



Identifying the key social and economic factors for successful engagement in aquaculture ventures by Indigenous communities

Ann Fleming¹

May 2015

FRDC Project No 2010-205

Warning for Aboriginal and Torres Strait Islanders

Please be aware that this report may contain the names or images of deceased people. NT Fisheries strives to treat Indigenous culture and beliefs with respect. We acknowledge that to some communities, it can be distressing and offensive to show images of people who are deceased.

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Executive Summary

The research and development reported in this project was led by the Aquaculture Unit of the Northern Territory Government's Fisheries Division. This project has established, for the first time, an Indigenous Australian business development framework that identifies key systems for driving business development in remote Indigenous communities, and the key success factors necessary for viable fisheries-based¹ businesses and enterprises. This in turn has identified the partnerships and processes that are required to ensure key systems are engaged and key success factors are addressed during each of the pre-commercialisation phases of business/enterprise development.

A 5-year (ongoing) case study was used to test the Indigenous business development framework at the coal-face of implementation. Use of the framework during program implementation allowed continual analysis of program progress and highlighted problem areas where further or alternative actions were needed. It also identified critical barriers to achieving fully independent Indigenous entrepreneurship in the longer term, highlighting where targeted, long-term Indigenous business capacity development programs are needed. This is a fundamental first step in our understanding of how best to support and facilitate fisheries-based industry development on remote Indigenous communities in northern Australia.

A number of recommendations are presented in this report to grow the NT Indigenous fisheries programs into a sustainable initiative that can deliver significant economic and social benefit to Indigenous Australians through fisheries-based development across northern Australia. These recommendations focus on establishing structurally-integrated, regionally-supported, place-base programs that will deliver capacity across the suite of skills sets needed by Indigenous people to independently operate and manage their own fisheries-based businesses.

The project delivered substantially against many of the RD&E Priorities of the FRDC's Indigenous Reference Group (IRG). A Reporting Matrix was developed by the Principal Investigator to show the knowledge, facilitation processes, capacities, policies and fisheries initiatives delivered from Project No. 2010/205. These are reported against the IRG's desired RD&E outputs, the 11 key RD&E Principles and 5 strategic R&D aspirations.

Background

One of the key drivers of Indigenous disadvantage in remote regions of Australia is a lack of economic opportunity. A vast body of knowledge has been generated about what type of economies are commercially viable in remote regions of Australia and what type of work opportunities are effective in engaging Indigenous people and lifting employment rates. Both the Australian and international literature on Indigenous participation in work and entrepreneurship for small business development has highlighted how culture, and the associated world views and values that are framed by a person's culture, impacts on engagement in economic activity. In addition, the Australian literature reports on the impact of decades of welfare dependency and disadvantage and how this plays in people's unwillingness to engage and respond to opportunities presented. Globally, sustained employment success has occurred where culture and market align, and where effort has focused on small business creation within Indigenous communities.

¹ In this report 'fisheries' and 'fisheries-based' refers to both fishing and aquaculture activities, including stock enhancement activities.

Harvesting, hunting and fishing of marine foods are an integral part of customary harvesting for Indigenous coastal-dwelling people. Given this, it may seem surprising that there are no Indigenous aquaculture enterprises or businesses in northern Australia, despite Indigenous people themselves continually expressing a strong desire to utilise their marine assets through fisheries-based approaches. Past attempts at establishing aquaculture enterprises have generally focused almost exclusively on the technical and commercial aspect of development without adequate consideration of the sociocultural aspects. This highlights the need to better understand *how* government, business and other stakeholders can best support Indigenous economic development. The key to success is to design programs where existing systems involved in effective program delivery drive the development programs, particularly market forces aimed to generate profits and Indigenous drivers for self-determination through economic independence.

Aims

The aims of this project were to 1) gain an understanding of the key factors that are critical to Indigenous business success, 2) identify the existing systems (cultural, business and market) that influence and/or drive business development, and 3) engage with these systems (and associated success factors) when designing and implementing a fisheries-based development program.

From this analysis, a business support framework will be designed to engage these systems and address all key success factors when implementing an aquaculture program in a remote Indigenous community. Feedback and learnings from the implementation of the framework will be used to inform agencies and Indigenous people where effort should be placed to further develop capacity of Indigenous people and communities to engage in and benefit from aquaculture enterprises.

As a part of this collective enquiry, further investigations into appropriate processes for effective communication, consultation and relationship building between external facilitators and Indigenous people was also conducted.

Methodology

In 2011 the Principal Investigator (who is the Manager of the Aquaculture Unit, Fisheries Division) conducted a literature review of the key success factors for viable community-based enterprise development and Indigenous engagement. In August 2011 the Principal Investigator held a stakeholder workshop in Darwin, which was attended by about thirty practitioners involved in Indigenous development programs in remote communities across northern Australia. The aim of the workshop was to draw directly from practitioners' experiences and learnings in the field. The key themes that emerged from the review process were brought together within a business implementation framework.

A case study was used to test the framework at the coal-face of implementation. A 5-year program to support sea-based aquaculture enterprises was implemented by the Northern Territory Government in partnership with key stakeholders and the Indigenous community of Waruwi on Goulburn Island, located in the western Arnhem Land region.

