigenous people place on Caring for Country). Some PBCs also have strategic plans to generate sustained income from business activities in the interest of their goals. PBCs attempting to generate financial returns are thus, by this definition, impact investees. In this report we often refer to them as Indigenous Impact Investments (IIIs).

1.4   Research design

The ideas presented here are largely based upon those which are more completely explained in: Stoeckl, N., Hicks, C., Farr, M., Grainger, D., Esparon, M., and Larson, S. (2018) The crowding out of complex social goods, *Ecological Economics,* 144: 65-72

Although numerous social and economic benefits of Indigenous land and sea management programs (LSMPs) have been recognized (Barber and Jackson 2017), relatively few have been quantified (Farr et al. 2016). At least part of the problem is that we lack the methods (tools) to quantify particular types of co-benefits, notably those that generate a complex array of inter-related benefits that accrue to society as whole. ILSMPs generate a range of benefits. These benefits can be simplistically classified in two ways: first, according to whether the benefit accrues primarily to an individual or to the broader community; second, according to whether the benefit is relatively simple (e.g. food) or complex (e.g. food and the maintenance of culture) (Figure 1). The valuation tools developed by economists over the last 100 years are differentially suited to assessing particular types of goods and services. The most common methods are adept at highlighting the benefits of simple individual goods. Recent developments have also seen progress towards the valuation of complex individual goods. Much less well developed, however, are methods to estimate the benefits of complex social goods. We need to develop methods that are able to do so, or risk 'crowding out' these complex social goods because we focus most attention on simple individual goods which are easier to measure.

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[1] http://www.oric.gov.au/sites/default/files/documents/04_2014/Information_sheet_for_PBCs_v1-0_web.pdf
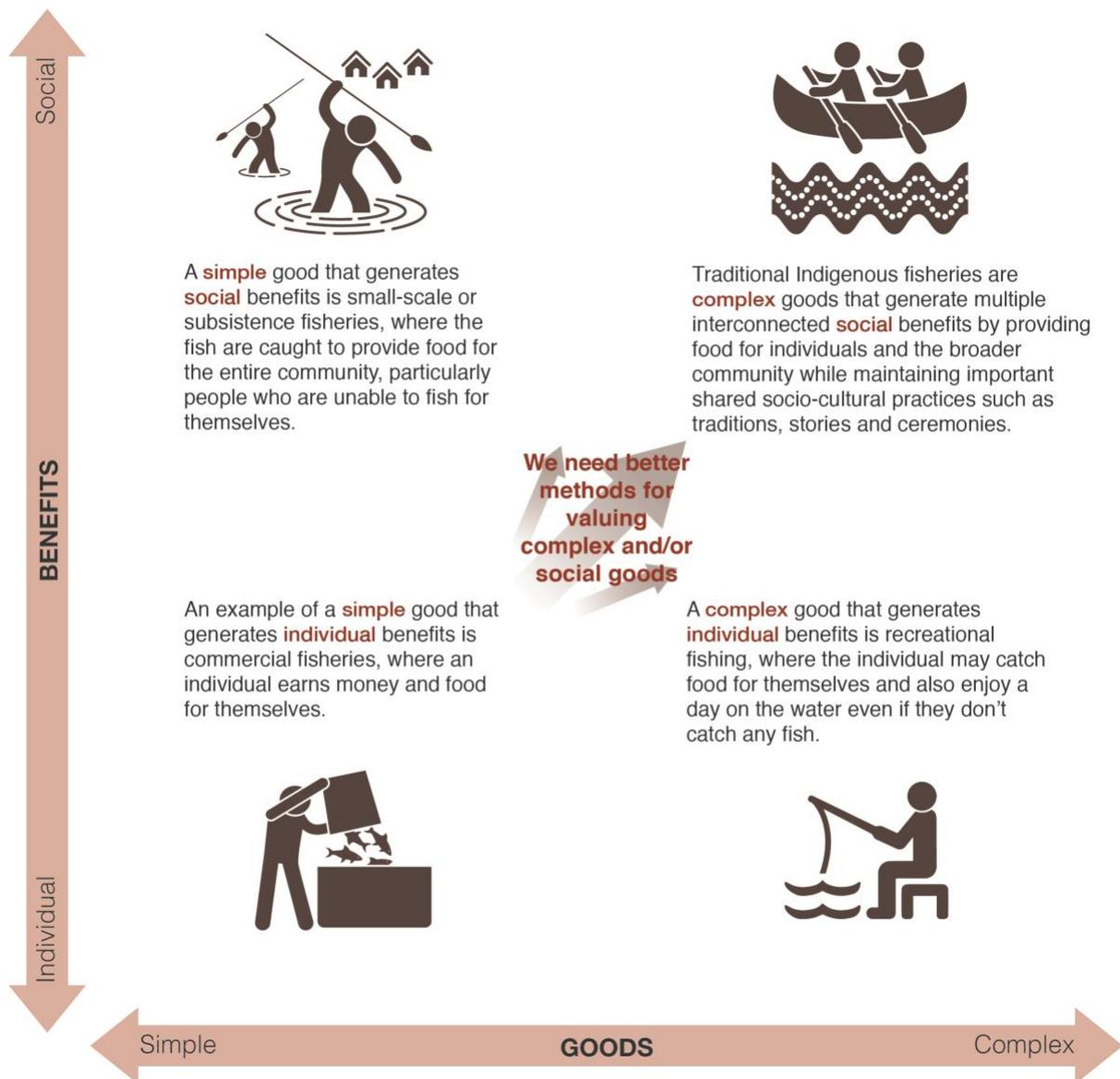
Figure 1. Categorisation of different types of goods and services. Figure developed by Clare Taylor & Jane Thomas, adapted from Stoeckl et al. (2018).

Failing to account for complex social goods and other values, social norms, and motivations that support them has several implications.

- Economic logic suggests that investment should be directed to programs with the greatest benefit per dollar spent. If, due to their complexity or because we lack methods for assessing them, entire classes of benefits are routinely omitted from deliberations, spending will invariably be directed towards interventions and projects that generate more easily monetised benefits (i.e. towards simple individual goods) rather than to projects that generate the greatest benefit, per se (at least some of which are likely to be associated with complex social goods).

- Dominant valuation methods assume that an ecosystem service may be 'valued' as the amount an individual is willing to accept (in monetary terms) as compensation for its degradation or disappearance. Simplistically, it is as if these valuation systems are asking

people to name their favourite restaurant. That is subtly, but importantly different from asking a group of people (e.g. family or friends) to decide which is the best restaurant for them to go to together. Or asking a community to determine what is best for them. Methods which focus exclusively on the individual may miss important cultural values and practices (e.g. reciprocity), may overlook the fact that people will willingly forgo their favourite food to spend time with loved ones, may sanction otherwise socially unacceptable trade-offs s and trivialise difficult decisions regarding the best course of action for society as a whole.

- Cost-benefit analysis (CBA) and associated valuation methods assume that the value of a good (or project) to society can be estimated simply by adding together the values that accrue to individuals. Yet just as the value of a shoe is critically diminished in the absence of its partner, so too are complex social goods likely to be fundamentally complementary. In other words, it may not be possible for an individual (e.g. Natalie) to forgo receipt of a complex social good (accepting money as compensation) without diminishing the overall value of that good for everyone else.

- The institutionalisation of CBA and the valuation methods that underpin it has crowded out alternative methods and institutions capable of dealing with complex natural resource management issues. The emphasis on financial incentives in environmental protection has been shown to weaken other intrinsic values, social norms, motivations and behaviours crucial to the protection of the environment and the promotion of the public good.

Our most well-developed methods for putting a price on nature don't ask "What is right for society as a whole?" but rather "What would generate the greatest benefit for individuals within society?". It is important to consider what individuals want but focusing on this alone risks the crowding out of social goods, institutions and norms that support the environment and individual and community wellbeing. Should we abandon traffic signals because some individuals are willing to pay to do so or would this incur an unacceptable cost to society? If we are to produce a truly complete valuation of nature – or of complex social goods such as ILSMPs that support and protect nature – then we must include the complex social interactions and bonds which are rooted in nature, not just focus on the potential for individual gain or loss. The challenge, of course, is to work out how to measure them.

We are unaware of any method that adequately 'values' these crucially important things. The problem of course, is that to simply say it is 'too hard', is to run the risk that we continue to prioritise the actions and activities that generate the most easily measured benefits, not the most benefits per se. So we strive to 'push the boundaries' – using a variety of different methods to quantify a variety of different co-benefits associated with ILSMPs. We do not solve all problems, and do not produce a panacea solution to the valuation of all complex social good. But we do make incremental progress in, what we believe, is the right direction.

Our overarching objective is thus: to improve (and where possible, quantify) our understanding of the co-benefits of ILSMPs, providing insights for monitoring and program design. These insights are generated by conducting and then synthesising information from several related investigations, which use different methods, at different scales (e.g. for individuals, businesess, communities, or regions) and with different scope (e.g. focusing on just a few benefits, such as income, or on a broader range of benefits, such as the factors impacting wellbeing).

1.5   Report structure

Chapter 2 (*Background*) provides background information, relevant to all investigations. Section 2.1 gives examples of ILSM activities and ILSM programs, allowing us to differentiate between them, and to understand what is meant by the phrase 'Indigenous land and sea management program'. Section 2.2 describes our regions of interest: Section 2.2.4 gives an overview of the different ILSMPs operating across northern Australia and in our case study regions, taking the opportunity to identify key characteristics of each (e.g. funder, purpose, activities supported) that allow us to generically describe relevant programs in our case study area which link to the different socio-economic benefits considered in our analytical chapters. Chapters 3–8 each report on separate (but related) activities that provide answers to several 'big' questions.

In **chapter 3** (*Regional and economic benefits of ILSMPs*)**,** we adapt three existing input-output models and analyse data on ILSMP expenditure within the Kimberley, the Northern Territory and far north Queensland, to ask: **Do ILSMPs contribute to northern development and help close the (income) gap?**

In **chapter 4** (*Links between ILSMPs and Indigenous business development*)**,** we use eight years of data across 2000+ Australian postcodes relating to ILSMP expenditure, Indigenous business activity and other factors known to influence business activity within a (statistical) panel data model to ask: **Do ILSMPs promote Indigenous business development and thus Indigenous economic independence?**

In **chapter 5** (*The role of ILSMPs in supporting community aspirations*), we use qualitative information collected from workshops in our case-study regions and from documents relating to ILSMPs to ask: **Do ILSMPs help Indigenous communities meet their wider aspirations?**

In **chapters 6** (*The role of ILSMPs in promoting Indigenous wellbeing*) and **7** (*Knowledge exchange as both an outcome and facilitator of ILSMP benefits*), we use quantitative and qualitative data collected during interviews with more than 200 people from our case study regions to ask: **Do ILSMPs promote Indigenous wellbeing?** and **How important is knowledge exchange (KE) to Indigenous wellbeing, and do ILSMPs facilitate beneficial exchanges of knowledge?**

In **chapter 8** (A holistic view to monitoring ILSMPs), we combine insights from (a) an analysis of documents relating to the ILSMPs in which our partner organisations are involved, (b) a broader review of literature relevant to monitoring, and (c) insights from our investigations above, to shed light on the following question: **Can existing monitoring activities adequately measure ILSMP benefits and progress towards objectives?**

In **chapter 9** (*Synthesis and conclusions*) we use insights from our separate, but related investigations to develop a 'whole of system' conceptual model that highlights the way in which ILSMPs, IIIs and knowledge systems work collectively to generate a diverse range of co-benefits that accrue to individuals, businesses, Indigenous communities and/or Australia as a whole – the trick being to first identify one's goals, and then use the model to help identify key (design and monitoring) characteristics of an ILSMP that will help meet those goals, and monitoring systems that will allow one to track progress towards them.

2. Background

Michelle Esparon, Natalie Stoeckl, Diane Jarvis, Jane Addison

Further information is available in our supplementary materials, available at
http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-2-supplementary-material-Background-Esparon.pdf

2.1 Differentiating between activities and programs

2.1.1 Indigenous land and sea management activities

Australia's Traditional Owners (TOs) are recognized as having deep-rooted spiritual and cultural connection to country, resulting in their successful maintenance of land and sea-based ecological systems. Traditional knowledge pertaining to a variety of environmental, natural resource and cultural heritage management activities has been transferred between generations over thousands of years (Social Ventures Australia 2016). Altman, Buchanan, and Larsen (2007), p 37 describe these activities as more than the physical management of a geographical area: Indigenous land and sea management (ILSM) is a holistic notion that involves looking after all of the values, places, resources, stories, and cultural obligations associated with that area, including associated processes of spiritual renewal, connecting with ancestors, food provision, maintaining kin relations, and maintaining responsibility under customary law and practice.

> *Looking after country is also about maintaining our customary law and practice to recognise the Fitzroy River as a living ancestral being which we as traditional owners have a fiduciary duty to apply custodianship and guardianship to. As traditional owners we are lawfully duty bound to protect the Fitzroy River for current and future generations of all Australians. These are the values in which the Fitzroy River was listed as National Heritage it is also listed under the WA Aboriginal Heritage Listing because of these cultural values.*

Dr Anne Poelina (Nyikina-Warwa)

TOs often talk of 'caring for country' (CFC) – not to be confused with the formal government-funded program of activities managed under the same name. In the Indigenous sense of CFC, 'care' implies responsibility, ethics, emotion and connection (Weir, Stacey, and Youngetob 2011), while 'country' refers to sacred land and sea in a polysynchronous sense (i.e. the dreaming, wherein past, present and future occur simultaneously). The specific activities undertaken when CFC are based on the laws, customs and ways of life that TOs have inherited from their ancestors and ancestral beings (Weir, Stacey, and Youngetob 2011) and can be an informal part of daily life, be specifically organised occasions, or form part of ritual obligations. These activities encompass the collection, sharing and maintenance of customary or cultural resources (e.g. hunting, burning, knowledge sharing); actions that are undertaken to improve conditions in communities (e.g. firewood collection, management of water supplies); commercial economic activities (e.g. pastoral, art, bush harvest for sale); and threat abatement (e.g. weed and feral animal control, fire management, revegetation) (Table 1 from Hill et al. (2013b)). Informal roles such as bush trips onto traditional lands with the family are also key to ILSM.

Table 1. Indigenous land and sea management activities. Source: Hill et al. (2013b)

Category	Activity
Customary and cultural resource management	Hunting, gathering Burning Ceremony Protection and management of culturally significant places Transfer and documentation of traditional ecological knowledge Documentation and translation of language Indigenous knowledge and activities for youth education Artistic expression through painting or craft
Natural resource management	Weed control and monitoring Feral animal control and monitoring Fire management Monitoring and management of threatened species and ecological communities Conservation of natural water bodies Soil erosion control and rehabilitation Native nursery, seed collection and planting Visitor and tourist management (e.g. track maintenance, signage) Monitoring threats to biosecurity
Land management for improved conditions in settlements	Dust mitigation Firewood collection Management of community water supplies (e.g. bore maintenance and testing) Management of rubbish and sewage disposal Parks and gardens Infrastructure (e.g. building, road maintenance and construction) Outstation infrastructure Protection from fire
Commercial activities	Horticulture (e.g. vegetable garden, orchard) and bush tucker horticulture Bush harvest of plant foods, medicines and seed for sale Harvest for commercial wildlife industries (e.g. crocodile egg harvesting) Pastoral and related activities (e.g. mustering and sale of feral animals) Plantations (e.g. firewood, sandalwood) Art and craft production Cultural ecotourism Rehabilitation and revegetation at mine sites or other disturbed areas Land restoration and other NRM services carried out under contract arrangements Employment in Indigenous and co-managed parks and protected areas

2.1.2   Indigenous land and sea management programs

Indigenous land and sea management was first acknowledged as an important area for investment by Government in 1985. Such investments provided employment opportunities for TOs, especially in remote regions with under-developed labour markets (Miller 1985) – although it is important to note that these employment opportunities are rarely equivalent to the 'mainstream' – participants can be paid only CDEP rates, with no superannuation, sick leave or holiday entitlements. From the mid-1980s to around 1997, two national programs

were developed: the (1) Aboriginal Rural Resources Initiative and the (2) Contract Employment Program for Aborigines in Natural and Cultural Resource Management. Although environmental considerations were given weight in project designs Hill et al. (2013b), key drivers of these programs included improved social outcomes – particularly Indigenous employment – and other forms of economic development. Despite producing associated social benefits, however, neither program is considered to have created sustained growth in Indigenous employment in land management[2] – an issue which we explore (for more recent programs) in Sections 2.3 and chapter 4.

Since the 1980s, millions of dollars have been invested in ILSMPs. For example, 750 locations across Australia benefited from approximately $116 million in 2011-2012, a substantial increase from the $2.3 million devoted to ILMPs in 2002-2003 (Hill et al. 2013b). Governments provide the bulk of investment, but philanthropic foundations, corporations and Indigenous organisations, among others, remain important contributors (Hill et al. 2013b). Investments in the form of fee-for-service contracts and visitor management are also provided to some Indigenous organisations for activities such as quarantine, invasive species management, park interpretations (e.g. signage) and maintenance works (e.g. walking track reconstruction) (Smyth 2011). Improved capacity and heightened awareness of Indigenous land management practicies are driving further interest and engagement with Indigenous land managers from other partners, including non-governmental organisations (NGOs) and research agencies (Hill et al. 2013b).

Nowadays, there are a vast number of different programs that facilitate Indigenous land and sea management activities and could thus be classified as ILSMPs, using our 'definition' (section 1.3.1). In 2014-15, the federally funded Indigenous ranger program provided more than 1,900 jobs for First Australians across more than 100 ranger groups. Nation-wide, state and NGO-funded programs generated significant additional employment. Indigenous Protected Areas (IPAs) are now also prevalent: they comprise a significant part of Australia's National Reserve System (NRS), generating significant co-benefits to Indigenous people and to the broader Australian and international community (Farr et al. (2016); Hill et al. (2013b); (DoE 2013a, 2013b); Weir, Stacey, and Youngetob (2011)). The Indigenous Land Corportation (ILC) also funds Indigenous groups, with some support going towards land management, with The Nature Conservancy (TNC) and PEW also featuring prominently.

Rather than attempting to describe each individual program (of which there are many), we develop a list of 'characteristics' which can be used to generically describe the programs (Table 2). We return to these descriptors later, when discussing some of the co-benefits of ILSMPs – the aim being to see if ILSMPs with particular types of characteristics are more/less likely to generate particular types of co-benefits:

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[2] For more about the history of ILM, see Hill et al. (2013b).

Table 2. Key characteristics that can be used to generically describe different ILSMPs.

Characteristic	Descriptor	Example
Funder	Who is providing the support/funding?	State, federal or local government; NGO
Implementing agency	Which organisations, other than the funder, and funding recipient are implementing the program?	Kimberley Land Council (KLC) overseeing appointment and management of rangers.
Processes and governance	Who manages the program and/or has been involved in setting up governance process	State, Federal or local government; NGO; funding recipients; co-development / management
Environmental objectives	What are the primary environmental objectives of the program?	Fire management to protect finch; Fire management for Carbon; Water quality monitoring; Landscape rehabilitation
Other objectives	What are the other (non-enviornmental) objectives of the program?	Training, employment and capacity building; Business development; Cultural governance; Development of healthy-country plans; cultural site managment
Supported people, activities & equipment	What is funding / support provided for?	Staff (Indigenous rangers; co-ordinators; scientists/professionals; others) schoole engagement; language; community participation/engagement; training, vehicles/equipment
Longevity	Longevity of funding	One-off payment; Annual payment for 5 years, On-going

2.2   Our regions of interest

2.2.1   Northern Australia in general

Different organisations and documents use different geographic boundaries when refering to northern Australia. Throughout this report, we also work at different scales, accessing data from a range of different sources (including primary). Although different types of data are available at different scale, much can be summarised at the postcode level. We thus conferred with key project partners (including those within DoEE and PM&C) to identify a contiguous group of postcodes across Australia's north (light yellow, Figure 2) that roughly concide with the biophysical boundaries of the river catchments that comprise Australia's tropical rivers (Figure 2). Hereafter, we refer to this group of postcodes as 'northern Australia'.
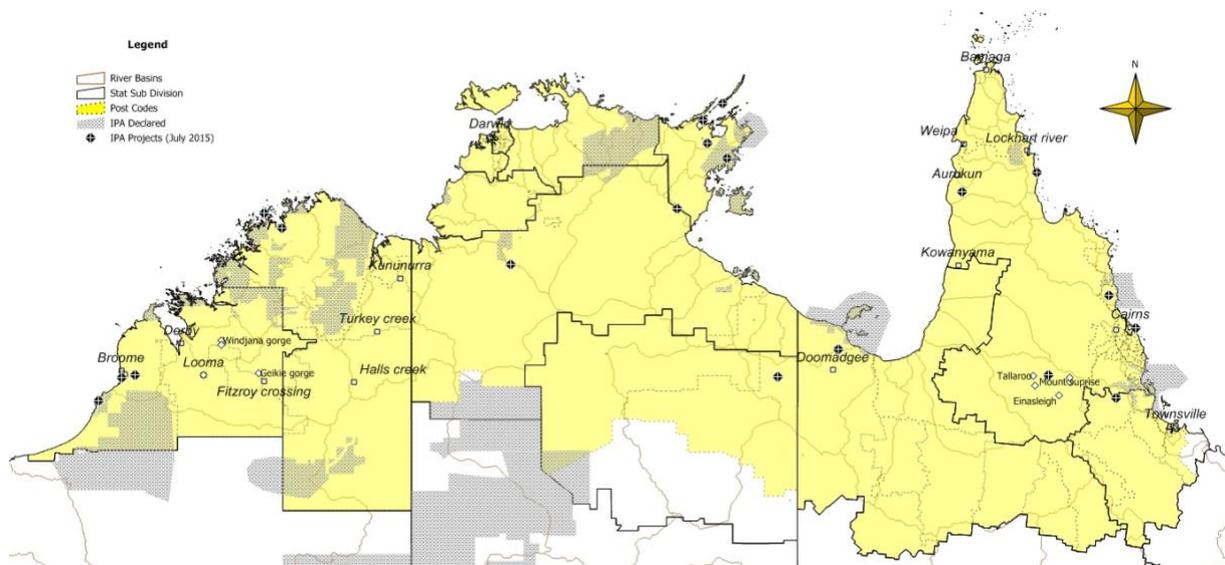
Figure 2. Northern Australia postcodes.