Results/key findings

The research and development conducted within this project delivered substantially against many RD&E Priorities set out by the FRDC's Indigenous Reference Group (IRG). In particular the project delivered an Indigenous business development framework that identified key systems (cultural, business and market) for driving economic development

in remote Indigenous communities, and the key success factors necessary for viable businesses. This in turn identified the partnerships and processes that were required to ensure key systems were engaged and key success factors were addressed during each of the pre-commercialisation phases of business development. This work is presented in sections 3.0 and 4.0 of this report. This project has achieved substantial gains in identifying the type of fisheries activities that are likely to meet Indigenous aspirations. It also contributed substantially to understanding and documentation of culturally aligned processes and programs to support communities during the development process. It has established a foundational aquaculture program that has effectively engaged Indigenous people and the seafood industry sector to drive the commercial process.

Use of the framework during program implementation allowed continual analysis of program progress and highlighted problem areas where further actions were needed to develop critical capabilities (for both Indigenous people and for external facilitators) within key systems. For example, in 2012 additional research was conducted into culturally appropriate processes for improved two-way communication and relationship building between Indigenous people and program facilitators. Two projects formed the basis for documenting these processes; the *Shared Knowledges Project* and *Warruwi Women's Healthy Tucker Program*. These projects are reported as attachments to this report.

Use of the Indigenous business development framework identified critical barriers to achieving fully independent Indigenous entrepreneurship more broadly across northern Australia. The limited local capabilities for both corporate governance (and associated leadership) and business management (and associated planning) in many Indigenous communities across northern Australia were seen as critical barriers to Indigenous people achieving full control of their own affairs and attaining economic independence. Each of the challenges to building Indigenous capacity to participate in fisheries-based activities is discussed in section 5.0 *Discussion and Recommendations*, and strategies to address them are proposed. These proposals are presented as recommendations specifically to Indigenous organisations, the corporate sector, governments, funding agencies, employment service providers, training providers and other stakeholders involved in Indigenous fisheries business development in the NT.

Recommendations

Key recommendations to NT Fisheries and associated stakeholder for developing the capacity of Indigenous people, fisheries facilitators and industry in supporting Indigenous entrepreneurship are proposed and discussed in section 5.0, namely;

- Recommendation 1: Develop a long term structurally-integrated regionally-based Indigenous fisheries development program – to establish an Indigenous fisheries-based sector across the Territory
- Recommendation 2: Identify business models that integrate both cultural and corporate fisheries business and governance arrangements – while in the interim, pragmatic models continue to be used
- Recommendation 3: Improve Indigenous participation in fisheries work through further social research into effective engagement strategies
- Recommendation 4: Develop fisheries agencies' capacity to facilitate Indigenous participation in commercial fisheries
- Recommendation 5: Develop fisheries agencies' capacity to facilitate fisheries businesses
- Recommendation 6: Develop industry's capacity to effectively negotiate mutually beneficial commercial arrangements with Indigenous people

To date the Indigenous fisheries programs implemented by NT Fisheries, including the Indigenous aquaculture program, have been supported by cyclic, short-term investment by the NT Government and project-based investment by external funding agencies. This has been a successful R&D model during the pre-commercialisation phases of Indigenous small business development. It has established small foundational fisheries and aquaculture programs that, potentially, could provide the catalyst for rolling out numerous commercial Indigenous fisheries ventures across remote northern Australia. Current programs have facilitated engagement between Indigenous communities and other stakeholders, including the commercial fisheries sector, that will lead, over time, to demand-driven development rather than government-supported programs. However, for these fisheries initiatives to develop into viable, self-sustaining Indigenous businesses, it is essential that they secure long-term financial support and high-level leadership to support a larger, structurally integrated, regionally based partnership model.

Key recommendations for establishing such a model to support Indigenous business development across the Territory are presented and discussed in section 5.0 *Discussion and Recommendations*, namely:

- Develop structurally-integrated regionally-supported, Indigenous fisheries development programs
- Link financial backing with investment demand driven by development at the regional level
- Continue to broaden current training programs to include business planning and management capacity development, linked with industry mentoring and networking programs
- Ensure community/regional leadership and governance is in place to support fisheries businesses
- Improve Indigenous participation in fisheries work through further social research into effective engagement strategies
- Ensure associated legislative frameworks allow and encourage Indigenous commercial fishing and aquaculture businesses.

To finance and implement such an integrated, regionally-based program, it is proposed that a model similar to the Canadian one is adopted where numerous regional service centres (in partnership with program delivery providers and Aboriginal financial institutions) provide a range of services (such as business planning, business support, business-related training, financial services and mentoring services) and investment capital for Indigenous Canadians living remotely.

The deliverables from the project have been summarised in the 6.0 *Conclusion* section using a reporting matrix developed by the Principal Investigator. It reports on the matrix of knowledges, processes, capabilities, policies and initiatives deliver against the FRDC IRG's desired RD&E outputs, the 11 key RD&E Principles and 5 strategic R&D aspirations.

Implications for relevant stakeholders

The use of the business development framework will ensure governments and other Indigenous development stakeholders can more effectively support Indigenous economic development and employment programs to an investment ready stage where the commercial sector can engage with more confidence in economically viable, culture-aligned businesses. The framework can be adjusted to suit different Indigenous groups, both within Australia and, potentially, internationally. It can be used to assess proposed development initiatives, and evaluate and troubleshoot existing programs. In this way it

can be used to rapidly identify risks to project and programs and identify where additional support and mentoring is required.

The suite of critical business and governance capacities needed to achieve self-run Indigenous businesses across the Territory highlights the need for stakeholders to invest long-term in a structurally-integrated, regionally-based program, with Indigenous people in control. Small Indigenous employment gains will continue to be achieved through the current programs of the NT Fisheries, but to achieve substantial outcomes against remote Indigenous economic development goals and Indigenous employment rates, these programs need long-term financial support and high-level leadership to support a larger, structurally integrated, regionally based partnership model. The implication for stakeholders is to now take the necessary steps toward achieving substantial Indigenous economic development outcomes for remote-living Indigenous Australians through fisheries-based businesses.

Keywords

Indigenous, policy, culture, economic, employment, business, aquaculture, fisheries

1.0 Introduction

Background²

Indigenous disadvantage in remote northern Australia

The Northern Territory (NT), located in central northern Australia, has a total population of about 212,000 people. In 2011 about 56,800 Indigenous people (identified as either of Aboriginal or Torres Strait Islander origin) lived in the NT, making up 27% of the population; the highest percentage of any Australian state or territory (ABS, 2012). About 20% live in remote areas and 60% in very remote areas.

About 50% of NT land (some 600,000 km²) is classed as Aboriginal land under freehold title and approximately 84% of the coastline is Aboriginal owned (NLC, 2011). There are hundreds of Indigenous communities scattered across remote and very remote parts of the NT and neighbouring parts of northern Australia, ranging in size from small family groupings living at outstations on their homelands to townships of over 2,000 people (Gorman and Vemuri, 2012). Despite Indigenous people owning vast tracts of relatively undamaged tropical savanna across northern Australia and many living adjacent to biodiverse coastal waters (Hobday *et al.*, 2009), access to these lands, seas and their resources has not improved the economic wellbeing of many of the Indigenous people³ (Altman, 2005; 2007; 2012). Those living remotely are the most marginalised and the most disadvantaged people within Australia (Sutton, 2009; SCRGSP, 2011; ACG, 2014). Indigenous health is poor across the whole life span leading to a life expectancy 10.6 years less for Indigenous men and 9.5 years for women compared to non-Indigenous Australians (ABS, 2012).

Economic drivers of disadvantage in remote regions

² Excerpt from Fleming, A., Petheram, L. and Stacey, N., 2015, Australian Indigenous women's seafood harvesting practices and prospects for integrating aquaculture. *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol 9(2). (see Appendix 1 for full paper)

³ Although Aboriginal people own extensive tracts of land, their capacity to utilise these assets for commercial activity is problematic. Within the Aboriginal Land Rights Act and the Native Title Act, estates and interests in the land can be granted, transferred and mortgaged, provided there is compliance with the necessary provisions. However, in practice, it has often been difficult for an Indigenous individual, or family group, to access land on which to establish a business when land is owned or under the control of either a community or a group of Traditional Owners (Fuller *et al.* 2009).

Key drivers of Indigenous disadvantage in remote regions of Australia are a lack of economic opportunity due to the low productivity of the lands (Altman, 2005; Gorman *et al.*, 2008), inadequate supply chain infrastructure (Dillon and Westbury, 2007) and the low level of participation in the few conventional mainstream economies (such as mining and tourism) currently available to Indigenous people (Pearson, 1999; Austin-Broos, 2011). The Indigenous labour force rate (employed plus unemployed looking for work) in remote regions of the NT was 49% in 2011, with just 42% actively participating in work (ABS, 2012). The employment rate of Indigenous people working in mainstream economies is much less, as these figures include workers employed in the Community Development Employment Program (CDEP⁴). Gray and Hunter (2011) estimate that in remote areas of Australia the employment rate in market-based jobs is 38.9% for males and 30.7% for females.

There has been a concerted effort by successive federal and state/territory governments over several decades to increase the employment rate of Indigenous Australians using both demand and supply side policies. A strong focus has been placed on the supply side by developing the human capital of the Indigenous population through education and training, and employment incentive programs (Hunter and Gray, 2012). On the demand side, establishing mainstream commercial opportunities in reach of Indigenous people has not generally had the desired employment effect (Stoeckl *et al.*, 2013; NAILSMA, 2013a). Stoeckl *et al.* (2013) found that in remote regions where customary lifestyles are still practised, stimulating local mainstream economies does not generally benefit Indigenous people via a passive, trickledown effect due to the nature of customary economies practiced. These types of economies included the cash and non-cash exchanges within and between households, such as the sharing of harvested and hunted foods. As Altman *et al.* (2012: 166) argues, these customary economies do not *'fit neatly into the categories of public or private sector, or state or market sector because they might be informal or un-marketed'*.

Another significant strategy that governments have pursued to increase Indigenous employment has focused on fostering socially and/or culturally aligned community-based businesses and enterprises, but results have been mixed. For example, the development of wildlife-based enterprises (e.g. bush plums, wattle seed, bush tomatoes, crocodile eggs) in remote Indigenous communities has seen only a handful of successes (see Zander *et al.*, 2014 for a review). This is surprising given the seemingly natural fit of this form of commerce into Altman's (2012) hybrid economy model and its natural extension to customary harvesting activities. Factors influencing commercial success of enterprises lie both on the supply side and the demand side. On the supply side is the challenge in establishing businesses and supply chain infrastructure so remote from markets and the placement of new, unfamiliar products into the marketplace. On the demand side is the challenge of developing a well-skilled workforce and the sustained financial and human capital that this requires (Evans, 2007; Austin and Corey, 2012).