Northern Australia covers more than 1.7 million km². Although this represents around about 22 percent of the Australian land mass, the area contains just three percent of the population (≈ 692,200 of Australia's 22.5 million residents as at the 2011 census) – arguably, an historical artefact of geographic and temporal water shortages (Bennett 2005). The hydrology of tropical rivers is determined by a short, distinct wet season, followed by a longer dry season (Kennard et al. 2010). While water may be abundant in the wet season, there are relatively few perennial rivers across the north, so water is generally ephemeral and becomes scarce during the dry season; this is in stark contrast to Australia's south-east where most rivers are perennial, and where population densities are much higher (Figure 3).
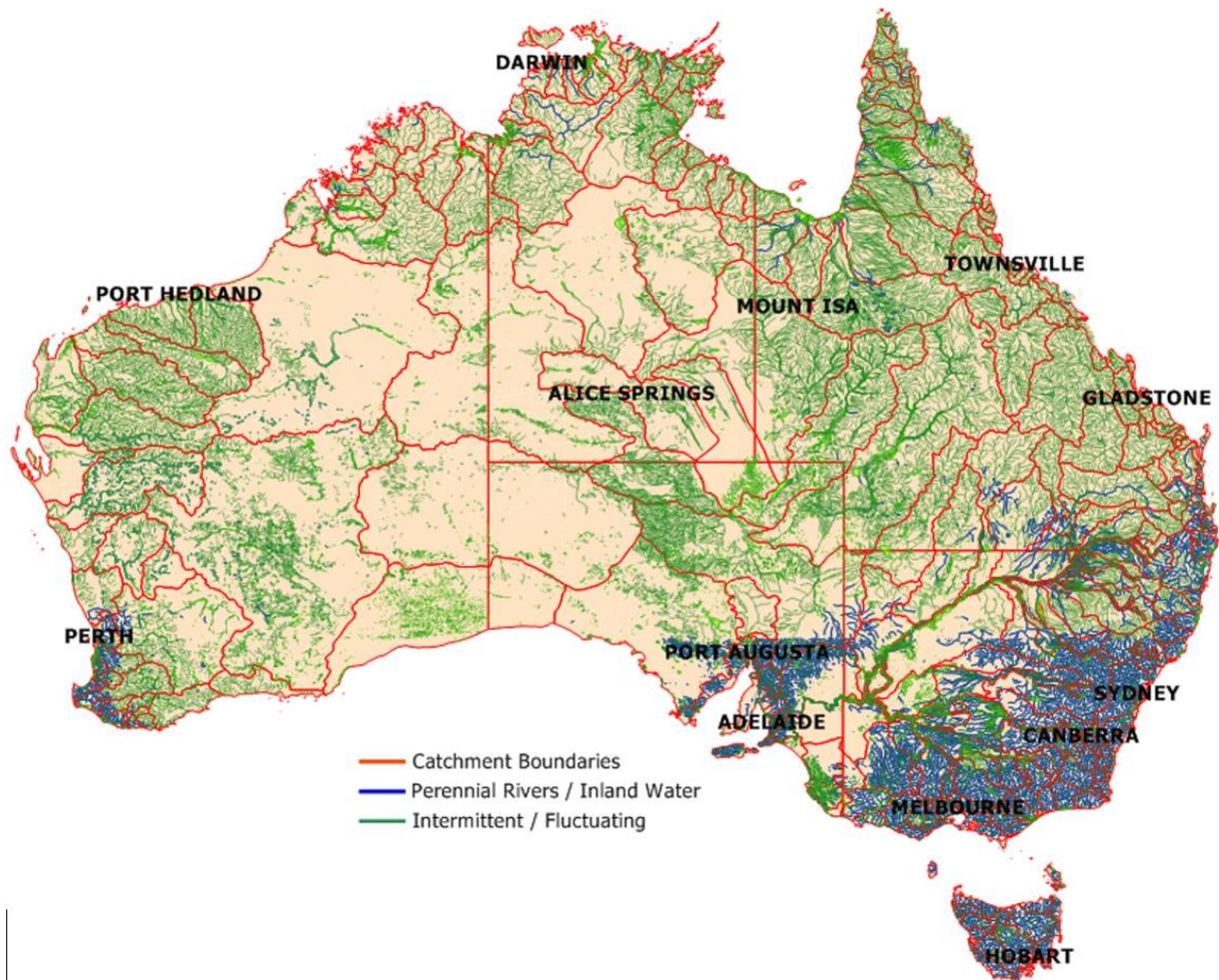
Figure 3. Intermittent and perennial rivers of Australia. Source: Stoeckl et al., 2006, using Data Copyright Commonwealth of Australia 2006.

Water is not the only type of essential infrastructure unavailable consistently across space and time in the north of Australia. Figure 4 presents Accessibility/Remoteness Index of Australia (ARIA) values indicating remoteness and access to infrastructure,[3] with northern postcodes highlighted. Large tracts of the north fall within the 'very remote' category (denoted by ARIA scores higher than 10.5). ARIA scores are lower closer to regional centres, such as Darwin, Mt Isa and Cairns. The lowest scores (1-4) are concentrated in Victoria, along the east coast, and around Adelaide and Perth. Road distance from key service centres is a key parameter of ARIA calculations, though rail and air are also important components of the transport network. As shown in Figure 5, vast tracts of northern Australia remain without rail, paved roads and all-weather air strips.

Excluding the major populations centres of Townsville and Cairns on the eastern seaboard (together home to 306,000 people in 2011), an estimated 386,000 people live in the remote, water-scare regions of northern Australia and populations are relatively dispersed. The only significant populations are located in and around Darwin in the Northern Territory (more than 100,000), Broome in Western Australia (more than 10,000), and Mount Isa in Queensland (more than 20,000) (Carson, Taylor, and Campbell 2009).

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[3] ARIA is a continuous index with values ranging from 0 (high accessibility) to 15 (high remoteness). The index is based on road distance measurements from 11,879 populated localities in Australia to the nearest service centres. Service centres are categorised by availability of services and the distance to each centre is measured by category (e.g. distance to a city with primary school, distance to a city with primary and secondary school, distance to a city with primary and secondary school and TAFE, etc.). According to the ABS, major cities of Australia tend to score an average ARIA index value of 0 to 0.2. "Inner Regional Australia" has, on average, ARIA index values greater than 0.2 and less than or equal to 2.4, while "Outer Regional Australia" centres tend to score ARIA index values between 2.4 and 5.9. Average ARIA index scores for remote Australia are between 5.9 and 10.5, with localities scoring greater than 10.5 classified as 'very remote.'
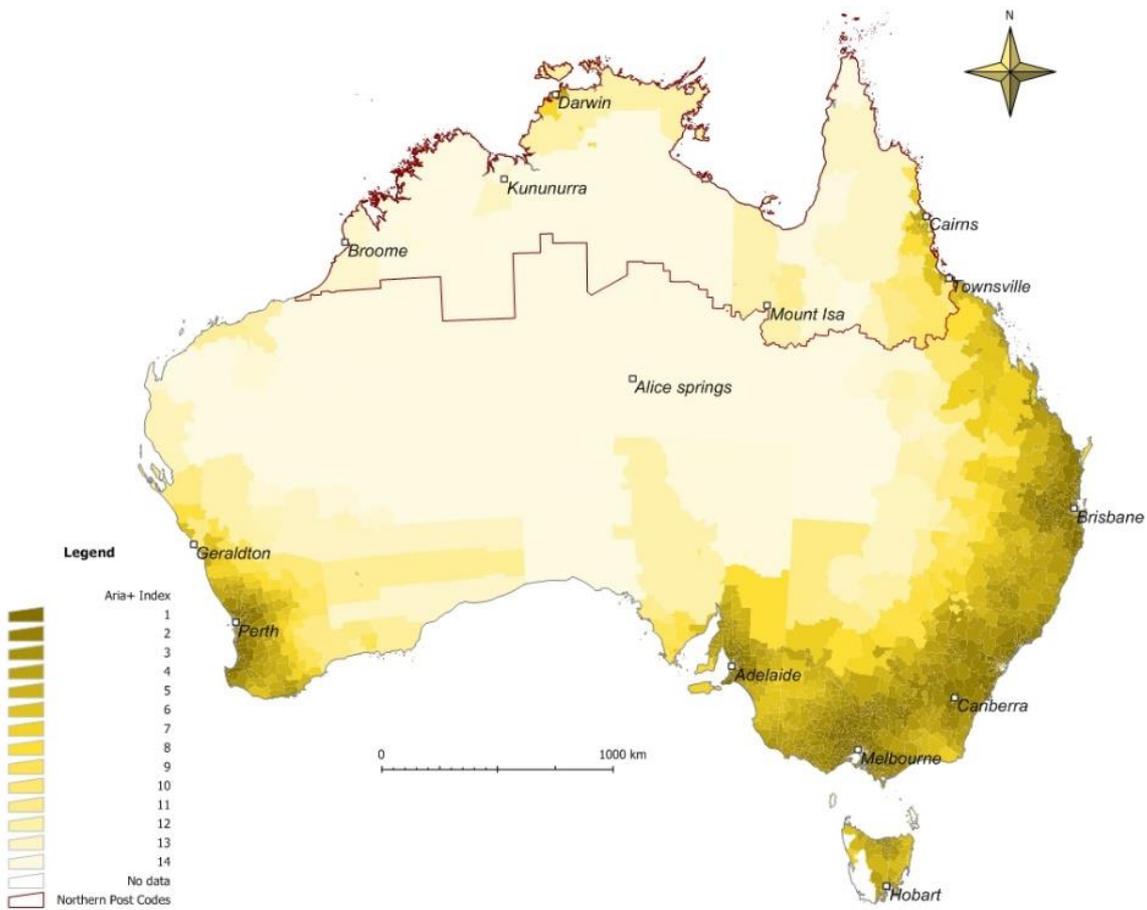
Figure 4. ARIA plus index for Australian postcodes, 2011. Data source: Hugo Centre of Population and Migration Research, 2013.
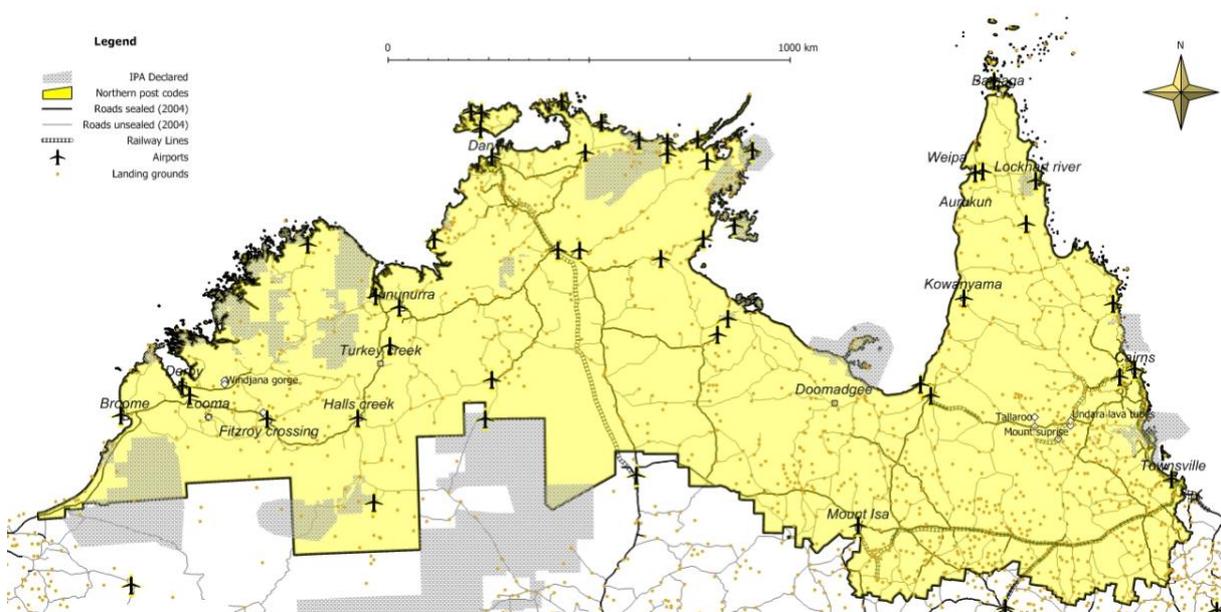
Figure 5: Road, rail and air networks across northern Australia. Data source: Geoscience Australia.

Most of the people living in Australia's north are at a significant socio-economic disadvantage compared to populations elsewhere in Australia – as demonstrated by the prevelance of low values for the ABS's index of socio-economic disadvantage (generally much lower than the median value of about 1000; Figure 6). Much disadvantage is borne by the 115,000 Indigenous residents. Across the dry inland, pproximately 16% of northern residents are Indigenous (Carson, Taylor, and Campbell 2009), although in catchments including Bathurst and Melville Islands, Moyle, Fitzmaurice, Goyder, Walker, Liverpool and Blyth River, more than 90% of the population is Indigenous (Larson and Alexandridis 2009).
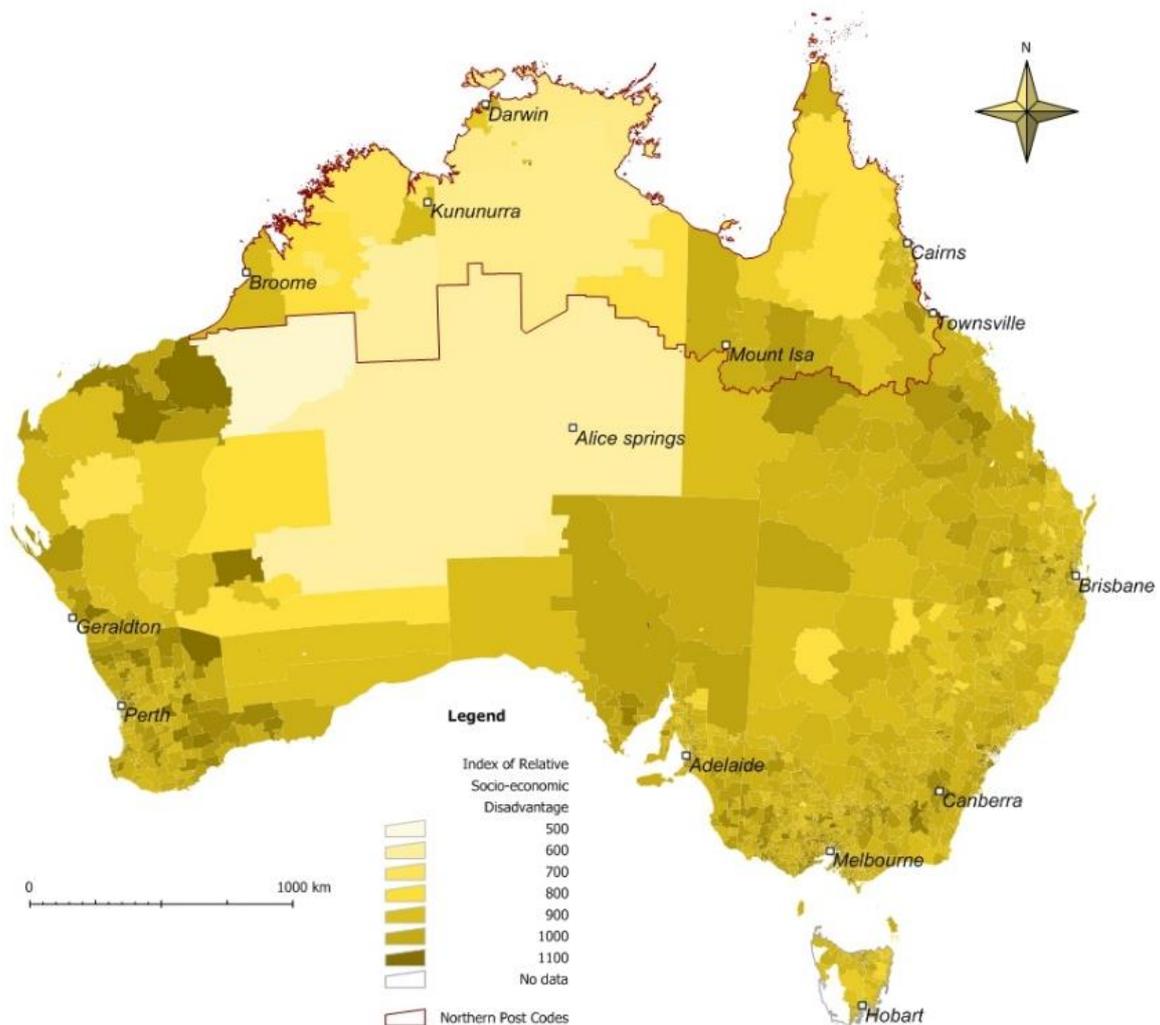
Figure 6. Index of Australian socio-economic disadvantage, by postcodes (2011). Data source: ABS (2013).

With small, relatively disadvantaged population bases, there are few opportunities for businesses to achieve economies of scale or economic development if one only pursues mainstream opportunities. Historically, mainstream has been the focus, the legacy being that many northern communities rely upon just one or two industries (such as government,

agriculture, mining and tourism) for incomes and employment (Stoeckl and Stanley 2007) – and the gap between the 'haves' and 'have-nots' (mostly Indigenous people) persists (Taylor et al. 2011)[4].

Local, regional, and state and territory governmental agencies are concentrated in larger urban centres; similarly, nearly all (97%) of the 1,042 community organizations registered in 2007 were located in and around urban centres (Larson and Alexandridis 2009). The most numerous private business across the north are in: food and liquor; automotive and mechanical; building and construction; and professional services. Agriculture (i.e. grazing) and mining are key business sectors outside of the towns (in addition to limited tourism) and are often the most significant providers of income and employment. But mining activities are concentrated in a few isolated regions (Stoeckl et al. 2006); similarly, irrigated agriculture occurs in just a few isolated enclaves (where quality soils, perennial water and transport infrastructure allow) and tourism operations tend to cluster around urban centres, such as Darwin (Carson, Taylor, and Campbell 2009). Communities and businesses are thus socio-economically diverse; and regions separated by thousands of kilometres sometimes have more in common (socio-economically) than regions which are adjacent (Larson, Stoeckl, and Blanco-Martin 2013).

2.2.2 *The Kimberley, the Northern Territory and far north Queensland*

In section 2.3, we use input–ouput (I-O) models to look at the extent to which ILSMPs contribute to northern development and help close the (income) gap between Indigenous and non-Indigenous Australians. The analysis focuses on the Kimberley region of Western Australia, the Northern Territory (NT), and far north Queensland (FNQ) – Figure 7 – selected because they meet the criteria of (a) being in Australia's north; (b) having significant ILSMP expenditure and (c) having publicly availabile models that can be used to analyse the impact of ILSMP expenditure. Formally, "the Kimberley" refers to the Kimberley SA3 region as defined by ABS 2011 Australian statistical geography standard, "the NT" refers to the entire Territory, and "FNQ" refers to two combined ABS regions, being the SA4 region of Cairns and the SA3 region of far north Queensland. Both the Kimberley and the FNQ regions sit entirely within the boundaries of postcodes, identified above, as comprising northern Australia; parts of the NT model extend below that, into more southern postcodes.

Key socio-economic information about each region is provided in Table 3. The Kimberley is remote and sparsely populated, without major regional cities. The largest town is Broome, other urban centres include Kununurra, Derby, and Fitzroy Crossing: the closest major city, Perth, is 2,300 kms south of Broome[5]. The NT is also relatively remote and sparsely populated, and includes one major regional city, Darwin, on its northern coast[6]. FNQ

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[4] The problem of attempting to translate economic prescriptions that were derived for western urban economies to Australia's north in general, and Indigenous communities in particular, is discussed in more detail in Jarvis, Stoeckl, Addison, Larson, Hill, Pert, et al. (2018), with a discussion of other Indigenous-led opportunities – a very short summary of which is provided in chapter 4.

[5] Based on 2016 Census data, Broome Significant Urban Area (SUA) has a population of 13,984, of whom 21% Indigenous); Kununurra Urban Centre and Locality (UCL) has a population of 4,341, 26% Indigenous; Derby UCL population is 3,325; 47% Indigenous; and Fitzroy Crossing UCL population is 1,141; 58% Indigenous. The population of Perth SUA is 1.9m.

[6] Based on 2016 Census, the population of Darwin SUA is 123,574, of which 9% Indigenous.

comprises a mix of relatively urban and rural/remote areas, including the city of Cairns, islands of the Torres Strait and Cape York Peninsula[7].

Table 3. Socio-economic background on the Kimberley NT and FNQ, compared to Australia as a whole. Data sources: † ABS ‡Census 2011 data from ABS §Estimated from Census 2011 data accessed from ABS TableBuilder: Personal weekly income for all persons within the region by Indigenous status was extracted, those census respondents identifying as Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander were combined to provide data on Indigenous persons, all other respondents were classified as non-Indigenous. Weighted average of Cairns SA4 and FNQ SA3 regions

	Kimberley	NT	FNQ	Australia
Area (hectares'000)[†]	41,956	135,316	27,222	768,849
Population (persons)[‡]	34,793	211,943	254,318	21,507,719
Indigenous population as % of total[‡]	40%	27%	5%	3%
Median weekly gross personal income by usual place of residence (UPR) (2011 $)[‡]	$667	$745	$552[¶]	$577
Median weekly gross personal income by UPR: Indigenous persons (2011 $)[§]	$288	$269	$340	$362
Median weekly gross personal income by UPR: non-Indigenous persons (2011 $)[§]	$987	$925	$592	$582
Median weekly gross personal income by place of work (POW): Indigenous persons (2011 $)[§]	$651	$628	$650	$741
Median weekly gross personal income by POW: non-Indigenous persons (2011 $)[§]	$1,210	$1,112	$819	$914
Major industries of employment – top four sectors for each region (% of employment)[‡]				
Government services (including administration, health, education, defence)	33%	40%	31%	26%
Wholesale and retail trade	9%	10%	15%	15%
Manufacturing				9%
Construction		8%		8%
Other services including personal services	10%	8%	8%	
Mining	10%			
Accommodation and food services			10%	

In 2011 (the most recent year for which appropriate census data were available when compiling information for this chapter), median weekly incomes in the Kimberley and NT were higher than for Australia as a whole, due to the particularly high median incomes of non-Indigenous workers; when comparing median wages of the Indigenous population alone, earnings are less in all three regions than at the national level. In these regions, Indigenous people are more likely to be employed as labourers or community and professional service workers, and less likely to be employed as managers, professionals, technicians or clerical workers than their non-Indigenous counterparts (Deloitte Access Economics 2014). Government services (including administration, health, and education) are the largest employer in these areas, with manufacturing employing very few people across the north (Table 3). Some sectors are large employers in specific regions, for example, mining

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[7] Based on 2016 Census, the population of Cairns SUA is 144,787, of which 9% Indigenous.

employs about 10% of the Kimberley workforce, whilst tourism is an equally large employer in FNQ.