The third factor in enterprise success is cultural integration; in particular the challenge of developing culturally suitable local governance structures and processes to meet the business needs of wildlife enterprises. Failure to achieve suitable governance arrangements have been attributed to disparate value systems, pervasive failures in communication, and the lack of recognition and engagement with Indigenous social and cultural concepts of business and resource sharing (Altman & Cochran, 2005; Burgess *et al.*, 2005; Vemuri and Gorman, 2012). In addition to cultural differences affecting employment participation, the impact of decades of welfare dependency needs to be considered. Austin-Broos (2011) acknowledged the role that disadvantage, incurred through social and economic marginalisation, plays in people's unwillingness to engage and respond to opportunities presented. Such abject social inequality has led to widespread and long-term welfare dependency that in turn has led to widespread and intergenerational demoralisation experienced as 'poverty'. Consequently, Austin-Broos (2011) calls for effective strategies for mainstream schooling, along with a dual approach to economic development that includes community-based, culturally aligned employment strategies and engagement with mainstream labour markets.

⁴ Community Development Employment Projects (CDEP) was an Australian Government funded initiative that provides activities for unemployed Indigenous people to develop work skills. The Australian Bureau of Statistics classified participants in CDEP as employed as some activities are essential roles that would be considered full employment in mainstream communities (Productivity Commission, 2011). The CDEP program has recently undergone some major changes and is now phased out in all areas.

Local economic development through natural resource management

One of the most successful labour market strategies to date for improving Indigenous work participation in remote regions of northern Australia has involved people working at the intersection between cultural obligations for ‘caring for country’, and employment in natural resource management programs. The term ‘caring for country’ describes Indigenous people’s customary management responsibilities to maintain their lands and seas and to sustainably utilise their resources. The core activities in ‘caring for country’ include: time on country, ceremony and the intergenerational transmission of knowledge, burning of annual grasses, gathering of food and medicinal resources, producing artwork and artifacts, and protecting and maintaining sacred areas. The most substantial areas of employment generated in the natural resource management sector are land and sea ranger positions, where ranger groups are contracted to undertake weed and feral animal management tasks, biosecurity and fisheries compliance patrols, and fire management and carbon sequestration work (NLC, 2014). Other more limited employment opportunities that facilitate Indigenous people’s access to and/or ability to manage country has come from work on road maintenance, NorForce (an Australian Army Reserve regiment that patrols northern Australia), cattle stations, management of culturally significant sites and in the arts sector.

By facilitating connections to country through employment in land and sea management activities, traditional ecological knowledge is practised and maintained, resulting in documented improvements in social, cultural and physical health as well as the health of the landscape (see Altman and Kerins, 2012 for a recent review). Australian Indigenous health and wellbeing is defined as ‘*achieved qualities, developed through relationships of mutual care of kin, non-human affiliations and observance of ethical conduct described by the law or dreaming that is encoded within the landscape*’ (Burgess *et al.*, 2005:118). The significance of this relationship between wellbeing and ‘caring for country’ was highlighted in a study by Burgess *et al.* (2009) who reported a direct and substantial correlation between working on country and clinical measures of health (e.g. diabetes and cardiovascular risk) and wellbeing. Since then, extensive research has shown the positive linkage between healthy people, healthy country (or landscapes) and the rapid growth in employment through Indigenous natural resource land and sea management programs (Altman and Kerins, 2012).

Altman (2005; 2007; 2012) developed the concept of the hybrid economy to articulate and model the way both the customary and the mainstream market is brought together, through government supported natural resource management programs, in a mutually beneficial economic arrangement. Recent reports suggest there are approximately 660 Indigenous land and sea rangers working over 80 sites across northern Australia resulting in the rapid growth and transformative professionalism of ranger work (Altman and Kerins, 2012). These data highlight the potential of employment programs that are based on Indigenous people’s enduring connection to country.

These studies, policy analyses and demonstrated successes of culturally integrated employment programs highlight the critical influence that culture and disadvantage – and how they interact - has on Australian Indigenous economic participation in remote areas (Austin-Broos, 2011). They demonstrate the need for more nuanced policy approaches in providing Indigenous people with employment opportunities that engage people in work that has culturally defined meaning and value, while at the same time recognising people’s capacities to engage. For Indigenous economic development to achieve broad and lasting success, policy makers must focus on the nexus between customary responsibilities and contemporary employment opportunities and seek to grow and diversify these opportunities.

Studies on Indigenous entrepreneurship globally have also highlighted the ‘*need to reconcile tradition with innovation and the need to understand how Indigenous world-view and values impact upon enterprises*’ (Hindle and Landsdowne, 2002: 1). Similarly, the Indigenous leader, Noel Pearson, stresses the need to find ways to reconcile and blend the best in mainstream and Indigenous cultures as a major issue for Indigenous Australian entrepreneurship (Hindle and Rushworth, 2002). There is strong supporting evidence from historically and culturally comparable Indigenous populations that an economic development policy approach based on culture is critical to broad and lasting success. In New Zealand, the United States and Canada significant increases in Indigenous entrepreneurship rates have been largely attributed to a shift in government policy that encourages self-directed advancement and accommodates

non-economic motivations (cultural and social) for engaging in the economy (Hindle and Landsdowne, 2002; Hindle and Rushworth, 2002; Wilkins, 2007).