2.2.3 Our case study areas

The five Indigenous organisations with which we partnered have traditional lands in the Fitzroy River catchment of WA and in north Queensland (Figure 7). We worked collaboratively with those organisations to collect primary data from more than 200 Individuals, and conducted five workshops with communities in those areas to help answer questions regarding the contribution that ILSMPs make to the wider aspirations of Indigenous communities (chapter 5) and to individual wellbeing (chapter 6), and the importance of knowledge exchange for ILSMPs (chapter 7). Table 4 provides an overview of each organisation.
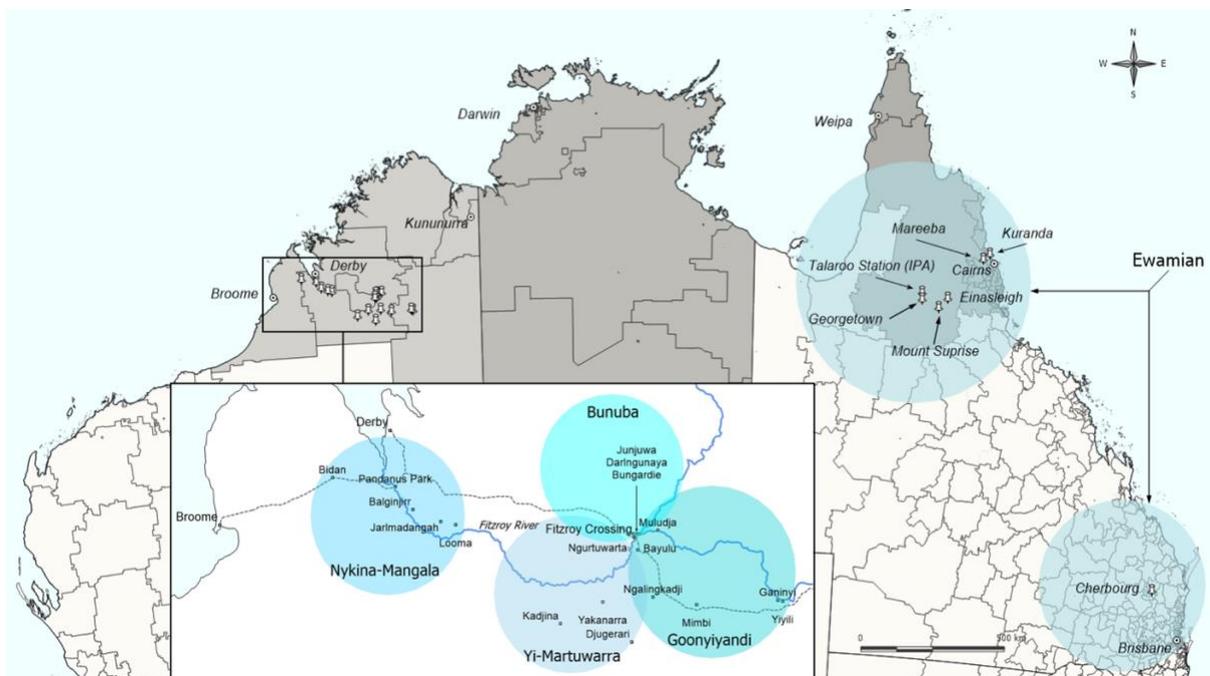
Figure 7. Regions relevant to our Indigenous partner organisations. Shaded areas show regions for which I-O models were available (used in chapter 3); black lines show postcode boundaries (used for analysis in chapter 4). Circles show regions in which we collected data for chapters 5, 6 & 7. Please note, these circles are NOT intended to represent native title areas, or other; they merely show regions in which we collected data, and groups we worked with to do this.

Table 4. Our partner organisations – overview.

Prescribed Body Corporate	Walalakoo Aboriginal Corporation RNTBC	Bunuba Dawangarri Aboriginal Corporation RNTBC	Ewamian Aboriginal Corporation RNTBC	Gooniyandi Aboriginal Corporation RNTBC	Yanunijarra Ngurrara Aboriginal Corporation RNTBC
Language group	Nyikina Mangala	Bunuba	Ewamian	Gooniyandi	Ngurrara
Geography	Lower Fitzroy Valley, Western Australia Significant population in Derby, Broome, Looma and other small communities/ outstations Some Nyikina Mangala live on traditional country	Middle Fitzroy Valley, Western Australia Significant population in Fitzroy Crossing and surrounding communities and outstations Many Bunuba live on traditional country	North Queensland, Queensland Significant population in north Queensland, Brisbane and Cherbourg Few Ewamian live on traditional country	Middle Fitzroy Valley, Western Australia Significant population in Fitzroy Crossing, and communities and outstations like Mimbi Some live on traditional country	Great Sandy Desert, Western Australia Significant population in Fitzroy Crossing, surrounding communities and outstations, and south of Broome Few Ngurrara live on traditional country
Recent history	Dispossessed late 19th/early 20th century Largely stockmen and domestic workers until equal pay provisions in the 1960s	Dispossessed late 19th/early 20th century Largely stockmen and domestic workers until equal pay provisions in the 1960s	Dispossessed late 19th century Largely stockmen and domestic workers until equal pay provisions in the 1960s, or forcibly removed to Palm Island and Cherbourg	Dispossessed late 19th/early 20th century Largely stockmen and domestic workers until equal pay provisions in the 1960s	Moved into missions and stations in the early to middle 20th century. The Yulparija people were removed from a region called the Talgamo prohibited region (the landing spot of a now-failed British missile program with warheads launched from Woomera) Largely stockmen and domestic workers until equal pay provisions in the 1960s
Institutional context	The Walalakoo Aboriginal Corporation was formed in 2014 following the Nyikina Mangala Native Title Determination in 2014 The determination area is 26, 215 square km	The Bunuba Aboriginal Corporation was formed in 1991 The Bunuba Dawamgarri Aboriginal Corporation RNTBC was established in 2012 to hold and administer Native Title (6,258 square km) The claim included the Leopold and Fairfield pastoral leases, portions of other pastoral leases and small reserve land and unallocated Crown Land. A second Native title claim - Bunuba#2 - was registered with the National Native Title Tribunal in May, 2012, covering Windjana Gorge National Park and Tunnel Creek	The Ewamian Aboriginal Corporation was registered in 1994 to support an application for Native Title and to obtain, hold and manage land. In 2013, Native Title determined for > 29,000 square km In 2012, the Indigenous Land Council acquired Talaroo Station (31,500 hectares with much pastoral land, and significant cultural and strategic values). EAC signed a lease with the Indigenous Land Corporation to manage Talaroo Station as an IPA	Granted Native Title in June 2013 and then again in 2016 Equates to 11,200 square km and includes several Indigenous-owned Bohemia Downs, Mt Pierre and Louisa Downs stations, and portions of the non-Indigenous Christmas Creek, Gogo, Fossil Downs, Larrawa and Margaret River stations. Approximately half of claim is exclusive possession The Gooniyandi Aboriginal Corporation RNTBC administers Native Title rights and interests.	The largest of the Ngurrara Native Title claim was determined in November 2007. The Ngurrara A and B native title claims were granted in 2012 Covers 77,595 square km Smaller parcels of land additionally determined. The Ngurrara Indigenous Protected Area, the Warlu Jilajaa Jumu, was declared in 2007. A second extensive claim over pastoral country known as the Yi-martuwarra claim was determined in 2017. This covers sections of Christmas Creek, GoGo, Bulka. Milijidee, Cherrabun, Larrawa, Yougga

Prescribed Body Corporate	Walalakoo Aboriginal Corporation RNTBC	Bunuba Dawangarri Aboriginal Corporation RNTBC	Ewamian Aboriginal Corporation RNTBC	Gooniyandi Aboriginal Corporation RNTBC	Yanunijarra Ngurrara Aboriginal Corporation RNTBC
			In 2014, Talaroo Station was officially declared as a Nature Refuge In 2017 Talaroo was handed back to Ewamian and formally dedicated as an IPA – although this dedication has not yet been formally recognised by the Australian Federal Government.		Walla, Beefwood and Bohemia Downs pastoral leases. Most of the Ngurrara Native Title Claim is classified as exclusive possession over unallocated crown land. The Yanunijarra Ngurrara Aboriginal Corporation RNTBC manages the Native Title rights and interests.
ILSMP context	WBC has managed a ranger group since 2013. Walalakoo Environmental and Cultural Services was established to improve cultural and natural land management within the Native Title area to pursue business opportunities in the environmental services industry	Tunnel Creek, Geikie and Windjana Gorge Parks have extinguished Bunuba Native Title in a sea of exclusive Bunuba Native Title on the surrounding pastoral leases to which Bunuba also have legal rights. Entered into Joint Management negotiations with the Western Australian Department of Parks and Wildlife (DPAW) in 2016. Bunuba rangers, based out of Fitzroy Crossing, established in 2011. DPAW have casually funded the Bunuba rangers in a fee-for-service arrangement to carry out work on the conservation areas. Also have three Indigenous-owned pastoral leases, two of which the PBC has under lease to a non-Indigenous operator.	Rangers funded through the Qld Indigenous Land and Sea Ranger Program Natural and cultural heritage management currently focusses on Talaroo	The Bayulu rangers were created in 2011 with a female ranger group established in 2014. Fee for service work for DPAW, fire management, weed control, fauna research and biodiversity management.	Male and female ranger groups and associated ranger coordinators and a country manager. Work on Ngurrara country, including on the Warlu Jilajaa Jumu IPA from 2008 Operate according to the Healthy Country Plan Ngurrawarnti wulyu martarnupurru 2012-2022. Fire management, feral camel and pig management, and maintenance of cultural sites Fee-for-service work in rehabilitation, tourism, plant and animal surveys, feral animal control and contracting.

2.2.4 ILSMPs operating in our case study areas

We compiled a list of ILSMPs that our partners had been involved in since 2012 (see supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-2-supplementary-material-Background-Esparon.pdf). Table 5 provides an overview of these programs, using the generic characteristics from Table 2 to describe them. In this table, the first set of columns (header in blue) show those funded by the federal government; the second set (pink) show programs funded by state governments; the third (orange) show programs funded by NGO's; and the final (purple) show programs funded by mining companies. The groups that are participating in each program are identified in the top row, using a single letter: B – Bunuba; G – Gooniyandi; E – Ewamian; N – Nyikina-Mangala; and Y – Yanunijarra. The rows provide more information about each program, using a tick (✓) to signal that the characteristic described in the left column is present for that program. A tick with a community initial next to it means that a particular characteristic is specific to that community. If there are no initials next to the tick, it means that the generic characteristic applies to all communities involved in that program. The synthesis allows for the following comments:

1. With the exception of state-funded Indigenous ranger programs, all involve parties that are not direct recpicients of funds – as when, the KLC provides a co-ordinating role.
2. All programs have environmental and 'other' objectives
3. With the exception of programs expressly funded by NGOs for the purpose of developing healthy country plans, all support the employment of Indigenous rangers; these are mostly male although some programs specifically fund female and youth rangers.
4. In many cases the ranger co-ordinators are not Indigenous.
5. From the perspective of any single Indigenous community, most money appears to be available on an adhoc basis only and for short periods (as fixed term grants, or to complete a specific task). Uncertainty of on-going funding can be stressful. That said, it is worth noting that the IPA program has been in existence (and funded) for 20 years; the Indigenous Ranger program has been running for 10 years.

The research described in chapters 3-7, sheds light on ways in which some of those characteristics enable or constrain ILSMPs from generating a wide range of co-benefits.

Additional table notes:

1. Working on Country (WOC) is now called Indigenous Rangers Program (IRP) under the Indigenous Advancement Strategy.

2. In the Kimberley - For IRP and IPA, the School engagement component is written in the work plans but no specific funding is provided towards this activitiy. The IRP and IPA programs are the backbone for most ranger, coordinator or other enabling positions

3. Some programs are primarily designed to provide operational funding to complement work done by IRP or IPA rangers.

Table 5. Overview of ILSMPs in our case study regions.

Funding agencies, programs and recipients / Characteristics	FEDERAL					WA(DBCA) & QLD	WA	WA (DBCA)	WA (DBCA)	WA (DBCA)	NGOs	MINING	
	IRP[1,5] [G,N,Y]	IPA[5] [N,Y,E]	Landcare [G,N,B]	C for C (now Landcare) [B]	Green Army [Y]	Indigenous Ranger Program [Y,B,E]	State NRM [G,N,E]	Remote regions Nature Conservation Program [B]	Kimberley Science & Conservation Strategy [B]	The landscape Conservation Initiative [B]	Healthy Country Planning TNC BH [G,N,Y,B]	Social Investment [Y] SHELL	Ten Deserts [Y] BHP Foundation
Implementing agency	KLC	KLC [N,Y] EAC [E]	KLC [N]; RNRM, EK [G,B]	EK [B]	KLC, CVA[4]	EAC [E]; YNAC; BDAC	KLC, CVA RNRM, SGC[E] NGRMG [E]	BDAC/DBCA	KLC	BDAC/DBCA	KLC[G,N,Y] BH [B]	KLC	DSS, AW RNRM, CLC,KJ, KLC, IDA, PCT,TNC,ALEC,NWAC
Processes and governance													
Cultural governance & planning	✓	✓						✓			✓		✓
Co development, level of participatrinous	✓	✓									✓		✓
Flexibility of design	✓	✓[N,Y]									✓		✓
Environmental objectives												✓	
Water	✓	✓					✓ [G, N]				✓		✓
Endangered species	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓
Weed /Pest management	✓	✓	✓	✓	✓	✓	✓[E]	✓		✓	✓		✓
Fire management	✓	✓		✓		✓	✓[E]			✓	✓		✓
Landscape rehabilitation	✓	✓[N,Y]	✓		✓		✓						
Biodiversity monitoring	✓	✓	✓	✓	✓	✓	✓						
Other objectives													
Training, employment, capacity building	✓	✓	✓	✓	✓	✓	✓					✓	✓

Business/community development	✓	✓				✓ [E]	✓		✓		✓		✓
Cultural site management	✓	✓		✓		✓	✓				✓		✓
Cultural awareness/tourism	✓	✓				✓ [E]			✓				✓
Traditional knowledge transfer	✓	✓	✓			✓					✓	✓	✓
Funding for:													
Staff													
Indigenous Rangers	✓	✓	✓	✓	✓ (youth)	✓ [E] (female;Y,B)	✓	✓	✓	✓		✓ (youth)	✓
Coordinators	✓	✓				✓ [E]						✓	✓
Other local jobs													
Scientists / professionals	✓	✓[E]				✓[E]	✓	✓			✓		✓
School engagement						✓[E]						✓	✓
Language		✓											
Other TO/community engagement	✓	✓				✓[E]	✓		✓	✓	✓	✓	✓
Vehicles/equipment/	✓	✓²			✓³	✓[E]		✓					✓
Longevity	Until 2018 – June 2021	Multi-year; to 2023	Until Jun 2023	Until Dec 2018	Dec 2017	3 years [Y] 2 years [B] Ongoing [E]	Until Mar 2019 {G, N] 2018 [E]	Ongoing	Ongoing	Ongoing	Ad hoc	2 years	5 years

2.3 Take-home messages

Australia's north is a large and sparsely populated area. It has relatively little physical infrastructure (roads, railways, all weather airports), and some of the most flow-variable rivers in the world, with water only widely available during the wet season. Many towns in Australia's North rely on just one or two mainstream industries for income and employment and many previous visions for development have failed (Taylor et al. 2011) – arguably because visionairies often seek to undertake activities or enterprises that may suit other (e.g. western urban) economies, but which are ill-suited to Australia's North (Jarvis, Stoeckl, Addison, Larson, Hill, Pert, et al. 2018). Notably, the disjuncture between Indigenous and non-Indigenous economies means that even when economic growth occurs in the non-Indigenous sector, very little of the extra income associated with that growth ever 'trickles down' to benefit Indigenous people (Stoeckl 2010).

> [But] ..Indigenous northern Australians have diverse development plans consistent with their distinctive aspirations for culture and country, and wish to become economically independent through partnering in development (Armstong et al. 2005; McGaurr et al. 2016; Morrison 2017). Indigenous representative groups have actively advanced this agenda by, for example, championing an Indigenous prospectus for northern development (NAILSMA 2013) or calling for changes in the Native Title Act 1993 (www.legislation.gov.au/Details/C2017C00178).

Jarvis et al. (2018b, p 415 – 416)

ILSMPs are likely one (of perhaps many) different ways of supporting those plans. Indigenous people have a long history (dating back tens of thousands of years) of 'caring for country', undertaking a range of diverse and related land (sea and water) management activities. State, Territory and Federal governments, NGOs, and other private organisations (e.g. mining companies), provide funding and support for Indigenous people through various programs that supports some of those land and sea management activities, referred to here as ILSMPs.

The Indigenous groups with whom we have partnered for this project are involved in a wide range of ILSMPs, the generic characteristics of which allow for the following observations (specific to our partners).

1. With the exception of state-funded Indigenous ranger programs, all programs involve implementing agencies that are not direct recipients of funds – as when, the KLC provides a co-ordinating role.
2. All programs have both environmental and 'other' objectives.
3. With the exception of programs expressly funded by NGOs for the purpose of developing healthy country plans, all support the employment of Indigenous rangers; these are mostly male although some programs specifically fund female and youth rangers.
4. The ranger-co-ordinators are often non-Indigenous.
5. Very few of the programs have secure (on-going) funding

Anecdotal evidence suggests that these programs are very 'popular', but to date, there has been reletaively little research undertaken that quantifies the social and economic co-benefits of ILSMPs in these, and other areas. The following chapters redress some of that deficiency.

3. The regional economic benefits of ILSMPs

Diane Jarvis and Natalie Stoeckl, Ro Hill, Petina Pert

The material presented in this chapter summarises key parts a more complete analysis, reported on in: Jarvis, D., Stoeckl, N., Hill, R., Pert, P. (2018) Indigenous land and sea management programs: Can they promote regional development and help 'close the (income) Gap? *Australian Journal of Social Issues,* 53: 283-303. This journal article can be downloaded, free of charge, at the following website http://dx.doi.org/10.1002/ajs4.44

3.1   Summary

Our overall research aim (outlined in Chapter 1) was to generate information that can be used to help design, monitor, and/or select ILSMPs to help meet the goals of key stakeholders. These diverse goals include: enhancing Indigenous wellbeing; helping Indigenous communities meet their aspirations; supporting the development of Indigenous business (including IIIs); and/or promoting regional economic development. This chapter focuses on the contribution that ILSMPs can make to regional economic development, and whether such ILSMP related development can contribute to closing the income gap between Indigenous and non-Indigenous people. That is, the focus is on the social benefits provided by a simple good (increased incomes within a regional community), and thus falls within the upper left quadrant of the complex goods diagram set out at Figure 1.

3.2   Methods

We set out to answer three questions:

1. How do ILSMPs contribute to northern economies? How does that contribution compare to the stimulus provided by other industries (e.g. mining, agriculture) that are important to northern Australia?
2. Is ILSMP expenditure helping to close the (income) gap between the Indigenous and non-Indigenous people?
3. How does the structure of ILSMP expenditure influence the size and distribution of benefits between Indigenous and non-Indigenous people? Which types of expenditure work best to help close the gap?

We did this by first collating data on total ILSMP expenditure (by philanthropic organisations (NGOs) plus state, territory and federal governments) within the Kimberley (WA), the Northern Territory, and far north Queensland (FNQ) (from Hill et al. (2013b)). We then looked at data from the federal Department of Prime Minister and Cabinet for the projects which they had funded (about 70% of all ILSMP expenditure). That helped us estimate the share of ILSMP money that was spent on different categories of goods and services (e.g. wages, equipment) in each of our case study regions.

We then analysed that data in three publically available input–output (I-O) models (one for the Kimberley, on for NT, and one for FNQ), but we made two adaptations to those models that allow us to work out what % of expenditure (initial and 'knock-on') goes to Indigenous people, and what goes to non-Indigenous people. This allows us to 'trace' ILSMP

expenditure within our focal regions – looking at both initial spend and 'knock-on' expenditure.

To explain how this works, suppose that a visitor to a regional town spends $100 (which had been earned outside the region) at a local grocery store. The owner of the store may put aside some money for savings/profit and some for taxes). He/she may also spend money importing stock from Sydney or overseas and may spend the rest on wages, or on fresh produce from the local gardener. Figure 8 depicts the process diagrammatically, using numbers derived from an earlier study of northern Australia (Stoeckl 2010); it highlights that an intial spend of (in this case) $100, will mean that local people earn at least $141 (the initial spend, plus 'knock-on' expenditure).
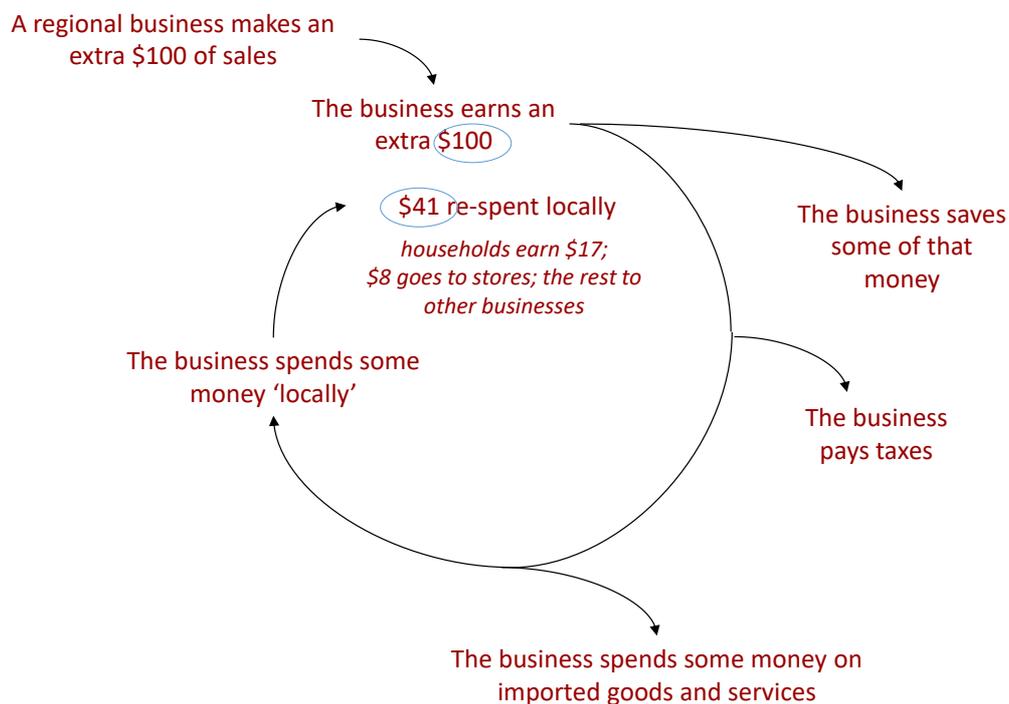
Figure 8. The 'knock-on' benefits of spending money.

These additional 'knock-on' impacts are sometimes called the *multiplier effect*. In the example above, the multiplier is (at least) 1.4 because the initial spend was $100, and the total regional impact is (at least) $141 – that is, 1.4 times as large as the intial spend. Simplistically, the more that is spent within a region, the higher the multipliers. In rural/remote areas, multipliers are generally higher for labour-intensive businesses than for capital intensive businesses. This is because capital intensive business HAVE to import their machinery and equipment from outside the region (they don't make Catepillar excavators in Fitzroy crossing). Multipliers also tend to be higher in large cities (businesses can buy most of their stock and equipment local).

WARNING: I-O models are not a good tool to precisely measure the regional impact of expenditure in an industry, but are very good if only wanting to work out if expansion of one industry (say ILSM) is likely to have a bigger or smaller impact than expansion of another industry (say tourism, or agriculture). So instead of only looking at ILSMP expenditure, and 'knock-on' effects (formally, multipliers) we compare the multipliers that are associated with ILSMPs with those that are associated with other key northern industries.

3.3   Findings

FIRST, we found that ILSMPs make a significant contribution to the Kimberley, NT and FNQ economies. During 2014–15, the $79.6m of ILSMP expenditure (70% from federal government) generated an additional $106m of indirect or 'knock on' benefits over and above the initial expenditure. The total economic impact of ILSMP expenditure was thus $185.6m: 2.33 times the initial expenditure – although we warn people not to take this number literally: as noted above, I-O models are good at telling whether one industry has more 'knock-on' benefits than another but are not great at predicting exact amounts.

Across all our focal regions, we estimate that the multiplier associated with ILSMPs is 2.33. Region-specific ILSMP multipliers were 1.8, 2.4 and 2.5 in the Kimberley, NT and FNQ, respectively. These were 13–60% higher than our estimated agricultural multipliers (depending on type of agriculture and region) and 20–29% higher than mining multipliers (depending on region). This shows that ILSMPs have an important role to play in the economic development of northern Australia – a result likely transferrable to other Australian non-metropolitan regions with similar economic structures.

> CAVEAT: Our results provide information about the relative size of the knock-on (indirect financial) benefits of different industries; they do not provide information about the relative net social benefits (a different question, requiring a different methodology to answer) of those industries. Unless one measures all of the explicit and implicit (hidden) costs and benefits associated with all industries (a mammoth, and perhaps even impossible task giving the diverse externalities across place and time with these other industries), one cannot be sure that they generate a positive net social benefit. So our ranking of multipliers does not translate neatly to a ranking of net social benefits.

ILSMPs generally require more government and NGO funds than mining or agricultural ventures. But in exchange (and in addition to generating economic benefits), ILSMPs also provide biodiversity conservation and ecological services which are of national significance. In 2016 Social Ventures Australia [SVA] undertook a number of studies, establishing that the measurable benefits associated with ILSM practices and programs exceed the funds invested – i.e. there is a positive, and significant, 'return on (the government) investment (in ILSMPs) – see, for e.g. (Social Ventures Australia Consulting 2016c), (Social Ventures Australia Consulting 2016b). Moreover, the positive social–cultural impacts of ILSMPs (well documented in the SVA studies, and also documented in chapters 4, 5, 6 and 7 (this report)) may help lay the foundations for Indigenous communities to leverage future business and/or development opportunities, thus leading to longer term gains for all. So the long-term benefits of ILSMPs, which include social, ecological and economic impacts, are larger than those considered in the SVA studies. Our work suggests that the return on investment is even higher than that estimated by SVA. Whether or not the net social benefits of ILSMPs

are greater than the net social benefits of other industries is a vitally important question but one that we are, with the information currently available, unable to answer.

SECOND, our analysis highlights that it is not only Indigenous people who reap an economic benefit from ILSMPs – non-Indigenous people also earn much money from them, as do local businesses (many of which are non-Indigenous owned). Across our focal regions, the total regional economic impact (including multiplier effects) of ILSMP expenditure is distributed as follows: $33.3m to Indigenous households (as wages/salary); $35.8m to non-Indigenous households (as wages/salary when the businesses they work for supply goods and services for ILSMPs) and $116.5m to local businesses (we do not have enough information to distinguish between Indigenous and non-Indigenous owned businesses).

THIRD, our analysis highlights the contribution that ILSMPs make to Australia's Indigenous Advancement Strategy, and to the government's stated goal of closing the gap. Within all three regions, the total benefits flowing to non-Indigenous households is only marginally higher than that flowing to Indigenous households, although there are fewer Indigenous people in these regions, so the per capita story is one of Indigenous advancement. Our analysis suggests that ILSMPs will continue to contribute to the Indigenous Advancement Strategy, as long as the share of total ILSMP expenditure going to Indigenous households (as wages / salaries) does not fall below (about) 46.1% in Kimberley, 31.6% in NT, and 18.7% in FNQ. If Indigenous households receive less, then the total benefits of ILSMP expenditure flowing to non-Indigenous people would exceed that of Indigenous people, and the programs would widen, rather than close the gap in incomes.

FOURTH, our analysis shows that the structure of the ILSMP expenditure does indeed influence the size and distribution of benefits between Indigenous and non-Indigenous people. These vary according to: (a) total spend; (b) the distribution of initial spend (e.g. mostly on wages, or a split between wages, operational costs and equipment; and (c) regional procurement preferences and policies. This has several related policy implications:

- if seeking to increase the regional economic impact of ILSMPs, then one should encourage ILSMP managers to purchase required goods and services (business supplies) from 'local' (regional) businesses (rather than importing goods and services from outside the region).
- if seeking to increase the share of benefits accruing to Indigenous people, then one should encourage ILSMP managers to hire Indigenous people at all levels, and to purchase business supplies from other businesses that are owned by, or at minimum, employ many Indigenous people.

3.4   Conclusions/take-home messages

Our research highlights that ILSMPs make a significant contribution to regional economies and to the incomes of both Indigenous and non-Indigenous households and businesses. ILSMPs also make a larger contribution to Indigenous household incomes than they do to non-Indigenous incomes, thus helping to close the income gap. Far from there being a trade-off between socio-ecological and financial/economic goals, our results strongly suggest that ILSMPs, known for their ecological importance, also have a vitally important contribution to make to the economic development of northern Australia.

The key factor influencing the contribution that ILSMP programs can make towards regional economic development is the proportion of program expenditures that is spent within the region itself. The greater the proportion of spend going on either (i) paying wages and salaries to local people and (ii) purchasing goods and services from locally owned and operated businesses, then the greater the impact on regional economic growth. Reducing the leakage from the local economy by increasing expenditure on goods and services purchased from businesses within the region will increase the economic development within the region. The research suggests that programs where the expenditure is human capital focused (investing in wages and training) will have a larger impact on the regional economy than if the spending has more focus on physical capital items (investing in equipment/machinery which is likely to be bought in from outside the region).

The key factor influencing the contribution that ILSMP programs can make towards closing the income gap between Indigenous and non-Indigenous businesses is the proportion of the program expenditure that flows to Indigenous people. This can be as a result of directly employing Indigenous people as Rangers or within other roles within the program, as demonstrated in this research. The literature also suggests this could result from ILSMPs purchasing the goods and services required from Indigenous owned businesses, or from businesses where the workforce were largely Indigenous; however we were unable to test this directly within this research.

4. Indigenous business development and ILSMPs

Diane Jarvis, Natalie Stoeckl, Jane Addison, Silva Larson, Ro Hill, Petina Pert, Felecia Watkin-Lui

The material presented in this short section summarises key parts a more complete analysis, reported on in: Jarvis D, Stoeckl N, Addison J, Larson S, Hill R, Pert P & Watkin Lui F. (2018) Are Indigenous land and sea management programs a pathway to Indigenous economic independence? *The Rangeland Journal* 40(4) 415-429. This journal article can be downloaded, for free, at the following website: https://doi.org/10.1071/RJ18051.

4.1   Summary

Our overall research aim (outlined in Chapter 1) was to generate information that can be used to help design, monitor, and/or select ILSMPs to help meet the goals of key stakeholders. These diverse goals include: enhancing Indigenous wellbeing; helping Indigenous communities meet their aspirations; supporting the development or Indigenous business; and/or promoting regional economic development. This chapter focuses on the contribution that ILSMPs can make to the creation and growth of Indigenous owned businesses, thus promoting Indigenous economic independence. The focus is thus on a fairly complex good (the independence derived from business ownership provides a range of socio-economic benefits beyond the income provided to those directly involved and many of the businesses which we considered in our analysis were PBCs and can thus be considered to be IIIs). These businesses thus provide complex social benefits (a variety of benefits that accrue within the wider community in addition to the direct benefits to the business owners).

4.2   Methods

We set out to do two things:

1. Collate insights from relevant literature that proposes and explains what can be done to help promote economic development and/or economic independence for Indigenous businesses and economies across northern Australia.
2. Gather and analyse data to statistically test for evidence that ILSMP expenditure generates positive spill-overs for Indigenous businesses – even those that are not engaged in land management.

We began with a comprehensive review of several related bodies of literature on economic development per se, (Australian) Indigenous economies, northern Australian economies, Indigenous business development, and factors likely to kick-start self-sustaining development cycles. We used insights from the literature to conceptualise the 'development' challenge – describing key features of northern Indigenous Australian economies and highlighting factors that differentiate them from Western urbanized economies. We also used insights from this review to identify the pre-conditions required to stimulate (short-term) development in northern Indigenous economies, and to identify factors likely to help lay the foundations for longer-term self-sustaining economic growth of Indigenous enterprises.

We then gathered data to empirically test our theory that ILSMPs can kick-start self sustaining growth cycles in other businesses. We note here that previous work shows more

than 65% of ILSMPs undertake commercial activities that generate revenue and create jobs. We used eight years of data relating to Indigenous businesses which are registered with the Office of the Registrar of Indigenous Corporations (ORIC) (a subset of all Indigenous businesses), in conjunction with data on ILSMP expenditure and on other variables identified in the literature as likely to have an influence on business activity. We grouped data at the postcode level (e.g. number of registered businesses in postcode 4812) and developed statistical models that allowed us to test if ILSMP expenditure in year one had a positive impact on Indigenous business activity in subsequent years (after controlling for confounding factors). Whilst our analysis covered postcodes across the whole of Australia, we also analysed northern Australia separately by including only those postcodes within the north. The results from this northern Australia analysis were very similar to those for Australia as a whole, but less reliance can be placed on the results for northern Australia alone due to the small sample sizes involved.

4.3   Findings

Our review of relevant literatures clearly revealed that northern Australian economies are different from Western urbanised economies. If one's aim is to stimulate (short-term) economic development in northern Indigenous economies, then one needs to stimulate demand for goods and services that are:

1. produced by Indigenous people, and which
2. generate benefits that align with the goals and aspirations of Indigenous people.

Our review also highlighted that:

3. it is important to create conditions that support social-cultural values that improve quality of life and thus promote innovation and creativity – a core driver for self-sustaining long-term economic development.

ILSMPs have these characteristics and are also capable of stimulating short-run demand and supply for goods produced by Indigenous people.

Our statistical modelling highlighted several important things, visually presented in Figure 9.

FIRST, increases in expenditure on ILSMPs is associated with an increase in the number of Indigenous businesses registered with ORIC in that same year and in each of the following two years. This suggests that there may be a causal relationship flowing from ILSMPs to growth in Indigenous businesses. This relationship is evident for all businesses – even those who are not involved in land management. The latter are not direct recipients of ILSMP funding so the observed relationship must reflect some positive spill-over. We can suggest three reasons for why this may be occurring but at this stage cannot determine which (if any) is having the greatest effect. For example: 1) ILSMPs may improve people's skills, knowledge and experience with this improved human capital facilitating further business growth; 2) a multiplier effect may exist with Indigenous businesses receiving ILSMP funding then spending more with other Indigenous businesses, thus increasing demand; 3) ILSMPs may contribute to an increase in the general productive capacity of the region.

SECOND, the increase in the number of Indigenous businesses outlined above increases with time e.g. there is larger growth in year three than year two, which is larger than year one.

THIRD, ILSMP expenditure does not seem to affect average business income during the year in which expenditure occurs, but there is a positive impact two years later. This relationship is evident for all businesses – even those who are not involved in land management. The finding is consistent with the proposition that ILSMP funding impacts both demand and supply approximately equally in early years (simplistically, it is as if one is shifting both the demand curve and the supply curve to the right, with increases in quantity – as per our observed increase in the number of businesses – but without having an impact on price). The observed increases in average income in subsequent years suggests that eventually, the demand-side effects (including spill-overs) dominate. If ILSMP expenditure is associated with subsequent growth in Indigenous businesses (which are not engaged in land management) and the magnitude of this impact is growing over time, we suggest that ILSMPs could provide an important pathway in facilitating Indigenous economic independence.
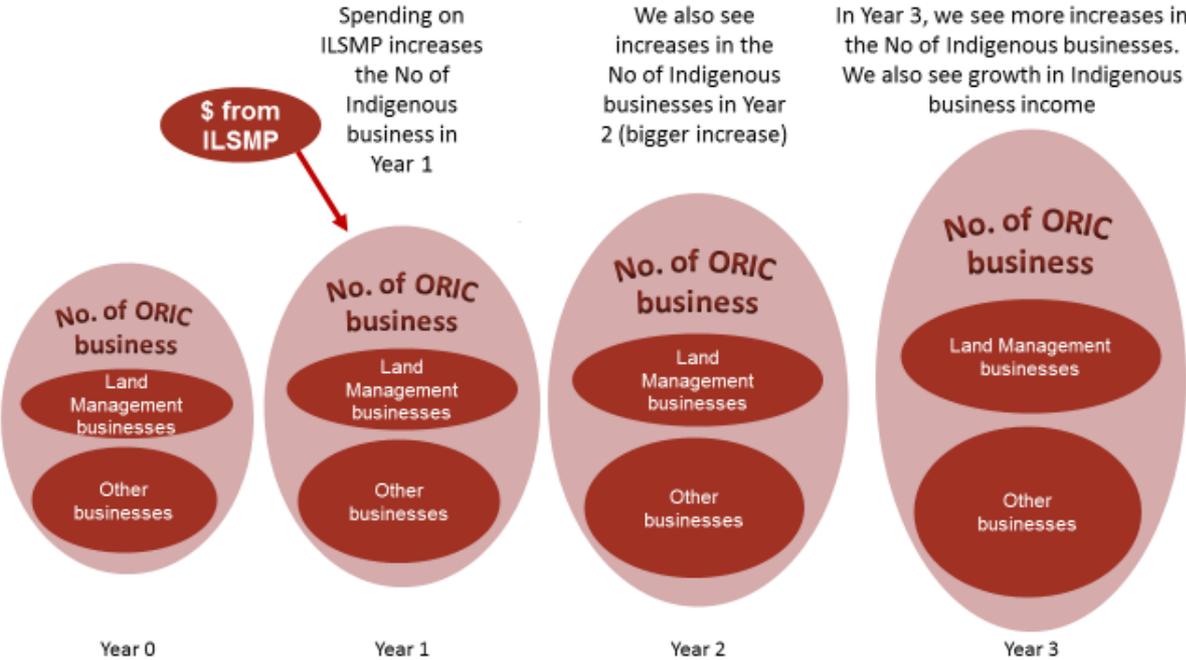
Figure 9. Impacts on number and income of Indigenous businesses (registered with ORIC) following ILSMP expenditure in the 'local' (postcode) area.

4.4   Conclusions/take-home messages

Economic policies developed to stimulate urbanised Western economies do not easily translate to stimulating growth in remote Indigenous economies across northern Australia. If aiming to promote economic development and/or independence in northern Indigenous economies, it's important to stimulate demand for goods and services that are produced by Indigenous people; and which generate benefits that align with the goals and aspirations of Indigenous people. Traditional owners are responsible for maintaining sustainable life on country – not just sustainable development – so ILSMPs align well with both the capabilities/expertise and responsibilities of Indigenous people. The literature also tells us

that for long-term, 'self-sustaining' (sometimes termed *endogenous*) growth, one needs to create conditions conducive to innovation. ILSMPs may also do this, amongst other things, by empowering Indigenous communities (chapter 5), promoting wellbeing (chapter 6) and facilitating knowledge exchange (chapter 7).

Our statistical modelling indicates that expenditure on ILSMPs generates positive spill-overs for other Indigenous businesses, even those not engaged in land management – albeit with a three-year time lag. We tentatively suggest that this occurs because the close alignment of ILSMPs with Indigenous aspirations – often associated with empowerment, caring for country and community support – is helping to create the right environment for innovation and creativity, sparking a self-sustaining cycle of Indigenous-led growth and economic independence. All of these factors suggest that ILSMPs, known for their ecological importance, also help promote self sustaining growth cycles and Indigenous economic independence.

5. ILSMPs and Indigenous community aspirations

Jane Addison, Natalie Stoeckl, Silva Larson, Diane Jarvis, Michelle Esparon, Bunuba Dawangarri Aboriginal Corporation RNTBC, Bidan community, Ewamian Aboriginal Corporation RNTBC, Gooniyandi Aboriginal Corporation RNTBC, Yanunijarra Ngurrara Aboriginal Corporation RNTBC

The material presented in this short section summarises key parts of a substantive piece of work reported on in Addison, J., Stoeckl, N., Larson, S. Jarvis, D., Bidan Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation RNTBC, Ewamian Aboriginal Corporation, Gooniyandi Aboriginal Corporation RNTBC, Yanunijarra Ngurrara Aboriginal Corporation RNTBC, Esparon M. (2019) The ability of community based natural resource management to contribute to development as freedom, and the role of access, available at https://doi.org/10.1016/j.worlddev.2019.04.004

5.1   Summary

Our overall research aim (outlined in Chapter 1) was to generate information that can be used to help design, monitor, and/or select ILSMPs to help meet the goals of key stakeholders. These diverse goals include: enhancing Indigenous wellbeing; helping Indigenous communities meet their aspirations; supporting the development or Indigenous business; and/or promoting regional economic development. This chapter focuses on the goals of a key stakeholder – Indigenous communities involved in ILSMPs – and the ways in which ILSMPs contribute to their goals. We find that communities have aspirational views that suggest their concept of 'development' is closely aligned with the concept of *'freedom'* (to choose) – after Sen (2014). Whilst not necessarily intentional, ILSMPs appear to facilitate progress towards 'freedom' – an archetypal *complex social good*. If wishing to further facilitate this outcome, ILSMPs could be more strongly designed *with* communities (not *for* communities), be consistently funded and be open/flexible. This would more directly allow communities to use the funding in ways that best help them overcome access constraints to achieve the development benefits that they are seeking.

5.2   Methods

For this aspect of the research, we viewed community goals as being synonymous with the community's development goals, and thus set out to answer the following research questions

1. What are the (development) aspirations of our partner communities?
2. To what extent do ILSMPs help communities meet those aspirations?

We draw upon development theories and literature to help us frame the potential relationship between ILSMPs and development as it is understood by Indigenous communities. We also draw upon the significant contribution of community based natural resource management (CBNRM) literature in understanding ILSMPs as a form of CBNRM.

We began with a review of relevant theories and literatures, including those related to CBNRM, development theory, and the theory of access. We used insights from these theories and literatures to design a research methodology exploring the contribution of ILSMPs to development as it is understood by development theorists, ILSMP funding

agencies (including, but not necessarily limited to the Government) and involved Indigenous communities. We also wished to understand the relationship between access (influenced by institutions, capital, knowledge etc), constraints and the realization of development benefits within an ILSMP context.

We took a qualitative case study approach, seeking insights at the community level with participants from five Indigenous communities: four in the Kimberley and one in Queensland, and from the Federal government. The methodological approach we took thus included:

1. A review of theory and relevant literatures
2. Community-level workshops which included: Vision mapping; historical mapping; and prompted, stated contributions of ILSMPs to the achievement of community-level visions
3. Document analysis related to development conceptualisations and the potential role of ILSMPs, including community and government level documents:

Workshop and document analysis data were then coded into themes to assess the relative contribution of ILSMPs to development aspirations. These were then analyzed in light of pre-existing theory.