Over the past decade a number of unsuccessful attempts have been made by various government agencies and consultants to establish commercial aquaculture enterprises and businesses in northern Australian Indigenous communities. There is very limited published literature regarding the programs to support these enterprises and the reasons for their failure. This project collates and reports on the published data in this field and analyses the broader international knowledge on Indigenous development initiatives and policies, in particular those relating to natural resources. It does this by conducting an international literature review and by holding a workshop in the Northern Territory of practitioners working in the field of Indigenous social and economic development. This information was used to inform governments, funding agencies, Indigenous leaders and managers and other stakeholders about best practice policy and programs to support Indigenous development in the NT through aquaculture enterprises. This work is part of a suite of programs to address the technical, commercial, managerial, social and cultural constraints identified from past programs. In this way the project aims to develop an integrated Indigenous aquaculture enterprise development model that offers a greater likelihood of success than past project-based initiatives.

Note on project reporting:

This project identified all key success factors to Indigenous and business engagement in culture-aligned aquaculture enterprises. Although the original aim was to only focus on sea cucumber (or trepang as they are called in the Northern Territory), the project instead reports on success factors and support models for aquaculture enterprises more broadly, including trepang ranching enterprises. This approach was taken as early research into suitable marine species for culture in Indigenous communities suggested that a diversified multi-species development program was more likely to be socially and economically viable, allowing Indigenous people to experience alternative farming methods and so make more informed decisions when considering aquaculture development options. The initial literature analysis also showed that a more fundamental analysis was needed as a first step in understanding the social, cultural, commercial, managerial and technical determinants for success. The specific arrangements required for a particular type of aquaculture development, such as for trepang ranching, would then follow from this generalised analysis. A subsequent FRDC funded project (*Project No: 2013/218 – Building the capacity and performance of Indigenous fisheries*) is currently investigating such business arrangements related to trepang ranching enterprises – including an appropriate governance model, sea country ownership arrangements and how such arrangements can be integrated into both cultural and commercial governance, industry and community relations, benefit sharing, economic viability, infrastructure resourcing needs, local capacity development strategies (for both the individual as well as community capacity and social capital), external support needs, etc. A brief overview of this work is reported in section 4.0.

This project brings all identified critical success factors together into a business support framework to inform the design and implementation of aquaculture development programs in remote Indigenous Australian communities. This framework can now be used to inform government, funding agencies and Indigenous leaders where effort should be placed to develop capacity of Indigenous people and communities to engage in and benefit from aquaculture enterprises. As such, the main key deliverable against the objectives of the project have been achieved through the publication of a paper in the *International Indigenous Policy Journal* titled *Improving Business Investment Confidence in Culture-aligned Indigenous Economies in Remote Australian Communities – A Business Support Framework to Better Inform Government* (see Section 4).

This policy paper informed the subsequent work done during 2013-14 in partnership with Charles Darwin University (CDU). The business support framework articulated three success themes key to effective engagement with Indigenous people when facilitating fisheries-based enterprises, namely; cultural engagement, business development and market drivers. Within the cultural engagement theme, the three main determinants of Indigenous participation in business/enterprise development programs were

identified as:

- 1) effective cross cultural communication and relationship building,
- 2) effectively clarifying community aspirations and goals, and
- 3) valuing both traditional and western knowledge as an important engager of Indigenous people in enterprise development processes.

As a result of this analysis, the Principle Investigator sought to investigate these key cultural engagement determinants in more detail. In 2012 a research project funded by National Climate Change Adaptation Research Fund sought to investigate components of the second determinate – clarifying community aspirations and goals. A paper was published on this work in the *Journal of Enterprising Communities: People and Places in the Global Economy* titled ‘*Australian Indigenous women’s seafood harvesting practices and prospects for integrating aquaculture*’ (see Appendix 1).

In 2013 CDU was engaged to co-investigate the other two determinants for cultural engagement. The sub-projects - *Shared Knowledges Project* and *Warruwi Women’s Healthy Tucker Program* aimed to investigate effective cross cultural communication and relationship building when facilitating aquaculture enterprises on remote Indigenous communities. Due to the need to tailor communication and relationship building to the specific practices and norm within each community, this report offers generalised principles and practices for effective cross-cultural communication and relationship building. It is important to stress the need to identify variations to these principles and practices between communities. This work is reported as separate attachments to the report.

The report’s discussion (which incorporates recommendations) presents an overview of the key learnings from this project and highlights where additional effort needs to be placed to develop critical capabilities (for both Indigenous people and for external facilitators) within key systems and processes. Based on this, six key recommendations are given to ensure the long-term viability of fisheries-based Indigenous development programs across northern Australia.

2.0 Objectives

1. Conduct an analysis of key factors driving successes and creating barriers in past aquaculture ventures on Indigenous communities
2. Identify key factors for success in implementing a socially and economically viable trepang ranching industry across NT Indigenous communities
3. Develop a framework and associated models to inform agencies and Indigenous people where effort should be placed to develop capacity of Indigenous people and communities to engage in and benefit from aquaculture enterprises.

3.0 Key factors creating barriers in past aquaculture ventures on Indigenous communities

Harvesting, hunting and fishing of marine foods is an integral part of customary harvesting for Indigenous coastal-dwelling people and, as such, has traditionally provided a very important food source for coastal people living in tropical northern Australia (Meehan 1977; Altman, 1987; Busilacchi *et al.*, 2013). Given this, it may seem surprising that there are no Indigenous aquaculture enterprises or businesses in northern Australia, despite Indigenous people themselves continually expressing a strong desire to utilise their marine assets through fisheries-based approaches (NLC, 2004; FRDC, 2011; NAILSMA, 2013b).