5.3   Findings

Community understandings of what constituted development were found to closely align with the 'freedom' articulated by development theorist, (Sen 2014). Communities primarily saw development as 'control, leadership, empowerment and independence' (Table 6) – a practical example of which is illustrated by the focus of the Martuwarra Fitzroy River Council, which seeks to frame development and Indigenous rights from the persepectives of customary law, practice and associated principles (Dr Anne Poelina). The desire for this type of development was consistently expressed as a desire for autonomy over land-use, economic independence from government and having a more powerful voice in benefit-sharing arrangements on country. Communities seek freedom, firstly, so they have the ability to then choose for themselves the particular combination of 'functionings' (or development sub-components) for themselves

Government funders have tended to create a pre-defined list of 'functionings' for Indigenous communities (e.g. closing the Indigenous-non-Indigenous gap in income or employment) rather than providing a facilitating environment that allows communities to realise development as 'freedom'. However most communities still stated that ILSMPs have contributed towards 'freedom' as 'control, leadership, empowerment and independence' (Table 6). This suggests that some or many of the ILSMPs provide mechanisms that allow communities to progress towards 'freedom' as understood by both the communities and development theories such as (Sen 2014).

The data highlights some of these mechanisms. Some communities have been able to use ILSMPs to help them overcome access constraints (such as those related to, for example, incomplete property rights like non-exclusive Native Title, or a lack of capital) that affect their realization of 'freedom'. Whilst the research did not seek to explicitly understand the relationship between specific ILSMP types and the ability of communities to overcome access constraints, the increased flexibility of design inherent in some programs (such as Working on Country) appears to have allowed communities to pursue other development goals at the same time as fulfilling program requirements. For other communities, their

implementation of more prescriptively defined ILSMPs were a condition they were required to fill in order for them to meet other development goals (such as overcoming incomplete property rights that made accessing country difficult).

5.4   Conclusions/take-home messages

Whilst not necessarily intentional, ILSMPs appear to facilitate progress towards community understandings of development. To help more communities move towards development 'freedom' (and thus maximise the benefits that can be generated by ILSMPs, as understood by communities), ILSMPs could be more strongly designed *with* communities (not *for* communities), be consistently funded and be open/flexible. This would more directly allow communities to use the funding in ways that best help them overcome access constraints to achieve the development benefits that they are seeking.

In general, the literature suggests that the 'looser' program design (the less prescriptive it is from the funder), the more able communities are to achieve their own development outcomes. For example, (Sen 2014) understands the development of freedom through systemic process freedoms, such as those related to political liberties and public deliberation that allow for social change. Process freedoms, like the political liberties and deliberative processes promoted by co-development of ILSMPs (rather than program prescriptiveness), allows communities a greater say in how resources designed to assist them are used. This will maximize benefits to these communities, as such processes will allow communities the ability to maximize benefits as they understand 'benefits'.

Flexibility of design, co-development and longevity (longer being better) are thus more likely to lead to development as 'freedom'. This is because these attributes allow communities more autonomy and control over resourcing and project/program direction so as their views of what constitutes development can be best realised. Case study groups involved with ILSMPs with greater levels of prescriptiveness cited that these programs contributed less to their understanding of 'development' than those with greater funding flexibility, for example.

Funding for community engagement and business/community development may also assist, as community engagement may provide a stronger vehicle by which program implementers (PBCs, rangers) can better understand community aspirations (and vice versa), and so these can be more closely worked towards through community development.

In this context, empowerment in relation to ILSMPs relates to both i) within ILSMPs empowerment, in terms of increasing community participation in project decision making so ILSMPs are better able to maximize the immediate generation of social and economic co-benefits, and ii) relations between communities and the greater social and economic context, as ILSMPs can be leveraged by communities to help increase their broader social and economic standing. ILSMP processes, governance mechanisms and empowerment outcomes can all be used as surrogate indicators of empowerment. If wishing to monitor progress towards empowerment then one should ideally select indicators of important processes and governance mechanisms leading to empowerment. These should evolve from a co-developed process with each community with a potential interest in ILSMPs, with monitoring also done in a participatory manner (Oakley and Clayton 2000). However, following (Izurieta et al. 2011) and (Stacey, Izurieta, and Garnett 2013), some broad themes that could be qualitatively or quantitatively monitored to better understand empowerment within ILSMPs could include relationships and communications between partners

(community and ILSMP implementing agency), and within-ILSMP decision making, representation and process satisfaction (from the community perspective). These could include monitoring community satisfaction that their community goals are being adequately captured in ILSMP design, community satisfaction that the design of ILSMPs are being conducted and monitored jointly (e.g. via a joint design committee) and the level and frequency of formal communication between the funding organization and community. Empowerment as understood as relations between communities and the greater social and economic context could be understood through including indicators of community participation in local, regional and national institutions and initiatives, organizational growth, financial independence, influence on other non-project initiatives and access to political power (Oakley and Clayton 2000).

Finally, we note that community-level desire for knowledge transfer was largely expressed as 'inter and intragenerational knowledge transfer of culture' with a lesser expression for 'two way learning'. ILSMPs were linked with inter and intragenerational knowledge transfer by all three (of the five) groups who expressed this as a goal. Two-way knowledge transfer, the understanding and/or sharing between two knowledge systems (western and Indigenous), was only important for two groups, of which one cited a link with ILSMPs. Whilst not cited as being an important community goal, schools (and the quality of formal western education) and ILSMPS were also linked via community sustainability in two case study groups with the presence of rangers being seen as being potentially important for sustaining a minimum community population that could then support a community school. Whilst not explored in detail, a number of barriers and facilitators to knowledge transfer emerged within the context of, or applicable to, ILSMPs. Barriers included sufficient levels of literacy and formal western education. Facilitators included the opportunity to learn from previous mistakes (such as in governance), and the resources required to acquire useful skills via mentoring (such as financial and legal literacy).

Table 6. Stated contributions of ILSMPs to thematic community goals, using data drawn from workshops. Goals are in order of most frequently cited to least frequently cited in workshops and through document analysis. ✓ = contribution stated. X = no contribution stated. U = unprompted, P = prompted. Dashes denote that that particular vision was not explicitly identified by the particular case study group.

Development goal	Qld Ewamian		Bidan Community		Bunuba		Gooniyandi		Yanunijarra	
	U	P	U	P	U	P	U	P	U	P
Control, leadership, empowerment and independence	X	X	✓	✓	✓	✓	X	✓	✓	✓
Appropriate economic development	X	X	-	-	X	X	X	✓	X	✓
Employment and training	X	✓	✓	✓	X	✓	-	-	✓	✓
Improved relationships and respect for our way outside community	-	-	-	-	X	X	X	X	✓	✓
Inter and intragenerational knowledge transfer of culture	-	-	-	-	X	✓	X	✓	✓	✓
Community cohesion and wellbeing	X	X	-	-	X	X	X	X	-	-
On-country infrastructure and services	X	X	X	X	-	-	X	X	-	-
Access and control over country	X	X	-	-	-	-	-	-	✓	✓
Benefit sharing from country	-	-	-	-	-	-	X	X	X	✓
Two-way learning	-	-	-	-	X	X	X	✓	-	-
Language	X	X	-	-	-	-	X	✓	-	-
Looking after country	-	-	-	-	-	-	-	-	✓	✓
Community sustainability	-	-	X	X	-	-	-	-	-	-
Appropriate educational development	-	-	-	-	-	-	X	✓	-	-

6. ILSMPs and individual wellbeing

Silva Larson, Natalie Stoeckl, Diane Jarvis, Jane Addison, Sharon Prior, Michelle Esparon, Daniel Grainger

The material presented in this chapter summarises key parts of a more complete analysis, reported on in: Larson, S., Stoeckl, N., Jarvis, D., Addison, J., Prior, S., Esparon, M. (2018) Using measures of wellbeing for impact evaluation: proof of concept developed with an Indigenous community undertaking land management programs in northern Australia, *AMBIO*, May, pp 1-10, and can be downloaded at: https://doi.org/10.1007/s13280-018-1058-3

This chapter uses those same data, but also includes data collected in the Fitzroy River catchment (WA), to draw inferences about the contribution of ILSMPs to individual wellbeing, and to identify similarities and differences between the two case-study regions. Here we provide only a short summary of that work – more detail (not available in the *AMBIO* paper) is provided in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch6-supplementary-material-Wellbeing-Larson.pdf.

6.1 Summary

We combined insights from literature on the Theory of Change, impact evaluation and wellbeing to develop a novel approach to asses the impacts of an activity/program. The approach asks intended beneficiaries to identify and assign scores to factors that are important to their wellbeing, and then to rate their satisfaction with those factors. We also ask respondents open-ended questions about perceived changes and causes of change in satisfaction with those factors – linking quantitative and qualitative responses. Our analysis suggests that ILSMPs have played a significant role in improving the wellbeing of both our Ewamian and WA respondents by positively changing some of the things most important to them (including, but not limited to "Knowing that country is being looked after the right way" and "Obtaining legal protection for places, knowledge or practices with important cultural value"). We note that the factors which are identified as having been positively influenced by ILSMPs are essentially complex social goods (as described in chapter 1) in that they do not only enhance the wellbeing of individuals but also provide wider social benefits of complex community cohesion and preservation of culture and way of life.

6.2 Methods

The term 'wellbeing' is not only complex but culturally defined, with meanings varying across time and geographic space[8]. Over the last 20 years human wellbeing has become an important aspect of investigations in planning, management, monitoring and evaluation[9]. As improvements in human wellbeing are increasingly viewed as dependent on improving ecosystem management and ensuring conservation and sustainable use of resources, there

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[8] For linkages between wellbeing and economics see (Frey and Stutzer 2010); further conceptualisation and recent development in understanding how to target 'right' concerns can be found in (Larson 2012) (Larson 2011).
[9] For various examples of use of human wellbeing in planning, management, monitoring and evaluation see (Hagerty et al. 2001); (Veenhoven 2002); (Sarukhan et al. 2005); (Larson et al. 2018b).

has been a proliferation of frameworks that link the natural environment with the human wellbeing. The Millennium Ecosystems approach is probably the most influential of such frameworks[10] - crucially highlighting that wellbeing is influenced by and encapsulates numerous social, ecological, economic, institutional, cultural and other domains of relevance to humans.

We use the subjective wellbeing approach[11] to measuring wellbeing (as a holistic concept) in our research, developing (and testing) a method for assessing the impact of ILSMPs – although the approach is generically tansferrable to other contexts (see chapter 7, where we also use it to assess the impact, on wellbeing, of knowledge exchange). The method comprises three distinct steps:

1. We ask individuals to identify factors that are important to their wellbeing and then to select factors which are 'most important to them (see boxes in Figure 10). This provides information about the overall importance of factor(s) to the sampled group (sample importance score).
2. We ask individuals to tell us how satisfied they are with those (selected) core factors, both now and previously (before activity/program occurred) (see boxes in Figure 10). Subtracting one satisfaction score from the other generates a quantitative measure of people's perceived change in satisfaction. By combining information about the magnitude of "perceived change" with "sample importance scores", we can draw inferences about the significance of perceived change to the participant group's wellbeing (wellbeing impact change score).
3. We ask individuals to talk about their perceived reasons for observed change (see ellipse in Figure 10) and combine those qualitative responses with quantitative scores (described above) to draw inferences about the extent and importance of an activity/ program's impact.

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[10] Early conceptualisation of linkages between natural environment and human wellbeing can be found in: (Narayan 2001); (Prescott-Allen 2001); (Alkire 2002). Millennium Ecosystem Assessment is probably the most influential framework currently in use ((Sarukhan et al. 2005); (MEA 2005)).

[11] Two parallel types of approaches to measuring wellbeing and quality of life have developed – the objective and the subjective. The objective approach focuses on data related to material and social circumstances typically documented in 'objective' data sets collected at the national level, such as income in dollars or housing in square meters. Objective approaches have been popularised in writing by Sen (see for example (Nussbaum and Sen 1993)) and later by (Hagerty et al. 2001); (Easterlin 2003). Interest in subjective wellbeing start in writing by (Andrews and Withey 2012); (Campbell, Converse, and Rodgers 1976); for influential debates on the subject see (Jacobs 1997); (Diener et al. 1999) (Diener and Suh 1997), (Veenhoven 2009) and (Cummins et al. 2003). The main advantage of using objective measures is that they can be easily monitored and evaluated (assuming secondary data are available). But although this type data is objective in the sense that it is possible to validate and verify, the selection of data for use in 'objective' data sets is itself, a subjective process. As such, the objective approach does not provide any insight into differences in personal preferences (some may think that 'objective' measures of the amount of plastic on beaches would provide a better indicator of wellbeing than 'objective' measures of income). Neither does it provide insight into individual satisfaction with current conditions: some people might be satisfied with a three-bedroom house, others might require a much larger house. Wellbeing thus has inherently subjective aspects the measurement of which cannot be entirely reduced to objectively measurable indicators. The environment we reside in is not 'given'; it is created and interpreted by humans, and research clearly shows that cultural background and individual factors such as temperament, cognition, goals and coping methods may have a larger impact on wellbeing (or satisfaction with life) than objectively measurable factors such as age, education, income or gender. Subjective wellbeing approaches take into account individual experiences and thus help us understand and communicate the interpretations, priorities and needs of individuals.
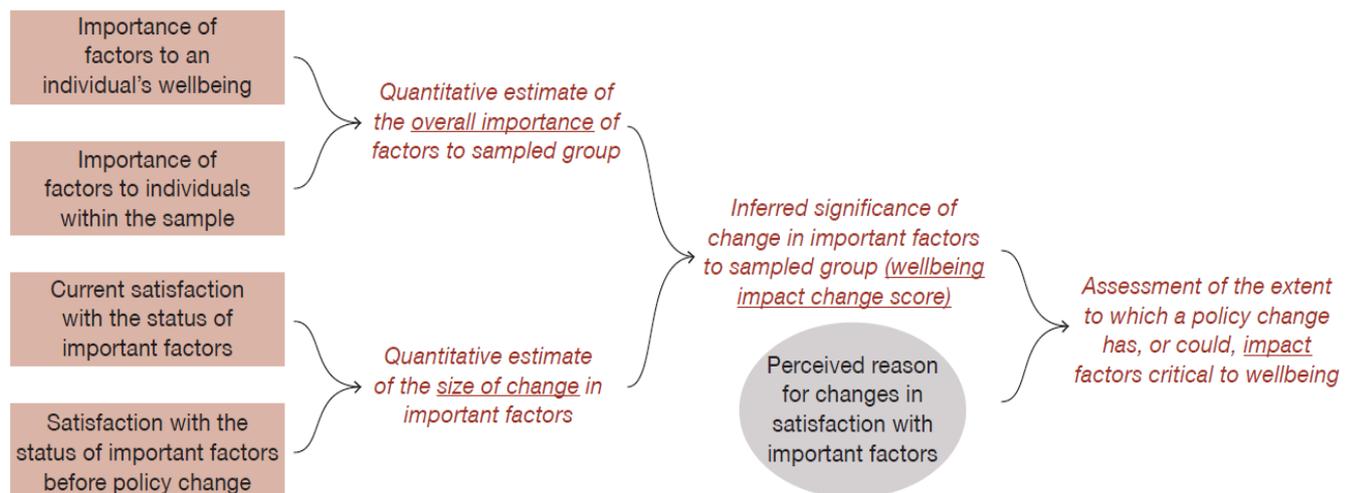
Figure 10. Conceptual framework for our wellbeing method for impact evaluation (W-IE). Information elicited directly from intended program beneficiaries is shown in boxes (quantitative data) and the ellipse (qualitative data), information inferred from responses to direct questions is shown in italics (without frame).

We conducted one-on-one interviews with 91 Ewamian people in Queensland and 111 people along the Fitzroy River valley in WA. We worked alongside cultural brokers from appropriate language groups in all regions and employed Emile Boxer and Celia Boxer (Walmajarri TOs) to help conduct interviews in WA.

6.3   Findings

Factors considered most important to the wellbeing of the respondents were reported as health centres, schools and safe community. Ewamian respondents also added paid jobs, local jobs, country being looked after, and legal right to country to this list. For WA respondents, the most important wellbeing factors also included language, bush tucker and housing.

The biggest positive change in satisfaction of Ewamian respondents was experienced in relation to owning a business, language, communications and country being looked after; while WA respondents reported high changes in communications, power to influence, legal right to country and role models. Some factors, such as Local jobs in case of Ewamian and Social ills in WA, were reported as significant, but changed for the worse (i.e. average satisfaction with those factors now is lower than it was five years ago).

Across regions, there were similarities and differences in factors that are both (a) highly relevant to wellbeing (important) and (b) have experienced significant change. In the case of Ewamian, Country being looked after, Language, Legal right to country, and Schools, were *important factors that have changed substantially.* For WA respondents, these were Communications, Schools, Role models, and Country being looked after. Other factors, such as Owning a business, were identified by a small subset of individuals as having undergone significant positive change, but this change affected only very few people in the communities (reflecting the fact that not all people wish to run a business) and hence did not have a high overall importance score.

Of the *important factors that have changed substantially,* Country being looked after, language, sharing knowledge, being on country and legal protection, were all perceived as improving as a result of ILSMPs and in particular ranger programs. For easier interpretation, we plotted our results in a 2-dimensional graph (Figure 11). The vertical axis sums the results of (a) and (b) above, that is, provides information on how important each factor is overall, and how much they changed over time ("wellbeing impact change score").
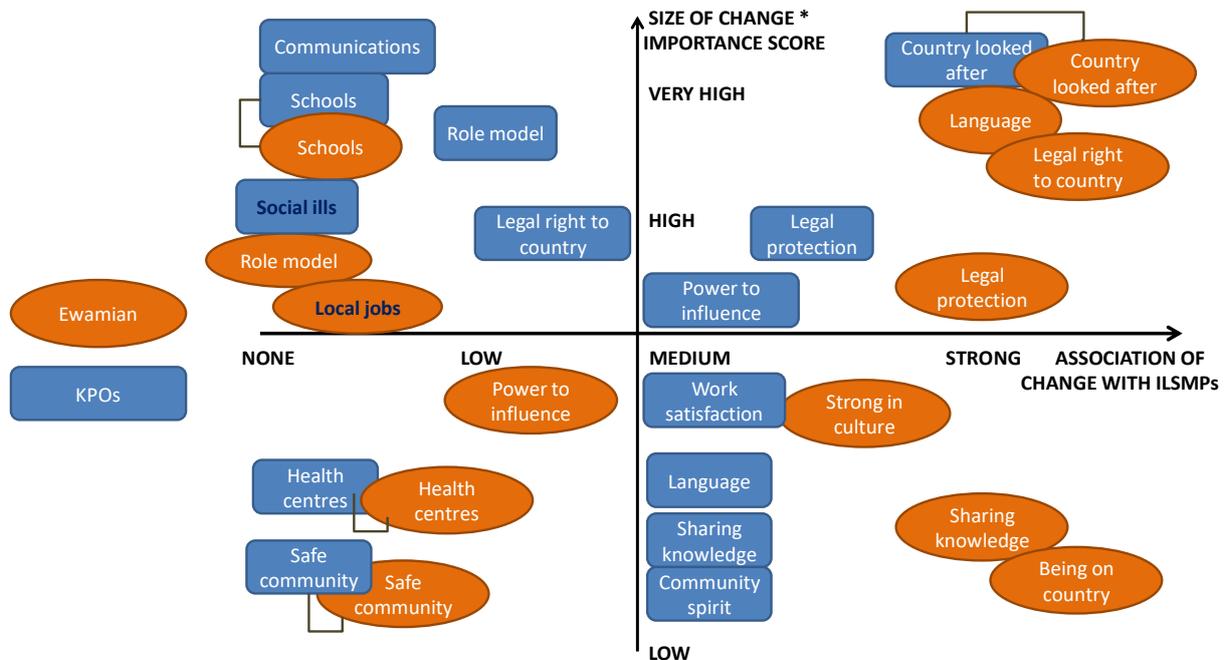
Figure 11. Plotting wellbeing impact change scores (size of change multiplied by the importance score) against W-IE (association of change with the ILSMPs score).

The factors at the top of the figure are those with a very high wellbeing impact change scores: Country being looked after, Language, Legal right to country, and Schools, for Ewamian; and Communications, Schools, Role models, and Country being looked after, in WA. At the bottom of the graph are factors with low wellbeing impact change score. We can, for example, see that Health centres are in this part of the graph. Health centres are of very high importance to both cohorts of respondents, but there was no reported change in satisfaction with these factors in the last five years so they appear in the bottom part of the figure. On the other hand, Schools were reported of high importance, and were also reported to have changed significantly in recent years, so appear in the top part of the figure. Important wellbeing factors that have experienced negative change in the last 5 years, Local jobs for Ewamian and Social ills in WA, are presented using black font – all other factors are described in white font.

The horizontal axis in Figure 11 represents the perceived strength of association of change with the ILSM programs. Here, wellbeing factors that are never or rarely linked to ILSMPs (such as Safe community, Social ills (WA) or Role models (Ewamian)) appear in the left side of the figure; factors which are frequently reported as being 'changed' by ILSMPs (for

example, Being on country, Legal right to the country, Language) appear on the right side of the figure.

The top right-hand quadrant thus identifies a sub-set of factors that are (a) very important to people; (b) have experienced change in the last 5 years and where (c) that change is strongly attributed, by respondents, to ILSMPs. This sub-set of factors includes:

- Country looked after and Legal protection, for both Ewamian and WA respondents; and
- Legal right to the country and Language, for Ewamian respondents.
- Power to influence, for WA respondents.

Based on our results we can conclude that ILSMPs have played a significant role in improving the wellbeing of both Ewamian and WA respondents by positively changing some of the things most important to them.

At the end of the survey participants were asked, using an open-ended questions, to provide their suggestions as to how future ILSMPs could be improved in order to further improve their wellbeing. The qualitative responses provided were coded in a thematic analysis, presented in Figure 12.