Over the past decade a number of attempts have been made by various government agencies and consultants to establish commercial aquaculture enterprises and businesses in northern Australian Indigenous communities. Most notably sea-based sponge (various species) farms at Goulburn Island, NT (Dobson, 2001; 2003), the Torres Strait Islands, Queensland (Duckworth *et al.*, 2007) and Palm Island, Queensland (Tedesco and Szakiel, 2006). Mud crab (*Scylla serrate*) farming was attempted in earthen ponds in an Aboriginal community in urban Darwin, NT (Hewitt, 2006; Tedesco and Szakiel, 2006) and in mangrove habitat in Maningrida, NT (NTG, 2006). Trochus (*Trochus niloticus*) hatchery production was attempted at One Arm Point, north of Broome, Western Australia (Lee *et al.*, 2004; Tedesco and Szakiel, 2006).

The failure points associated with these projects include a range of issues on both the supply and demand side (Table 1), including technical and commercial issues that pose a risk to commercial viability as well as significant social and cultural barriers to engagement, participation and control by the Indigenous clients.

Table 1. Failure points associated with past Indigenous aquaculture projects in northern Australia (from Fleming *et al.*, 2015).

Technical/Commercial Aspects		Social/Cultural Aspects	
Supply Side Issues	Demand Side Issue	Cultural Barriers	Development Processes
<ul style="list-style-type: none"> • lack of technical knowledge causing barriers to production development • lack of adequate startup capital and inadequate planning for time-critical infrastructure investment • lack of robust market research and supply chain analysis 	<ul style="list-style-type: none"> • highly technical work unsuitable for enterprise participants with limited skills and significant education barriers • unrealistic financial expectations (profits and timeframes), • low wages during development coupled with demanding daily operational schedules • crocodile safety concerns excluding diving as part of operational practices 	<ul style="list-style-type: none"> • lack of community control and decision-making • conflict between work attendance and attendance to cultural obligations and demands • inappropriate cross-cultural communication, negotiation and decision making processes 	<ul style="list-style-type: none"> • inadequately short timelines for external managerial, administrative and financial support • lack of long-term planning beyond the tenure of project timeframes, particularly for local governance and business management capacity

These past attempts at establishing aquaculture enterprises have generally focused almost exclusively on the technical and commercial aspect of development (Tedesco and Szakiel, 2006) without adequate consideration of the sociocultural aspects, in particular the appropriateness of enterprises selected in terms of cultural alignment, adequate development of worker capacity and local governance capacity for business management, the methods of facilitation and the strategies for local participation and control. Approaches to Indigenous aquaculture development appear more likely to be successful if the suite of

technical, commercial, managerial, social and cultural factors listed in Table 1 are carefully considered, appropriately planned for and responses to them adequately resourced.

These unsuccessful programs clearly failed to recognise the full suite of critical factors for sustained market engagement by both business and Indigenous people. There is a need to bring all critical factors together into a business support framework to inform the design and implementation of aquaculture development programs in remote Indigenous Australian communities.

4.0 Analysis of key success factors for viable aquaculture businesses and a framework to inform agencies and Indigenous people⁵

Abstract

There is significant evidence that culture-aligned economies are more effective in engaging remote-living Indigenous Australians in work long-term. Despite this, governments remain resistant to investing substantially in these economies, with the result that low employment rates persist. This paper argues that governmental systems of organisation are not designed to support non-mainstream economies and this position is unlikely to change. Similarly, the commercial sector lacks confidence that investing in culture-aligned economies will generate financial returns. This paper presents a localised, pragmatic approach to Indigenous business support that works within existing systems of government, business and culture. Most unsuccessful programs fail to recognise the full suite of critical factors for sustained market engagement by both business and Indigenous people. This paper reports on work to bring all critical factors together into a business support framework to inform the design and implementation of an aquaculture development program in a remote Indigenous Australian community.

Introduction

Successful Indigenous Economies – Shifting the Focus from ‘What Economies to Support’ to ‘How to Support Them’

Public sector managers tasked to address economic development in remote Australian Indigenous communities face a highly complex network of interrelated problems and competing value perspectives. Indigenous social and economic disadvantage has long been considered Australia’s most intractable and shameful of societal problems. Indigenous health is poor across the whole life span leading to a life expectancy 11.5 years less for Indigenous men and 9.7 years for women compared to non-Indigenous Australians (Australian Bureau of Statistics – ABS, 2012; Australian Institute of Health and Welfare, 2014). Those living remotely are the most marginalised and the most disadvantaged people within Australia (Australian Commonwealth Government, 2014; Steering Committee for the Review on Government Service Provision – SCRGSP, 2011; Sutton, 2009). In 2011 there were close to 143,000 Indigenous people living in remote or very remote regions of Australia, representing just 22% of the total Indigenous population of about 670,000 (ABS, 2012). Economic development and employment equity is just one of a suite of strategic areas that successive state, territory and federal governments continue to pursue to address this highly complex and challenging problem. Other strategic areas range across child development, education, health and community functioning (Head, 2008). Despite these sustained and seemingly holistic and collaborative efforts, employment rates remain low. In remote areas of Australia the Indigenous employment rate in market-based jobs is estimated to be 38.9% for males and 30.7% for females (Gray & Hunter, 2011), while 82% of Indigenous youth (15-24 year olds) are not engaged in either work or education (Forrest, 2014).