It can be noted that programs that have a component of youth engagemnet and those providing for more community engagement, were valued by both cohorts. Ewamian people were particularly interested in more visits to the country and more oportunities to learn about the culture and also in training and employment oportunities. Nine percent of respondents also saw further enagement with the wider (in particualr non-Indigenous) community as important.
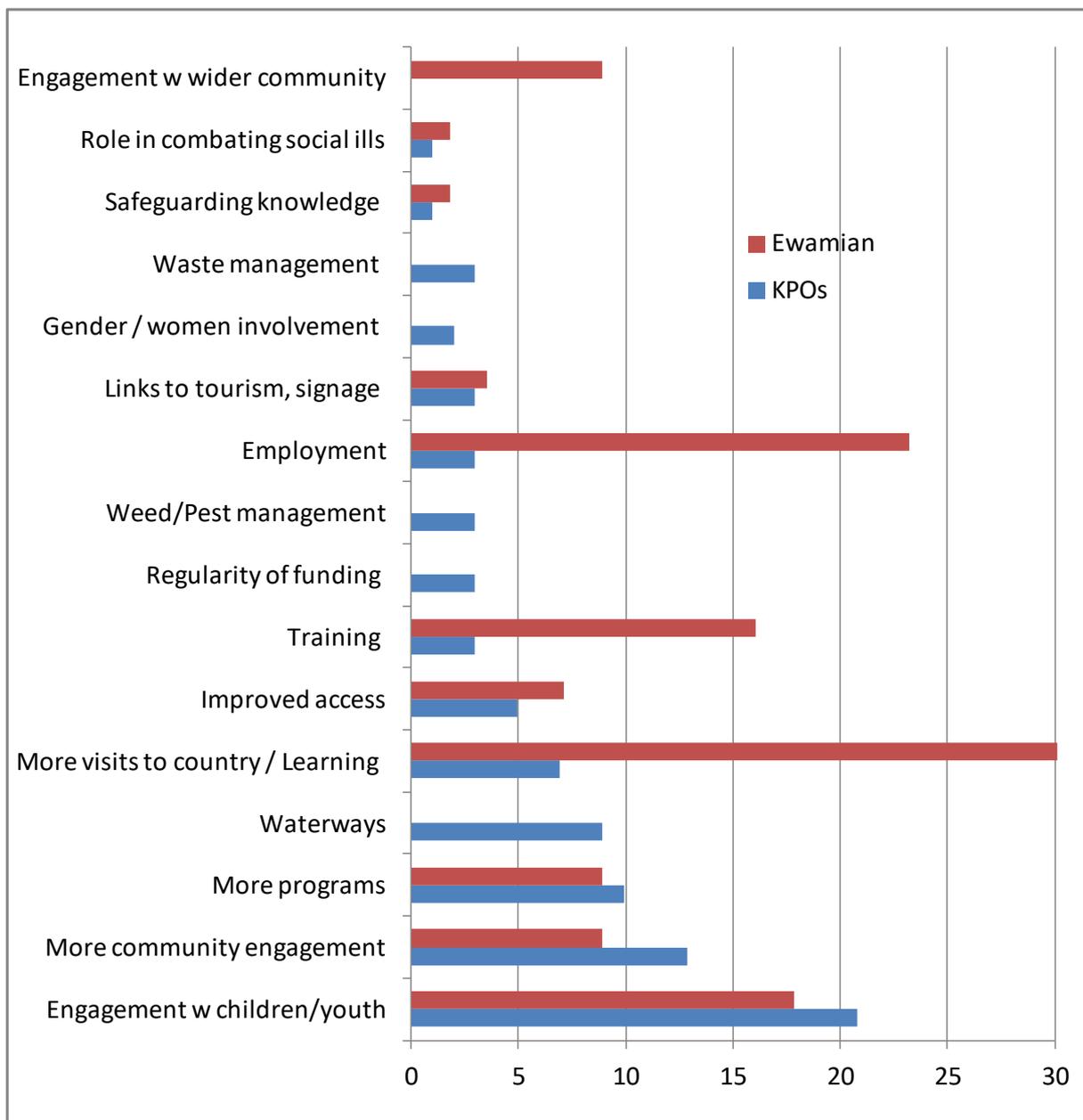
Figure 12. Participant suggestions for future improvements to ILSMPs/areas that need more attention, as a percentage of respondents providing suggestion.

6.4   Conclusions/take-home messages

Our key empirical findings are summarised in Figure 11 which helps identify a sub-set of factors that are (a) very important to people; (b) have experienced change in the last 5 years and where (c) that change is strongly attributed, by respondents, to ILSMPs. This sub-set of factors includes:

- Country looked after and Legal protection, for both Ewamian and WA respondents; and
- Legal right to the country and Language, for Ewamian respondents.
- Power to influence, for WA respondents.

Based on our results we can conclude that ILSMPs have played a significant role in improving the wellbeing of both Ewamian and WA respondents by positively changing some of the things most important to them.

It could further be argued that several of the most important factors such as Country being looked after ("Knowing that country is being looked after the right way") and Legal protection ("Obtaining legal protection for places, knowledge or practices with important cultural value") are essentially complex social goods that do not only enhance the wellbeing of individuals but also provide wider social benefits of community cohesion and preservation of culture and way of life.

7. Knowledge exchange, ILSMPs and Indigenous wellbeing

Silva Larson, Michelle Esparon, Daniel Grainger, Natalie Stoeckl, Diane Jarvis and Jane Addison.

Additional background information is provided in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-7-supplementary-material-Knowledge-Exchange-Larson.pdf

A more detailed analysis is also published in: Jarvis, D., Stoeckl, N., Larson, S., Grainger, D., Addison, J., Larson, A., (2021) The learning generated through Indigenous natural resources management programs greatly increases quality of life for Indigenous people – improving numerous contributors to wellbeing, Ecological Economics, 180, https://doi.org/10.1016/j.ecolecon.2020.106899

7.1 Summary

Knowledge exchange (KE) has been reported as one of the co-benefits of the ILSMPs (Hill et al. (2013b)) but its importance remains unquantified. In this chapter we shed some light on the issue, exploring the role that ILSMPs play in facilitating KE and documenting some of the benefits that people have identified as being associated with ILSMP-facilitated KE. We note that the literature relating to knowledge and KE is vast and diverse, with numerous (sometimes competing) views about what knowledge and KE entails. In this chapter we do not attempt to to explore insights into what knowledge or knowledge exchange entail; nor do we contribute to those philosophical understandings. Instead, our contribution is to provide a practical demonstration of ways to quantify the benefits of the KE that is facilitated by ILSMPs – irrespective of how one chooses to define or characterize that knowledge (and KE).

We explore the contribution that KE makes to the individual wellbeing of Indigenous people in northern Australia using methods similar to those described in chapter 6. We report on additional information that allows us to consider the extent to which ILSMPs facilitate knowledge exchange, and to learn more about the type of knowledge exchange that is facilitated by ILSMPs. Information used in this analysis was obtained during 202 personal interviews with the Ewamian people in north Queensland and Nykina-Mangala, Bunuba, Gooniyandi and Yi-matawarra/Yanunijarra people in Kimberley region of Western Australia. During those interviews, we did not ask or require people to tightly define 'knowledge' or KE. We simply asked questions about how important people thought KE was, and about what they 'learned' or 'shared' (a more contextually appropriate term than 'taught') in their association with ILSMPs. Researchers with a more nuanced understanding of knowledge and knowledge exchange could very usefully extend, amend, and refine this work.

We found that (a) KE is an important contributor to wellbeing; and that (b) ILSMPs facilitate and encourage KE. Relative to other wellbeing factors (see chapter 6), KE was perceived as being more important to overall life satisfaction than having 'More money' and 'More savings', and in the case of WA respondents, more important than having a 'Paid job'.

ILSMPs were seen to facilitate the exchange of both Indigenous and non-Indigenous knowledge with different groups highlighting different types of KE. Multiple types of learning (related to learning administrative and technical skills, (western) science and traditional knowledge of country and culture) were perceived as beneficial by all groups. Beneficial sharing was mainly of traditional knowledge, although examples of the beneficial sharing of western knowledge were also reported. For those who were involved in ILSMPs, learning was reported as having contributed to increased wellbeing (quality of life) by 27.5% of Ewamian and 19% WA respondents; sharing was reported as having positively contributed to the wellbeing of 20% Ewamian and 26% WA ILSMP-involved respondents.

7.2   Methods

Research questions specific to this investigation were:

1. **Does knowledge exchange enhance the wellbeing of Indigenous people?** We ensured that one of the 26 factors presented to respondents as potential contributors to wellbeing (see chapter 6), referred to KE (broadly: learning and sharing knowledge). We compared the importance of KE relative to other factors
2. **What types of KE are facilitated by ILSMPs and which types of (facilitated) KE are viewed as being most 'beneficial' and is (reported) KE similar across case-study regions?** We reviewed relevant literature, using (admittedly cursory) insights to frame relevant questions for inclusion at the end of our broader wellbeing survey. Respondents who had been involved in ILSMPs (as rangers, administrators, or people taking part in ILSMP initiatives such as trips out on country) were asked to talk about what they had learned or shared, as part of that involvement. Respondents were asked to give specific examples of KE (things they had 'learned' or 'shared') which improved their wellbeing and made them 'feel good'. We examined responses, in the first instance categorizing the examples of KE that were discussed into three broad groups (scientific/technical knowledge; administrative/business knowledge; knowledge specific to country and culture). We looked for similarities and differences in the types of knowledge exchanged in different settings, and the perceived benefits of those exchanges, using direct (anonymous) quotes from respondents to illustrate key points.

7.3   Findings

1. Does knowledge exchange enhance the wellbeing of Indigenous people?

Table 7 shows the percentage of respondents who selected KE as one of the 6 respondent selected factors (out of a total of 26 factors) deemed 'most important' to overall wellbeing: 20% of our Ewamian sample and 26% of WA respondents. Those who selected KE as important, assigned it relatively high levels of importance, though the Ewamian average of 8.9 out of 10 points was lower than the average from WA respondents – 9.8 out of 10 (a statistically significant difference). Table 8 provides information that allows us to assess the importance of KE relative to other factors. It considers both the mean importance score that individuals assign to each factor, and also the proportion of respondents which select that factor within the 'top 6' (numbers in each column are calculated by multiplying mean importance scores by the percentage of respondents selecting the factor in each sub-sample (Ewamian and WA). Evidently, KE is an important contributor to wellbeing, but it does not feature as one of the most important factors, in either sub-sample.

Table 7. Contributions of sharing and learning to the overall wellbeing of study participants, by sample (Ewamian and WA respondents).

WBF "Sharing knowledge"	Ewamian	WA
Number and percentage of respondents selecting KE as one of the 6 most important wellbeing factor	18 (19.7%)	26 (25.7%)
Mean importance score for KE (from those selecting KE in top 6)	8.9	9.8

Differences in the distribution of responses for Ewamian and Kimberley partners were statistically significant at the 1% level.

Table 8. Ranking of overall importance of contributors to wellbeing, by sample. Overall importance = mean importance score × proportion of respondents selecting factor as one of the six most important contributors to wellbeing. Shading divides factors into three groups, distinguished by significant drops in overall importance scores; 'Sharing knowledge' highlighted in bold. Bush tucker was not asked of Ewamian, so scores are not comparable across samples

Importance to Ewamian (n=91)		Importance to WA respondents (n=111)	
Factor	Overall importance	Factor	Overall importance
Health centres	417.58	Language	397.84
Paid job	358.68	Schools	342.34
Local jobs	337.25	Bush tucker	337.30
Country looked after	320.22	Housing	316.67
Legal right to country	309.89	Health centres	312.70
Strong family	295.38	Safe community	302.70
Safe community	295.38	Strong in culture	249.73
Role model	292.31	Local jobs	245.59
Strong in culture	286.15	Country looked after	237.12
Schools	286.15	Strong family	235.95
Strong person	250.55	**Sharing knowledge**	**229.55**
Language	242.64	Community spirit	224.86
Housing	219.23	Role model	221.35
Power to influence	198.35	Paid job	205.41
Legal protection	190.00	Strong person	205.14
Being on country	185.82	Legal protection	196.22
Community spirit	179.56	Legal right to country	171.17
Sharing knowledge	**176.04**	Communication	160.90
Social ills	116.04	Being on country	158.92
More saving	114.73	Work satisfaction	125.68
Work satisfaction	110.00	Power to influence	109.73
Communication	102.20	Law enforced	93.15
More money	80.88	Social ills	88.29
Law enforced	70.77	Own business	87.39
Own business	36.04	More money	73.87
		More saving	60.54

These preliminary results suggest that this result (of KE being 'more important' than a paid job) also holds when investigating the link between KE (learning and sharing), employment and recent reported changes in overall life satisfaction. After controlling for numerous confounding factors, it does, however, seem that although learning and sharing, together, have a small positive impact on overall life satisfaction – the impacts are different when considered seperately. In particular, it seems that:

a. learning has an unambiguous positive impact on overall life satisfaction;
b. sharing can have a negative impact (perhaps if sharing is not undertaken in culturally appropriate ways).

2. What types of KE are facilitated by ILSMPs and Which types of (facilitated) KE are viewed as being most 'beneficial' and is (reported) KE similar across case-study regions?

Most Ewamian respondents from south Queensland indicated that they had no opportunities to learn and share as a result of ILSMPs – primarily because they lived so far away from their Talaroo, so had little involvement (direct or indirect) in an ILSMP. The types of things respondents from both Ewamian and WA, who were somehow involved in or connected to ILSMPs reported as learnt and shared <u>because of</u> ILSMPs, are summarised in Table 9.

Table 9. Examples of the types of knowledge reported as having been learnt and/or shared through ILSMPs.

Broad type of knowledge	Specific examples given by respondents
Western-generated knowledge for management of country	about the western science things on country
	biodiversity (animal and species identification, types of insects)
	using machines to track animals for conservation
	learning about different trees and plants
	use of chemicals and spraying
	use of chainsaw (certificate)
	weed identification and program for weed control
	burning
	training about cattle, fencing to keep cattle out
	about the weather and tides
	driving boat
	trapping crocodiles
	clean-up
	clearing nets
	sustainability - animal saving and helping wildlife in hunting season
	dealing with wild cats
	water hole and springs management
	GIS mapping

Broad type of knowledge	Specific examples given by respondents
Administrative and communications skills	new rules about the environment, understanding legislation
	business management
	decision making
	planning
	build capacity
	learning how to make programs 'run smoothly'
	office/administration skills
	managing budgets
	reporting for funders
	applying for grants
	paperwork
	governance
	understanding Government plans and funding options
	program workers all working together with the community
	going out to other places, meeting other people and learning from them
	meeting other rangers
	dealing with stakeholders - Councils, Department of Heritage and Protection, pastoralists, scientists
	forming a network of people e.g. rangers elsewhere
	getting ideas from other people for grant applications
Traditional / Indigenous generated knowledge	Learning from elders about geography of country
	where our land is
	learnt so much about our culture, and about country
	art and cultural sites, recording significant sites, carvings, artefacts
	sacred sites
	rock art
	dream time paintings
	learning stories
	dance
	finding and recording cultural sites
	names of water holes
	burning and use of fire
	plants and animals
	bush tucker and bush medicine
	learning language / language training

Broad type of knowledge	Specific examples given by respondents
	being on country is a great opportunity for learning and sharing
	determination helped with learning and sharing
	looking after the land
	learning important cultural aspect from the elders who were involved with the program
	learnt respect for country and for other peoples country
	teaching young kids and keeping them out of trouble
	surviving in the desert, where the waterholes are
	connections for specific areas and places

Respondents who had had some involvement in ILSMP were asked if the particular examples of learning that they provided us had improved their overall quality of life. 27.5% of Ewamian and 19% of WA respondents responded in the affirmative. Compared to WA respondents, Ewamian people reported much more learning related to traditional/Indigenous generated knowledge and country: which could be expected given that most do not live on country and had limited contact with country before Native Title determination. For example,

'My brother became a ranger - it opened my eyes about being a Ewamian person. I became more interested in my culture, I could see that being a ranger changed my brother's life and I wanted to have a similar impact in my own life.' R35

'I learnt what was there, what it looks like.' R75

'I've learnt more about where I come from.' R27

'Learning language, seeing where it all started, learning about different trees and plants.' R79

For WA respondents, there were more instances of people gaining wellbeing from sharing, in particular with the younger generation. The ranger program was seen by many as an opportunity to share, as rangers appear to be perceived as transmitters of the knowledge to the next generation. Opportunities to share traditionally generated knowledge with the rangers were valued, as well as ranger KE efforts with young people and school children. For example,

'Without rangers there wouldn't have been the opportunity to pass knowledge.' R14

'I would have been unable to have the opportunity to show sacred sites if the rangers weren't involved.' R15

'I was sharing information with rangers, they were shown sacred sites (rock art), we showed them good area to control burn. We also share stories with these rangers' R124

Also

'Rangers have come to the school and taught kids about native plants and animals such as bilbies' R24

'It would be difficult to get out to our significant cultural grounds without their [ranger program] help' R47.

'Knowing there was opportunity for people [to learn] was a good feeling, nice to know community is getting involved.' R48

'I learnt how to talk to kids better - sharing knowledge about country. I feel better as a person because I can work and help the kids.' R180

Interestingly, WA respondents appreciated the significant role schools play in passing of the traditional knowledge, via language and out to country programs, thus clearly pointing to the inclusions of western mode of delivery into traditional KE system. For example,

'Schools take the kids back on country. They learn the language when out on country, they hear from the elders how to look after country - sharing leadership, identity'. R55

There was also evidence of perceived importance of mixing of knowledges generated in different cultures:

'We need both traditional knowledge and western. I've walked in both worlds and can show it can be done, never doubt yourself.' R50

'I taught the rangers, through my role as coordinator, how to do land management in a way that combines traditional and western management.' R33

Sharing traditional knowledge outside of the community was in general seen as a good thing:

'I taught the scientists things about bushfoods and how to use it.' R34

'...showing tourists our culture so they can learn more.' R79

Though some people did have mis-givings about the process:

'I don't feel like I've learnt anything, more asked to share my knowledge.' R30

'I went on a training programme for weed control. The white trainers thought they knew everything so didn't listen when I wanted to give advice about country.' R24

7.4   Conclusions/take-home messages

The overall importance of KE to the wellbeing of our Indigenous respondents (when the 'overall importance' of a factor is estimated by multiplying mean importance scores by the percentage of individuals selecting the factor) is higher than having 'More money' and 'More savings', and in the case of WA respondents, having a 'Paid job'.

KE is facilitated by ILSMPs. Those who were involved in ILSMPs (as rangers, adminstratives, or people taking part in ILSMP initiatives such as trips out on country) reported facilitated KE that relates to both western generated (e.g. GIS methods) and traditional (e.g. secret sites) knowledges, undertaken using both western (e.g. training) and traditional (e.g. time with elders and others on country) modes of exchange, between and among non-Indigenous and Indigenous organisations; and between and among Indigenous organizations and their constituents.

Participants viewed this facilitated KE as beneficial. Beneficial types of learnings were associated with both western generated and traditional knowledges. Examples of beneficial sharing experienced by those who were involved in ILSMPs were normally associated with traditional knowledge, although instances of beneficial sharing of the western knowledge also occurred. Learning was reported as contributing to increases in wellbeing (quality of life) by 27.5% of Ewamian and 19% WA respondents. Sharing positively contributed to wellbeing of 20% Ewamian and 26% WA respondents. Differences in the importance of 'learning' or

'sharing' between our ILSMP-active respondents in QLD and WA may reflect (recent) history. Colonisation had a profound adverse impact on all Aboriginal and Torres Strait Islander people. Despite the adverse impacts of colonisation, many of the Traditional Owners from our WA sample were able to remain (relatively) close to traditional lands maintaining language and continuing (some) on-country land management practices (subject to access and other constraints). In contrast, Ewamian people were entirely dispossessed of access to their country, and in many cases moved vast distances away from traditional lands and family. The loss of access to country and language is crucial to note when attempting to compare Ewamian and WA contexts. The relatively recent opportunities for Ewamian to re-connect with country and to resurrect their language is of particular significance. Thus, the differences observed between Ewamian and WA respondents about learning and sharing (KE) are not unexpected given the starkly different historical contexts.

Despite the different contexts (both past and present), Ewamian and WA respondents both ascribe great importance to KE. More sophisticated statistical analysis is underway (Jarvis et al.), but preliminary results using data from the entire sample (not only those involved in ILSMPs) suggest that after controlling for numerous confounding factors, learning and sharing, viewed together, have a small positive impact on overall life satisfaction. But the impacts are different when considered separately. In particular, it seems that:

(a) learning has an unambiguously positive impact on overall life satisfaction;

(b) sharing can have a negative impact (perhaps if sharing is not undertaken in culturally appropriate ways).

Further investigation is warranted, but this suggests that it may be useful to ensure that ILSMPs adopt knowledge-sharing protocols to ensure that when sharing takes place, it is done so in culturally appropriate ways.

8. A holistic view to monitoring ILSMPs

Michelle Esparon, Diane Jarvis and Natalie Stoeckl

An extensive array of other information, including details of the documents examined as part of this investigation and of the variables that are currently or could potentially be monitored to assess progress towards socioeconomic objectives are provided in our supplementary materials, available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-8-supplementary-material-Monitoring-Esparon.pdf

8.1 Summary

Our overall research aim (outlined in Chapter 1) was to generate information that can be used to help design, monitor, and/or select ILSMPs to help meet the goals of key stakeholders. This chapter focuses on the monitoring of these programs, paying particular attention to (1) whether there is alignment between the stated (socio-economic) goals/objectives of ILSMPs and the data collected and reported on, and (2) whether additional data could be monitored to reflect other observed socio-economic benefits that have been identified in chapters 3-7 of this report and in the broader literature. Whilst we acknowledge the crucial importance of monitoring for ecological or cultural objectives, we do not consider those objectives here, instead focusing on socio-economic issues and data.

We find that objectives relating to building capacity, employment, Indigenous enterprise, knowledge transfer/integration and community participation/engagement were most commonly identified in relevant ILSMP documents by our partnered case study groups in WA and Qld. Data relating to these objectives is commonly collected and monitored to track an ILSMP's progress. Despite several programs explicitly mentioning 'empowerment' and (support of cultural) 'governance' as objectives, we could not find publicly available data that could be used to track progress towards those objectives. Data that would allow us to assess the impact of ILSMPs on benefits identified in preceding chapters (e.g. potential to support regional development, to close the income gap, to promote Indigenous wellbeing and/or the long-term development of Indigenous businesses), is not generally collected as part of monitoring programs.

Most of the data that are collected describe activities (participatory indicators), with relatively few monitoring programs collecting data relating to outcomes (impact indicators). Many indicators focus on 'inputs' (e.g. number of participants attending training & skills development activities) but information is not generally provided on outcomes (e.g. self-reported learning or on the confidence gained to partake in other activities such as public speaking at conferences).

We make suggestions about other data that could be collected to redress some of those deficiencies, noting that monitoring should, ideally, be done in a participatory manner with indicators co-developed with each community, and with monitoring being undertaken by, or at minimum with, each community.

8.2   Methods

Interest in proving the effectiveness of ILSMPs has grown considerably over the last several years, at least partially driven by: (1) limited resources; and (2) increased calls for transparency and accountability from donors and the public who want to see *value for money* (Austin et al. 2018; Ferraro and Pattanayak 2006; Leverington et al. 2010). Monitoring is defined as the regular systematic collection and analysis of information to track the progress of program implementation against pre-set targets and objectives. Essentially, monitoring aims to answer the question: *"Did we deliver what we promised?"* As such, monitoring is crucial if wishing to assess the effectiveness of any program – be it an ILSMP or other.

Monitoring requires one to:

1. Focus on what it is a program has promised to 'deliver' – i.e. one must understand program objectives (when objectives are not clearly articulated, one cannot assess the extent to which objectives have been met).
2. Collect data that is specifically relevant to those promised deliverables/objectives.
3. Evaluate data, to see if the program is meeting, or at least making progress towards its intended objectives.

There are numerous examples of approaches for monitoring the effectiveness of programs[12],a key point being that if done well, monitoring helps demonstrate accountability to stakeholders and communities and shows that funds have been allocated, used wisely and have resulted in desired outcomes.

Our work seeks to provide background information to support the monitoring of socio-economic variables for ILSMPs. It involved two related activities:

1. Checking if existing data collection activities are sufficient to assess the extent to which ILSMPs are meeting socio-economic objectives (stated in ILSMP documents). This involved:

    a. Identifying (stated) socio-economic objectives of ILSMPs

    b. Looking at the socio-economic data currently collected as part of ILSM monitoring programs,

    c. Comparing (a) with (b) to check alignment.

2. Suggesting additional socio-economic variables that could be monitored to allow one to track progress towards other socio-economic outcomes that have been linked to ILSMPs in:

    a. The broader literature; and

    b. Findings from the overarching project (NESP 5.3).

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[12] For example, Monitoring, Evaluation, Reporting and Improvement (MERI); Program logic; Theory of Change (ToC); Open Standards for the Conservation of Nature, Conservation Action Planning, World Commission on Protected Areas Management, Capital Assets; Social Accounting and Auditing; and the Sustainable Livelihoods Analysis.

For the first activity, we examined documents associated with the ILSMPs that were relevant to the Indigenous groups with whom we have worked – these ILSMPs are summarised in Table 5 (Chapter 2). A list of the documents we examined as part of this activity is provided in the first large table within our supplementary materials (available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-8-supplementary-material-Monitoring-Esparon.pdf). We were specifically looking for information relevant to (a) socio-economic objectives; and (b) socio-economic data being collected as part of an overall monitoring strategy. We examined annual reviews (for the federally and state funded programs), relevant documents produced by communities (e.g. Healthy Country plans); and reviews of programs by other funders including private corporations and NGOs. We also examined frameworks used by organisations when monitoring ILSMPs to better understand the extent of the data being collected – most notably the Monitoring, Evaluation, Reporting and Improvement strategy (MERI), which is the main framework used by the Australian Government to evaluate NRM projects (Fisher, 2012)[13]. From these documents:

- We identified several socio-economic objectives of ILSMPs, categorised under nine different themes. Themes were categorised based on stakeholders' strategic "targets". For the federally funded programs, these were based on the investment priority outcomes of the broader Caring for our Country program; for community-driven programs, these were based on the values and threats to country, elicited through community consultations; and for private companies, these were based on their corporate social responsibility agenda.
- We identified specific examples of socio-economic data, collected within monitoring programs, for each of those themes: see the second large table in the supplementary materials (available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-8-supplementary-material-Monitoring-Esparon.pdf)
- We counted the number of ILSMPs that explicitly mentioned a particular socio-economic theme as an objective and then counted the number of ILSMPs that collected data relevant to that theme.

For the second activity, we expanded our review to include the broader literature, focusing, in particular, on research that considered socio-economic outcomes (or co-benefits) of ILSMPs. The documents we looked at included case studies and evaluations undertaken by consultancies commissioned by the Government[14]. We also examined examples of ILSMPs in other Indigenous communities. Some of those Indigenous communities have developed their own MERI strategy, aiming to monitor and evaluate key areas relevant to the Government's *Caring for our Country* five-year targets, and which are culturally appropriate and within the capacity of rangers to implement. Documents relevant to these related strategies were also included in our analysis. Peer-reviewed articles identifying socio-

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[13] MERI supports the collection of data and information to demonstrate achievements and allow ongoing improvements to be made at the project and program level (Australian Government 2013). Projects have to report on progress every six months, annually, and at completion.
[14] The documents were developed for different purposes and so used many different methodologies; they also report on consultations with a wide variety of stakeholders including community members, rangers, Government, Indigenous corporations, NGO partners, corporate partners, research partners, and in some cases, carbon offset buyers.

economic outcomes of programs were also considered. From these documents, we categorized the socio-economic outcomes into themes, identifying four more that were associated with the ILMPs relevant to our partner organisations. For outcomes specifically related to the work reported on in chapters 3-6, we identified data that would need to be collected, if programs had, as additional objectives, (i) generate regional economic benefit; (ii) close the (income) gap; (iii) promote Indigenous economic independence; (iv) enable Indigenous communities to meet their wider aspirations; and (v) enhance Indigenous wellbeing.

8.3   Findings

1. Existing data collection activities are not likely to be able to monitor progress towards some of the socio-economic objectives that are commonly identified in ILSMP documents

When analysing documents that were relevant to the programs with whom our Indigenous partners were associated, we were able to categorise explicitly stated *socio-economic targets* into nine main themes, aimed at: building the capacity of individuals through training, providing employment, creating opportunities for enterprise development, integrating and transferring knowledge, encouraging community participation and engagement; manage visitor impact; access resources; and empower communities to protect and conserve environment and culture. We counted the number of programs including each as an objective, and the number making associated socio-economic data that could be used to track progress towards that objective (Table 10).

Themes relating to building capacity, employment, economic opportunities through Indigenous enterprise, inter and intra generational transfer of knowledge and participation/engagement of the community were the most commonly identified objectives. Monitoring activities most frequently focused on the collection of data relating to Indigenous employment, Indigenous enterprises, training, and community participation/engagement, so generally align well with those objectives at a philosophical level. But most of the data that are collected describe activities (participatory indicators), with relatively few monitoring programs collecting data relating to outcomes (impact indicators). Many indicators focus on 'inputs' (e.g. number of participants attending training & skills development activities, or the number of people employed) but information is not generally provided on outcomes (e.g. self-reported learning or on the confidence gained to partake in other activities such as public speaking at conferences), or on the details of interaction (e.g. the wages or conditions of employees).

Despite several programs explicitly mentioning 'empowerment' and (support of cultural) 'governance' as objectives, we could not find publicly available data that could be used to track progress towards those goals. Similarly, we could find little data relating to resources, infrastructure & asset condition.

Theme identified	Number of programs including this as an objective	Number of programs with publicly available information on associated variables
Indigenous employment	13	9
Indigenous enterprise	11	9
Training skills development	12	10
Knowledge integration & transfer	12	9
Community participation & engagement	11	9
Tourism management	8	4
Resources, infrastructure & asset condition	4	2
Empowerment	3	0
Governance & program management	2	0

Federal and state funded programs generally make data publicly available. Some other programs do not. The *Healthy Country Plans* program, for example, has a monitoring component where communities engage in what is called adaptive monitoring. The focus is on (1) *implementation monitoring* – asking: is the Healthy Country Plan being used? (2) *effectiveness monitoring* – asking: are the strategies working the way communities expect? and (3) *status monitoring* – asking: are the targets improving? Data collected are uploaded into a database for reporting to communities and funding bodies (e.g.Gooniyandi Aboriginal Corporation and Kimberley Land Council 2015). But data from these and other monitoring programs are not always and everywhere available to the general public – for legitimate cultural reasons. We stress that this is not a problem if the monitoring activities are only intended to inform those who collect the data, but note that when data are not publically available, they cannot be used to more broadly promote ILSMP benefits.

2. Additional data should be collected if wishing to assess other socio-economic benefits associated with ILSMPs

Our broader review of the literature and insights from research described in the preceding chapters allowed us to identify an additional four themes that describe socio-economic outcomes of ILSMPs that have been documented elsewhere (Table 11). Our supplementary materials (available at http://www.nespnorthern.edu.au/wp-content/uploads/2019/03/Final-report-Ch-8-supplementary-material-Monitoring-Esparon.pdf) contain (a) a large table that provides a more detailed breakdown of current and potential indicators used to measure each; (b) a figure which provides visional representation of key information from that table.

Table 11. Additional co-benefits associated with ILSMPs (by broad theme).

Theme identified	Source
Financial independence	Chapters 3 & 4; (Jarvis, Stoeckl, Hill, et al. 2018; Jarvis, Stoeckl, Addison, Larson, Hill, P, et al. 2018; Urbis 2012)
Regional economic development	Chapter 4; (Jarvis, Stoeckl, Hill, et al. 2018; Schirmer, Loxton, and Campbell-Wilson 2008; Schultz and Cairney 2017)
Empowerment	Chapter 5; (SVA 2017; Kanyirninpa Jukurrpa 2018; SVA 2014; Walalakoo Aboriginal Corporation RNTBC 2016; Karajarri Traditional Lands Association 2014; Gooniyandi Aboriginal Corporation and Kimberley Land Council 2015; Yununijarra Aboriginal Corporation 2012; Addison et al. under review; Schultz and Cairney 2017)
Health & wellbeing	Chapter 6; (Burgess et al. 2005; van Bueren et al. 2015; Schultz and Cairney 2017; Hill et al. 2013a; Allen Consulting Group 2011; SVA 2014; Griffiths and Kinnane 2010; Tamarind Environmental Planning 2010; Rogers 2010; Nipapanha Community 2009; Karajarri Traditional Lands Association 2014; Larson et al. 2018a; Gooniyandi Aboriginal Corporation and Kimberley Land Council 2015; Western Government Department of Parks and Wildlife Service 2018)

Some of the data currently collected as part of existing monitoring programs bears some relationship to the themes listed in Table 11, but could be refined to better reflect key benefits. For example:

- Most of the data that is collected describes the impact of ILSMPs on individuals who are directly involved in the program (e.g. rangers); relatively few consider wider impacts (on family, community, or society more broadly). As such, there is little information on the depth/outreach to which programs are fully able to achieve its stated goals. Monitoring activities could potentially be expanded to better capture community-level impacts.

- Some of the socio-economic outcomes that we have identified in chapters 3–6 are only likely to be discernable some years after an ILSMP starts (particularly those relating to supporting Indigenous economic independence (chapters 3 and 4), supporting Indigenous communities to meet their wider aspirations (chapter 5) and enhancing wellbeing (chapter 6). As such, those charged with designing and implementing monitoring programs must be cognizant of the nature and timescale of changes in the socio-economic (and environmental) systems. Monitoring systems must be funded and structured with that in mind (facilitating the collection of replicable and longitudinal data) – and funders need to be prepared to 'wait' (perhaps for several years) before being able to properly assess the extent to which programs have (or have not) achieved stated objectives.

Table 12 provides more specific ideas about the monitoring activities that could be undertaken if wishing to assess the extent to which ILSMPs make progress towards the outcomes (potential objectives) identified in chapters 3-6.

Table 12. Monitoring that could be undertaken if wishing to assess progress towards outcomes discussed in chapters 3-6.

If an ILSMP has, as one of its objectives, that of …	then monitoring activities should include the collection of data relating to ….
Generating regional economic benefit	Program spend, disaggregated by the region in which spending takes place (local, elsewhere in Australia, overseas), ideally further disaggregated according to (i) wages & other staff related payments; (ii) number of employees by type of work; and (iii) training provided;
Closing the (income) gap	Program spend, disaggregated by the Indigenous status of person, or business with whom the money is spent (e.g. Indigenous or non-Indigenous employees; Indigenous or non-Indigenous owned businesses).
	Ideally, one would also encourage other data collection agencies (such as the ABS) to include an 'Indigenous flag' on data routinely collected, thus allowing one to distinguish between Indigenous and non-Indigenous people or organisations (e.g. the ABS Household Expenditure Survey could flag households that have at least one Indigenous member; business registers could flag businesses that have at least one Indigenous owner, e.g. ASIC registered businesses; ABS' CABEE)
Empowerment within an ILSMP	Relationships & communications between partners involved in the ILSMP
Broader empowerment with respect to ILSMP decision making, representation and process	Community satisfaction with (i) the extent to which (community defined) community goals are captured in ILSMP design; (ii) joint design conduct & monitoring of ILSMPs; (iii) frequency of formal communication between the funding agency and community
Empowerment between communities and the broader (regional) socio-economic community	(i) the level of community participation in local, regional & national institutions & initiatives; (ii) organizational growth; (iii) financial independence; (iv) community influence on other non-project initiatives; and (v) access to political power
Enhancing wellbeing	The wellbeing-impact evaluation method developed in this project is potentially appropriate, has been tested in our case study areas, and allows for the long-term monitoring of changes in wellbeing, but requires (i) primary data collection (ideally every 2-5 years and beyond completion of the ILSM project/activity, to capture transformational changes over time); (ii) expert evaluations, and (iii) survey participation by all, or as many as possible, potential beneficiaries from the communities that programs operate within.

8.4   Conclusions/take-home messages

ILSMPs could better measure program benefits and progress towards stated objectives. Many ILSMP plans articulate socio-economic objectives and our research highlights their numerous co-benefits. But it is not possible to tell if ILSMPs achieve stated objectives or generate other benefits without adequate monitoring & evaluation.

Current monitoring often uses indicators that focus on individuals rather than the community, and on activities rather than outcomes. Data to track progress towards objectives relating to employment, training, community participation and enterprise development is collected and monitored, however there is little monitoring of indicators relating to regional economic development, closing the income gap, community empowerment and wellbeing – which this research has shown ILSMPs directly contribute to and that communities care about. As such, current monitoring activities capture some, but not all, benefits and objectives.

Without adequate monitoring and evaluation, it is difficult for communities and funders to determine if ILSMPs are delivering what was intended or if they are generating other outcomes. This requires a long-term commitment and a good understanding of the broad range of benefits provided by ILSMPs. Monitoring programs could also be more closely developed in a participatory manner with indicators co-developed with each community, and with monitoring being undertaken by, or at minimum with, each community.

9.   Conclusions

Daniel Grainger, Natalie Stoeckl, Silva Larson, Diane Jarvis, Michelle Esparon, Jane Addison

9.1   Summary

Evidence-based decisions have become important to communities, government and other stakeholders when they negotiate how best to invest funds and change or influence policy. This chapter provides a summary of the "economic research evidence-base" of some of the socio-economic benefits of ILSMPs, discussed in chapters 3–8. Much of this work (relating to chapters 3, 4, 5 and 6) has already been published as papers in scientific journals; we hope to soon publish papers from the other chapters too. This ensures that the research evidence is scientifically reliable. Communities, government and other stakeholders may thus use this evidence with confidence (knowing it has been peer reviewed)

In short, our research has found that ILSMPs improve Indigenous wellbeing (directly, and indirectly by facilitating knowledge exchange). They increase Indigenous economic independence, can facilitate Indigenous communities to meet their wider aspirations, and help close the (income) gap, while at the same time providing economic benefits to all of Australia. More specifically, we have found that:

1. **ILSMPs contribute to northern development and help close the (income) gap (Chapter 3).**

    The multipliers associated with expenditure on ILSMPs are generally greater than those associated with agriculture and mining; and the money flowing from ILSMP expenditure to Indigenous households (counting direct and indirect impacts) exceeds that flowing to non-Indigenous households.

ILSMPs promote Indigenous business development and thus Indigenous economic independence (Chapter 4).

Our analysis (of admittedly imperfect data) produces evidence to confirm the proposition that "expenditure on ILSMPs generates positive spill-overs for Indigenous businesses (even those not engaged in land management)" – albeit with a 3-year lag.

ILSMPs (can) help Indigenous communities meet their wider aspirations (Chapter 5).

Communities generally see development as 'control, leadership, empowerment and independence' (what development scholars refer to as 'freedom'). Communities seek freedom, firstly, so they have the ability to then choose for themselves the particular combination of 'functionings' (or development sub-components). Most communities stated that programs had contributed towards their understanding of development ('freedom').

ILSMPs promote Indigenous wellbeing (Chapter 6)

Some of the most significant, positive, changes to factors that Indigenous people in our partner communities have identified as being important to their well being, have direct links to ILSMPs – specifically, having legal access to country, knowing that country is being looked after and having more (positive) role models in communities with specific reference to Indigenous rangers.

Knowledge exchange (KE), which is important to Indigenous wellbeing, is facilitated by ILSMPs (Chapter 7).

We found that (a) KE is an important contributor to wellbeing; that (b) ILSMP facilitate and encourage different types of knowledge exchange; and that the ILSMP-facilitated knowledge exchange is, indeed, seen as beneficial to respondents (although diferent types of KE are seen as most beneficial in different regions).

Existing monitoring activities are unlikely to be able to adequately document progress towards explicitly stated socio-economic program objectives and/or other socio-economic benefits known to be associated with ILSMPs (Chapter 8)

Data relating to (relatively easy-to-measure) outcomes such as 'employment' are much more frequently collected and evaluated than data relating to other factors (such as governance/empowerment, promotion of economic independence, support of community and/or regional development) which may be associated with even higher overall socio-economic benefits. Anecdotal evidence suggests that monitoring budgets are generally insufficient to cover the full costs of collecting and evaluating relevant data (particularly that which should be collected from communities, longitudinally).

9.2   Synthesis

We hypothesise that the diversity of co-benefits created by ILSMPs arise primarily because the programs do more than simply provide money/economic resources – they:

- provide financial capital / income, which has 'knock-on' benefits to other parts of the economy (chapter 3)
- stimulate demand for goods and services that are 'produced' by Indigenous people, and which generate benefits that align with the goals and aspirations of Indigenous people (chapter 4)
- empower Indigenous communities, improving access and governance mechanisms (chapter 5)
- support a diverse range of factors (including 'looking after country', having access to country, schools, the provising of role models) which both directly and indirectly promote wellbeing (chapter 6)
- facilitate the exchange of a diverse range of knowledges (Western and Indigenous-generated) (chapter 7).

ILSMPs thus enable both program funders and Indigenous people / communities to contribute to a broad range of 'capitals', known to underpin prosperous economies and communities in numerous (often inter-related) ways – Figure 13. In other words, well-designed ILSMPs do not only provide a 'top down' flow of benefits from funders to Indigenous people (by contributing to 'capitals'), but they can stimulate a significant co-contribution from Indigenous people (households, businesses and communities) – with a diverse range of direct and indirect benefits accruing at multiple scales across all of Australia.
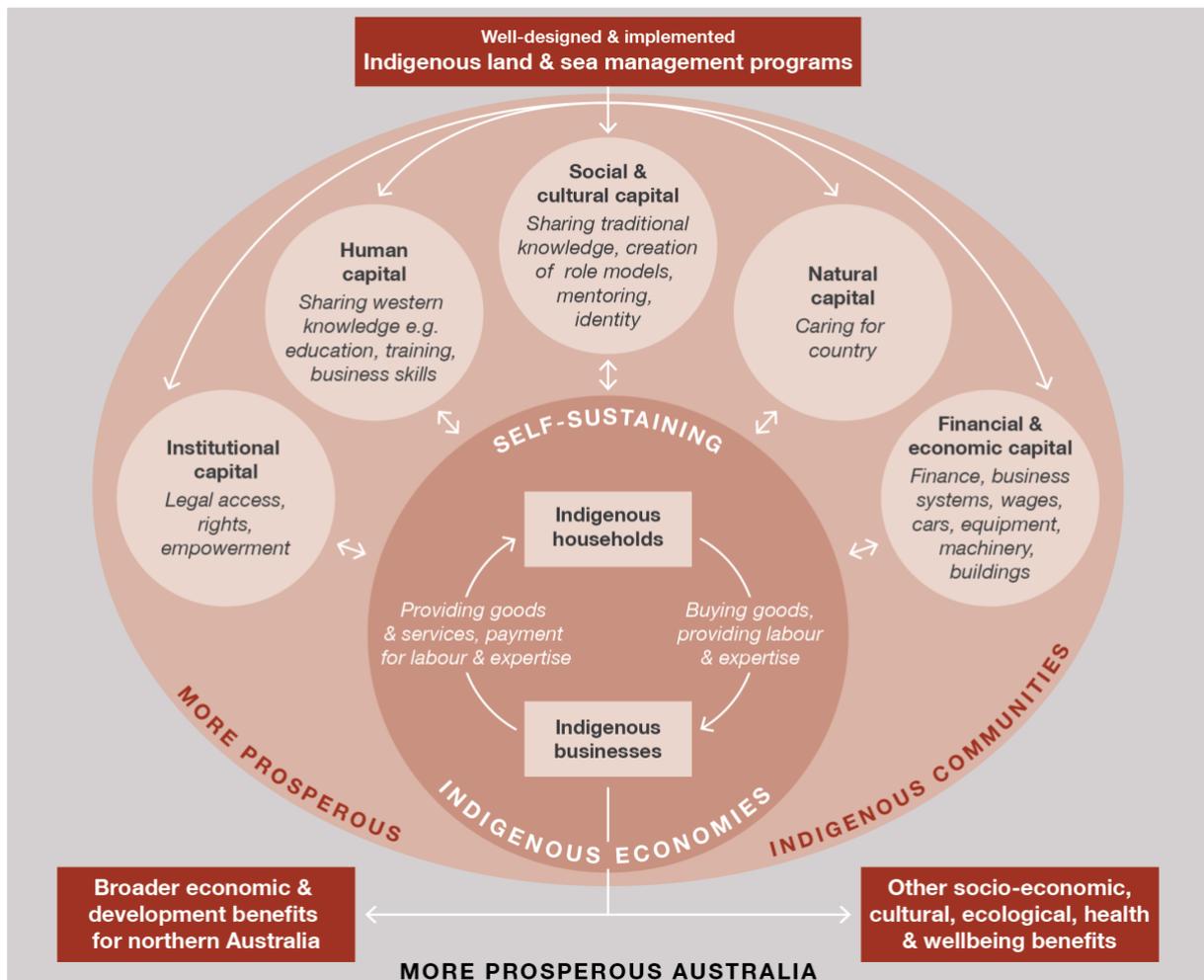
Figure 13. ILSMPs contribute to a diverse range of capitals; when well-designed, Indigenous people and communities also 'buy in', making significant co-contributions to these capitals (which are often conceptually inseparable – to wit: the strong connection between people and counry). Together these contributions generate a diverse range of socio-economic co-benefits which combine in complex ways over time to create conditions suitable for long term sustainable development (in the broadest sense of the word) that accrue at multiple scales (to individuals, businesses, communities, and Australia as a whole). Figure developed by Clare Taylor and Jane Thomas; adapted from Grainger.