Over the past decade a vast body of knowledge has been generated about what type of economies are commercially viable in remote regions of Australia and what type of work opportunities are effective in engaging Indigenous people and lifting employment rates (see Fleming, Petheram & Stacey, 2015 for a review). The barriers to establishing viable market-based businesses in remote Indigenous-owned estates are similar to many other remote areas of Australia, such as long distances to market, low productivity of the land, lack of skilled workers and inadequate infrastructure (Dillon & Westbury, 2007; Gorman, Whitehead, Griffiths & Petheram, 2008). Both the Australian and international literature on Indigenous participation in work and entrepreneurship for small business development has highlighted how culture,

⁵ Published in: Fleming, A., (2015). Improving Business Investment Confidence in Culture-aligned Indigenous Economies in Remote Australian Communities – A Business Support Framework to Better Inform Government Programs. *International Indigenous Policy Journal*, 6 (3).

and the associated world views and values that are framed by a person's culture, impacts on engagement in economic activity (Fleming *et al.*, 2015). Success has occurred where culture and market align, and where effort has focused on small business creation within Indigenous communities (Ord & Mazzarol, 2007). Examples within Australia include the Indigenous land management initiatives (Working on Country, Indigenous Rangers, Indigenous Protected Areas) (Altman & Kerins, 2012; Bauman & Symth, 2007) and the Indigenous visual arts sector (ACG, 2013). Stand-alone Indigenous-run businesses also tend to be successful when integrated with culture, such as the cultural-tourism sector (Whitford & Ruhanen, 2009) and some wildlife harvest enterprises (Zander, Austin & Garnett, 2014).

Given the significant focus over the past decade on suitable economies for Indigenous Australians living remotely, it is surprising how little attention has been given to *how* government, business and other stakeholders can best support Indigenous economic development. A significant body of literature advocates the need for various organisations to change to better support Indigenous development initiatives, but these changes require concerted commitment and resourcing, which generally does not eventuate. For instance, governments are asked to significantly change either their organisational structure, service delivery, consultation processes, collaborative arrangements or funding provision strategies (Dillon & Westbury, 2007; Hunt 2013a, b; Trudgen, 2000), and increasingly, businesses are asked to change their organisational culture to better accommodate Indigenous participation in the workforce (Forrest, 2014; Jordan, 2010, 2011). Conversely, calls are made for Indigenous people to change, to various degrees, their culture (Jordan, 2011; Sutton, 2009) and/or lifestyle (Forrest, 2014; Pearson, 2010) to better align with mainstream Australian economies.

In the past two decades the New Zealand, United States and Canadian governments have raised Indigenous participation in economic activity through a shift in government policy that encourages self-directed advancement (within a politically supported move to reassert Indigenous nationhood) and accommodates non-economic motivations (cultural and social) for engaging in the economy (Hindle & Landsdowne, 2005; Hindle & Rushworth, 2002; Wilkins, 2007). That is, these governments have both 1) adapted to support the *types of economies* known to promote Indigenous business advancement (and thus lever the cultural and social motivators essential for engagement) and 2) adapted to the *processes* of advancement needed to successfully facilitate Indigenous economic development. Such policies have leveraged partnerships between Indigenous communities and businesses through foundational programs aimed at supporting labour market development, business development and community economic development (Government of Canada, 2009). This has led to an emergence of alternative business models that deliver solid financial returns while at the same time meeting Indigenous aspirations for community development through social entrepreneurship (namely, enterprises that aim to raise the socioeconomic status of communities and preserve cultural heritage) (Anderson, Dana & Dana, 2006). Rather than seek to change the systems of government and business to align with Indigenous culture, or *visa versa*, these governments have provided an enabling environment for business and culture to co-produce mutually beneficial commercial arrangements without compromising the motivators and value systems of either.

Although Australian state/territory and federal governments invest to a degree in culture-aligned economies, most notably the Indigenous land management initiatives (Zander & Garnett, 2011) and the regional Indigenous art centres (ACG, 2013), the level of investment is grossly inadequate given the magnitude of the demand for jobs in remote Australia (Forrest, 2014). To substantially grow and expand these employment sectors would require concerted investment by both governments and the commercial sector. It seems that governments have supported these programs to the extent that market and culture mesh with existing systems and processes of governmental organisation, but those systems and processes are not able to adapt to the extent required to fully support non-mainstream, culture-aligned economies as a primary policy platform. Businesses are similarly not able to adapt to suit Indigenous ways of doing business and being employed, and generally will only engage with the Indigenous sector to the extent that mainstream commercial principles of profit and employment arrangements apply. Programs that rely only on cooperation and compromise (from either culture, commerce or government, or mixes of each) do not generally lead to lasting success. Similarly, there are many examples of small Indigenous organisations and individual managers that achieve local employment success by establishing government subsidised economies, but the effort is not generally sustainable and often leads to burnout and eventual failure once key drivers move on (Mahood, 2012). Clearly, rather than peripheral or transient players driving

development, existing systems must drive the process. In particular, market forces for supply and demand, and Indigenous motivations for self-determination through economic independence.