9.3   Implications for program design

In chapter 2, we used insights from a detailed study of the ILSMPs relevant to our partner organisations to identify key characteristics that could be used to generically describe key elements of program design for the ILSMPs that have been operating in our case-study regions in recent years (Table 2). These are repeated in the left-hand column of Table 13; where we collate insights from our work to reveal the way those deisgn characteristics may influence co-benefits.

Table 13. Implications of research for program design

Characteristic	Insights from our research regarding influence on co-benefits
Funder	We did not investigate, so are unable to comment.
Implementing agency	Insights from chapter 5 suggest that programs which effectively engage with 'recipient' communities, empowering them to make decisions may generate greater community development benefits. We cannot comment on whether this is impacted by the presence or absence of particular implementing agencies, but note the critical importance of good relations, should multiple agencies be involved.
Processes and governance	Strongly related to the above, community benefits will be enhanced by programs that have processes and governance arrangements which empower Indigenous communities (chapter 5).
Environmental objectives	We did not consider environmental benefits, so are unable to comment.
Other objectives	Chapters 5, 6 and 7 allow us to comment on the likely desirability (or not) of other program objectives from the perspective of the Indigenous people living in the communities we spoke to. Our work clearly highlights the diversity of individual and community aspirations, and the importance of empowerment. The factors that were most important to the wellbeing of people living in the Fitzroy River valley (WA) were not the same as those of the Ewamian people with whom we spoke. Neither did community aspirations identically align. Our research thus underscores the critical need to ensure that the communities which are associated with (planned) ILSMPs are empowered and actively involved in program design, helping to identify objectives that meet both their needs and the needs of funding organisations. We contend that such alignment will not only enhance the co-benefits of ILSMPs incurred by communities, but also other benefits (whatever they may be): much research points to the importance of incentives, highlighting that in many cases (particularly if wishing to promote environmental outcomes), the best incentives are not financial (Gneezy, Meier, and Rey-Biel 2011).
Supported people, activities & equipment	As above, it is critically important to ensure that communities are actively involved in discussions about what will be supported. In addition, we note that Chapter 3 establishes that it is not only how much funders spend on ILSMPs that matters (clearly more is better) but if the goal is to maximize the regional economic benefits of ILSMPs and/or help close the gap, then one should also consider what money is spent on, with whom and where. Programs that direct funds to be spent (where possible) in local communities, will generate most localized regional impact. Programs that spend most on people (or within business that hire many people) will create most jobs. And programs that spend most money on Indigenous people, will do most to help close the income gap. Programs which spend most money on capital equipment, or which hire businesses from outside the region will have little regional economic impact (although this is not to say they will not achieve other things).
Longevity	Much evidence suggests that longevity of funding is critically important if wishing to maximize co-benefits considered in this project. Chapter 4 highlgihts the time-lags required to fully realise benefits associated with the growth of Indigenous enterprises, following from ILSMP investments. Chapter 5 brings home the point that communities hold long long-term visions for their futures, and that uncertainty of funding is a significant constraint to being able to realise those visions. In chapters 6 and 7 it is clear that the factors which are considered 'most important to wellbeing' are not things like 'having more money' (reflective of a desire for short-term *instantaneous gratification*) but instead reflect a much more sophisticated, long-term view of factors required for sustainable society (looking after country and culture, schools, etc). Chapter 8 also underscores the importance of having long-term data for monitoring. If programs are short-lived, then by design one will not be able to collect data to validate outcomes that take more than a few years.

9.4   Final remarks

The research summarised in this report provides evidence that ILSMPs are important to Indigenous people, to Indigenous Communities, and to Australia more broadly (as critical contributors to regional development goals). ILSMPs improve Indigenous wellbeing through their ability to Care for Country and provide Access to Country. ILSMPs also stimulate the Australian economy and close the (income) gap by providing relatively greater economic benefits to Indigenous households. ILSMPs are also able to stimulate the development of Indigenous business which can lead to Indigenous economic independence. When appropriately designed, ILSMPs also enable communities to overcome constraints and structural barriers to realizing community defined development aspirations ('freedom').

In 2016 Social Ventures Australia [SVA] undertook a number of studies, establishing that the (monetarily) measurable benefits associated with ILSM practices and programs exceed the funds invested – i.e. there is a positive, and significant, 'return' on (the government) investment (in ILSMPs) – see, for e.g. (Social Ventures Australia Consulting 2016c), (Social Ventures Australia Consulting 2016b). Their IPA consolidated account (Social Ventures Australia Consulting 2016a) suggests that the returns are, on average, about three times as much as the investment. Our research shows that the positive co-benefits of ILSMPs (some of which were mentioned in the SVA studies, others of which were elaborated on and quantified in chapters 3-7, in this report) help lay the foundations for Indigenous people to leverage future business and/or development opportunities, thus leading to longer term gains for all. ILSMPs also generate economic benefits for non-Indigenous people. The research summarised in this report thus unambiguously establishes that the social return on investment in ILSMPs is even higher than that estimated by SVA.

Whether or not the net benefits of ILSMPs are greater than the benefits of other industries is a vitally important question but one that we are, with the information currently available, unable to answer; that would require a more complete assessment (beyond the dollar) of the numerous costs and benefits associated with multiple other industries.

2. References

Addison, J., Stoeckl, N., Larson, S. Jarvis, D., Bidan Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation RNTBC, Ewamian Aboriginal Corporation, Gooniyandi Aboriginal Corporation RNTBC, Yanunijarra Ngurrara Aboriginal Corporation RNTBC, Esparon M. (2019) The ability of community based natural resource management to contribute to development as freedom, and the role of access, available at https://doi.org/10.1016/j.worlddev.2019.04.004.

Alkire, Sabina. 2002. 'Dimensions of human development', *World development*, 30: 181-205.

Allen Consulting Group. 2011. "Assessment of the economic and employment outcomes of the Working on Country program, report to the Australian Government." In. Canberra.

Altman, Jon C, Geoff J Buchanan, and Libby Larsen. 2007. *The environmental significance of the Indigenous estate: natural resource management as economic development in remote Australia* (Centre for Aboriginal Economic Policy Research).

Andrews, Frank M, and Stephen B Withey. 2012. *Social indicators of well-being: Americans' perceptions of life quality* (Springer Science & Business Media).

Austin, B, C Robinson, J Fitzsimons, M Sandford, E Ens, J Macdonald, M Hockings, D Hinchley, F McDonald, C Corrigan, R Kennett, H Hunter-Xenie, and S Garnett. 2018. 'Integrated measures of Indigenous land and sea management effectiveness: Challenges and opportunities for improved conservation partnerships in Australia', *Conservation and Society*, 16: 372-84.

Australian Government. 2013. "Monitoring, Evaluation, Reporting and Improvement Strategy – Caring for our Country and the Biodiversity Fund." In. Canberra: Department of the Environment.

Barber, Marcus, and Sue Jackson. 2017. 'Identifying and categorizing cobenefits in state-supported Australian indigenous environmental management programs: international research implications', *Ecology and Society*, 22.

Bennett, Jeff. 2005. *The evolution of markets for water: Theory and Practice in Australia* (Edward Elgar Publishing).

Brest, Paul, and Kelly Born. 2013. 'When can impact investing create real impact', *Stanford Social Innovation Review*, 11: 22-31.

Bugg-Levine, Antony, and Jed Emerson. 2011. 'Impact investing: Transforming how we make money while making a difference', *Innovations: Technology, Governance, Globalization*, 6: 9-18.

Burgess, C, F Johnston, D Bowman, and P Whitehead. 2005. 'Healthy country: healthy people? Exploring the health benefits of Indigenous natural resource management', *Australian and New Zealand journal of public health*, 29: 117-22.

Campbell, Angus, Philip E Converse, and Willard L Rodgers. 1976. *The quality of American life: Perceptions, evaluations, and satisfactions* (Russell Sage Foundation).

Carson, D., A. Taylor, and S. Campbell. 2009. "Demographic Trends and Likely Futures for Australia's Tropical Rivers." In. Darwin: School for Social and Policy Research, Charles Darwin University.

Cummins, Robert A, Richard Eckersley, Julie Pallant, Jackie Van Vugt, and Roseanne Misajon. 2003. 'Developing a national index of subjective wellbeing: The Australian Unity Wellbeing Index', *Social indicators research*, 64: 159-90.

Deloitte Access Economics. 2014. "Economic benefits of closing the gap in Indigenous employment outcomes." In.: Deloitte Access Economics.

Diener, Ed, and Eunkook Suh. 1997. 'Measuring quality of life: Economic, social, and subjective indicators', *Social indicators research*, 40: 189-216.

Diener, Ed, Eunkook M Suh, Richard E Lucas, and Heidi L Smith. 1999. 'Subjective well-being: Three decades of progress', *Psychological bulletin*, 125: 276.

DoE. 2013a. 'Fact Sheet: Working on Country'. https://www.environment.gov.au/indigenous/workingoncountry/publications/pubs/fs-woc.pdf.

———. 2013b. 'Indigenous Protected Areas'. https://www.environment.gov.au/indigenous/ipa/.

Easterlin, Richard A. 2003. 'Explaining happiness', *Proceedings of the National Academy of Sciences*, 100: 11176-83.

Farr, Marina, Natalie Stoeckl, Michelle Esparon, Daniel Grainger, and Silva Larson. 2016. "Economic values and Indigenous protected areas across Northern Australia." In. http://www.nespnorthern.edu.au/wp-content/uploads/2017/04/Economic_Values_and_IPAs_final_web.pdf: James Cook University.

Ferraro, PJ, and SK Pattanayak. 2006. 'Money for nothing? A call for empirical evaluation of biodiversity conservation investments', *PLoS Biology*, 4: e105.

Frey, Bruno S, and Alois Stutzer. 2010. *Happiness and economics: How the economy and institutions affect human well-being* (Princeton University Press).

Gneezy, Uri, Stephan Meier, and Pedro Rey-Biel. 2011. 'When and why incentives (don't) work to modify behavior', *Journal of Economic Perspectives*, 25: 191-210.

Gooniyandi Aboriginal Corporation, and Kimberley Land Council. 2015. "Gooniyandi Healthy Country Plan." In. Western Australia: Kimberley Land Council.

Griffiths, S, and S Kinnane. 2010. "The Kimberley Aboriginal Caring for Country Plan." In. Kimberley, WA: Nulungu Centre for Indigenous Studies.

Hagerty, Michael R, Robert Cummins, Abbott L Ferriss, Kenneth Land, Alex C Michalos, Mark Peterson, Andrew Sharpe, Joseph Sirgy, and Joachim Vogel. 2001. 'Quality of life indexes for national policy: Review and agenda for research', *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique*, 71: 58-78.

Hill, R, P Pert, J Davies, C Robinson, F Walsh, and F Falco-Mammone. 2013a. "Indigenous land management in Australia: Extent, scope, diversity, barriers and success factors." In. Cairns: CSIRO Ecosystem Sciences.

Hill, Rosemary, Petina I Pert, Jocelyn Davies, Catherine J Robinson, Fiona J Walsh, and Fay Falco-Mammone. 2013b. *Indigenous land management in Australia: extent, scope, diversity, barriers and success factors* (CSIRO Ecosystem Sciences Cairns).

Izurieta, Arturo, Bevlyne Sithole, Natasha Stacey, Hmalan Hunter-Xenie, Bruce Campbell, Paul Donohoe, Jessie Brown, and Lincoln Wilson. 2011. 'Developing indicators for monitoring and evaluating joint management effectiveness in protected areas in the Northern Territory, Australia', *Ecology and Society*, 16.

Jacobs, Michael. 1997. 'The quality of life: social goods and the politics of consumption', *The Political Quarterly*, 68: 47-61.

Jarvis, D, N Stoeckl, J Addison, S Larson, R Hill, Pert P, and F Watkin-Lui. 2018. 'Are Indigenous Land and Sea Management Programs a pathway to Indigenous economic independence?', *The Rangeland Journal*.

Jarvis, D, N Stoeckl, R Hill, and P Pert. 2018. 'Indigenous land and sea management programs: Can they promote regional development and help "close the (income) gap"?', *Australian Journal of Social Issues*: 1-21.

Jarvis, Diane, Natalie Stoeckl, Jane Addison, Silva Larson, Rosemary Hill, Petina Pert, and Felecia Watkin Lui. 2018. 'Are Indigenous land and sea management programs a pathway to Indigenous economic independence?', *The Rangeland Journal*, 40: 415-29.

Kanyirninpa Jukurrpa. 2018. "Martu Living Deserts Project Warrarnpa Kana " In, edited by Kanyirninpa Jukurrpa. Western Australia.

Karajarri Traditional Lands Association. 2014. "Karajarri Healthy Country Plan 2013 – 2023." In. WA: Karajarri Traditional Lands Association.

Kennard, Mark J, Bradley J Pusey, Julian D Olden, Stephen J MacKay, Janet L Stein, and Nick Marsh. 2010. 'Classification of natural flow regimes in Australia to support environmental flow management', *Freshwater biology*, 55: 171-93.

Larson, S, N Stoeckl, and B Blanco-Martin. 2013. 'On the use of socioeconomic typologies for improved integrated management of data-poor regions: explorations from the Australian north', *Australasian journal of environmental management*, 20: 302-19.

Larson, S, N Stoeckl, D Jarvis, J Addison, S Prior, and M Esparon. 2018a. 'Using measures of wellbeing for impact evaluation: Proof of concept from a case study with an Inidgenous community in North Queensland Australia', *Ambio*.

Larson, S., and K. Alexandridis. 2009. "Socio-economic profiling of tropical rivers." In. Townsville: CSIRO Sustainable Ecosystems.

Larson, Silva. 2011. *From individual wellbeing to regional priorities: Concepts and measures to assist policy makers* (Cambridge Scholars Publishing).

———. 2012. 'Understanding barriers to social adaptation: are we targeting the right concerns?' in, *Transforming Markets in the Built Environment* (Routledge).

Larson, Silva, Natalie Stoeckl, Diane Jarvis, Jane Addison, Sharon Prior, and Michelle Esparon. 2018b. 'Using measures of wellbeing for impact evaluation: Proof of concept developed with an Indigenous community undertaking land management programs in northern Australia', *Ambio*: 1-10.

Leverington, F, K Costa, H Pavese, Lisle A, and M Hockings. 2010. 'A global analysis of protected area management effectiveness', *Environmental Management*, 46: 685-98.

MEA, Millennium Ecosystem Assessment. 2005. 'Ecosystems and human well-being: synthesis', *Island, Washington, DC*.

Miller, M. 1985. "Report of the Committee of Review of Aboriginal Employment and Training Programs." In. Canberra.

Narayan, Deepa. 2001. 'Voices of the Poor', *Faith in Development: Partnership between the World Bank and the Churches in Africa, Washington, DC: World Bank and Oxford: Regnum Books*: 39-50.

Nipapanha Community. 2009. "Monitoring, Evaluation, Reporting, and Improvement (MERI) Plan for Nantawarrina Indigenous Protected Area " In.: Nipapanha Community Inc.

Nussbaum, Martha, and Amartya Sen. 1993. *The quality of life* (Oxford University Press).

Oakley, Peter, and Andrew Clayton. 2000. *The monitoring and evaluation of empowerment: a resource document* (INTRAC).

Prescott-Allen, Robert. 2001. *Wellbeing of nations: A country-by-country index of quality of life and the environment* (IDRC, Ottawa, ON, CA).

Rogers, C. 2010. "Monitoring, Evaluation, Reporting, and Improvement (MERI) Plan for Yalata Indigenous Protected Area." In.: EVOLVE Communities Pty Ltd.

Sarukhan, Jose, Anne Whyte, R Hassan, R Scholes, N Ash, ST Carpenter, PL Pingali, EM Bennett, MB Zurek, and K Chopra. 2005. 'Millenium ecosystem assessment: Ecosystems and human well-being'.

Schirmer, J, E Loxton, and A Campbell-Wilson. 2008. "Monitoring the social and economic impacts of forestry: Recommended indicators for monitoring social and economic impacts of forestry over time in Australia." In. Canberra: Fenner School of Environment and Society.

Schultz, R, and S Cairney. 2017. 'Caring for country and the health of Aboriginal and Torres Strait Islander Australians', *Perspective*, 1: 8-10.

Sen, Amartya. 2014. 'Development as freedom (1999)', *The globalization and development reader: Perspectives on development and global change*, 525.

Smyth, D. 2011. "Review of Working on Country and Indigenous Protected Area programs through telephone interviews: Final report." In. Atherton.

Social Ventures Australia. 2016. "Consolidated report on Inidgenous protected areas following social return on investment analyses." In. Canberra.

Social Ventures Australia Consulting. 2014. 'Evaluative Social Return on Investment Report - Social, economic and cultural impact of Kanyirninpa Jukurrpa's On-Country programs. ',

Available at *http://socialventures.com.au/assets/2014-KJ-SROI-Report-FINAL.pdf* *(accessed 16 July 2015).*

———. 2016a. "Consolidated report on Indigenous Protected Areas following Social Return on Investment Analysis." In *available at:* *https://www.pmc.gov.au/sites/default/files/publications/SROI-Consolidated-Report-IPA_1.pdf*, edited by Feb 2016 Report prepared for the Department of Prime Minister and Cabinet.

———. 2016b. 'Social Return on Investment analysis of the Girringun: Indigenous Protected Area and associated Indigenous ranger programme', *Available at:* *https://www.pmc.gov.au/sites/default/files/publications/Girringun-SROI.pdf*.

———. 2016c. 'Social Return on Investment analysis of the Warddeken Indigenous Protected Area and associated Indigenous ranger programme', *https://www.pmc.gov.au/resource-centre/indigenous-affairs/warddeken-ipa-ranger*.

Stacey, Natasha, Arturo Izurieta, and Stephen T Garnett. 2013. 'Collaborative measurement of performance of jointly managed protected areas in northern Australia', *Ecology and Society*, 18.

Stoeckl, N., and O Stanley. 2007. 'Key Industries in Australia's Tropical Savanna', *Australasian Journal of Regional Studies*, 13: 255-86.

Stoeckl, Natalie. 2010. 'Bridging the asymmetric divide: background to, and strategies for bridging the divide between Indigenous and non-Indigenous economies in northern Australia.' in (Charles Darwin University).

Stoeckl, Natalie, Christina Hicks, Marina Farr, Daniel Grainger, Michelle Esparon, Joseph Thomas, and Silva Larson. 2018. 'The Crowding Out of Complex Social Goods', *Ecological Economics*, 144: 65-72.

Stoeckl, Natalie, Owen Stanley, Vicki Brown, Sue Jackson, and Anna Straton. 2006. 'An Assessment of Social and Economic Values Associated with Australia's Tropical Rivers: a scoping report to Land and Water Australia's Tropical Rivers program'.

SVA. 2014. "Evaluative social resurn on investment report: Social, economic and cultural impact of Kanyirninpa Jukurrpa's on-country programs." In. Melbourne: Social Ventures Australia.

———. 2017. "The Martu Leadership Program: Evaluation of a pilot program using the Social Return on Investment (SROI) methodology." In. Sydney: Social Ventures Australia.

Tamarind Environmental Planning. 2010. "Monitoring, Evaluation, Reporting and Improvement (MERI) plan for Marthakal IPA Stage 1 2011-2016 (Land Areas)." In. NSW: Tamarind Environmental Planning.

Taylor, Andrew, Silva Larson, Natalie Stoeckl, and Dean Carson. 2011. 'The haves and have nots in Australia's Tropical North–New Perspectives on a Persisting Problem', *Geographical Research*, 49: 13-22.

Urbis. 2012. "Assessment of the social outcomes of the Working on Country Program." In. Sydney: Urbis Pty Ltd.

van Bueren, M, T Worland, A Svanberg, and J Lassen. 2015. "Working on our country: A review of the economic and social beenfits of Indigenous land and sea management." In. Perth: Pew Charitable Trusts & Snynergies Economic Consulting.

Veenhoven, Runt. 2002. 'Why social policy needs subjective indicators', *Social indicators research*, 58: 33-46.

Veenhoven, Ruut. 2009. 'Well-being in nations and well-being of nations', *Social indicators research*, 91: 5-21.

Walalakoo Aboriginal Corporation RNTBC. 2016. "Walalakoo Healthy Country Plan 2017–2027." In. Derby, WA.

Weir, J, C Stacey, and K Youngetob. 2011. "The benefits of Caring for Country." In. Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS).

Western Government Department of Parks and Wildlife Service. 2018. 'Aboriginal Ranger Program', Government of Western Australia.

Yununijarra Aboriginal Corporation. 2012. "The Ngurrarawarnti Wulyu Martarnupurru 2012-2022 — Ngurrara Healthy Country Plan 2012–2022." In. Western Australia: Yun008unijarra Aboriginal Corporation.