Improving Investment Confidence – Using a Framework to Address Key Success Factors

To improve governmental and business investor confidence in culture-aligned, market-driven economies, governments and the business sector need a better understanding of the factors critical to achieving successful Indigenous businesses and a development framework that ensures all success factors are addressed. Ord and Mazzarol (2007) highlighted the need to create effective Indigenous enterprise and entrepreneurship frameworks that can be used to facilitate partnerships between business and Indigenous communities, but at the same time recognise and accommodate the significant differences between Indigenous and non-Indigenous motivations and capacities for engaging in entrepreneurship. Similarly, a Canadian review of the literature into best practice in Indigenous economic development noted the “*lack of a cohesive theoretical and practical framework for determining what works and what does not work*” (First People Group, 2009). Use of such a framework to inform Indigenous business development would allow evaluation of both program design and the process of program implementation. If programs fail to address just one success factor then they are likely to be unsuccessful, unless action is taken to address this failure point. Such an approach would provide government and the business sector with greater certainty that investment in culture-aligned economies will deliver commensurate financial returns and sustained Indigenous employment results.

Effective Program Design - Identify and Engage with Key Systems Involved in Success

The key to success is to design programs where existing systems involved in effective program delivery drive the development programs, particularly market forces aimed to generate profits and Indigenous drivers for self-determination through economic independence. So the challenge is to 1) gain an understanding of the key factors that are critical to success, 2) identify the existing systems that influence and/or drive development, and 3) engage with these systems (and associated success factors) when designing and implementing programs. The definition of ‘systems’ used here refers to large and complex organisational systems of government and business, made up of interrelated parts or components (structures) that cooperate in interdependent processes (behaviours). Such systems generally involve people, processes and technology (Head, 2008). In the context of this paper, systems also include Indigenous political, economic and social systems, made up of groups of people involved in persistent patterns of interpersonal relationships (social relations), who share the same geographical or social territory and share distinctive institutions of governance, political authority and dominant cultural expectations (Wikipedia, 2014). For Indigenous peoples, such systems typically involve individuals who belong within a complex kinship network, in addition to their lands and seas and the resources contained within them – which are inseparable from the people, their culture and their identity (Anderson *et al.*, 2006; Ganesharajah, 2009).

Head and Alford (2013) propose that systems thinking allows a holistic and interactive approach to analysing policy solutions to ‘wicked problems⁶’ as it can be used to search for factors that may contribute to their nature. Policy makers can then identify both the core processes within an organisation that are essential to addressing a wicked problem, as well as the auxiliary or parallel processes outside each organisation, or in the wider society, that needs to be engaged with. This paper examines the process of formation of an Indigenous economic development policy and implementation of its programs through the systems lens. It seeks to engage with existing systems (and address associated success factors) that drive the development process, but require little or no change to achieve success. From this analysis, a business support framework was designed to bring together these systems into a collaborative, multidisciplinary arrangement between key stakeholders. In doing so, this brought together a collection of

⁶ **Wicked problems** are seemingly intractable problems characterised by their problem complexity (where every problem interacts in a system or network of interrelated problems) and stakeholder divergence (arising from competing value and interest perspectives). Wicked problems are also generally associated with institutional complexity (and inflexibility) in the context of inter-organisational cooperation and multilevel managerial governance (Head and Alford, 2013).

key knowledges from each discipline that allowed for collective enquiry, learning and decision-making across all key success factors.

A case study was used to test the framework at the coal-face of implementation, i.e. localised, place-based programs and activities to support Indigenous economic development based on current knowledge of what works in terms of remote economic development, community development (with a focus on both economic and social entrepreneurship), and effective engagement with Indigenous political, economic and social systems. The paper reports on a program to support sea-based aquaculture enterprises implemented by the Northern Territory Government in partnership with key stakeholders and the Indigenous community of Warruwi on Goulburn Island, located in the western Arnhem Land region. The term 'enterprise' is defined here as small businesses aimed at profit but with a broader focus on political, social, culture, environment and economic goals. The paper reports on the first four-year evolution of program implementation from an initial pragmatic focus on technical and commercial success factors to a suite of programs to address the technical, commercial, managerial, social and cultural constraints identified through the systems approach to designing programs.

Program Design

Identify the Key Factors for Success in Indigenous Enterprise Development

Over the past decade a number of attempts have been made by various government agencies and consultants to establish commercial aquaculture enterprises and businesses in northern Australian Indigenous communities. Fleming *et al.* (2015) reviewed the failure points associated with these projects, which including technical and commercial issues that pose a risk to commercial viability as well as significant social and cultural barriers to engagement, participation and control by the Indigenous clients. In 2011 this ongoing failure prompted the Aquaculture Unit of the Northern Territory Government's Fisheries Division to conduct a literature review of the key success factors for viable community-based enterprise development and Indigenous engagement. In August 2011 a stakeholder workshop was held in Darwin and was attended by about thirty practitioners involved in Indigenous development programs in remote communities across northern Australia. The aim of the workshop was to draw directly from practitioners' experiences and learnings in the field.

Table 1a-c summarises the three key success themes that emerged from the workshop and from key Australian and international studies and policy analyses. These are; cultural engagement, business development and market drivers. Within each of these themes, three key elements for success emerged, giving a total of nine success factors to guide the design of policies and programs.

Within cultural engagement the three main determinants of Indigenous participation in business development programs were:

- 1) effective cross cultural communication and relationship building,
- 2) effectively clarifying community aspirations and goals, and
- 3) valuing both traditional and western knowledge as an important engager of Indigenous people in enterprise development processes.

Within the business development theme the three main determinants of economic viability were:

- 4) provision of R&D that improves entrepreneurial opportunity, and economic viability and certainty,
- 5) capacity building both of individuals employed by the enterprise and of community organisations responsible for community governance, and business planning and management, and

- 6) ensuring access to physical infrastructure, land tenure and availability of adequate financial resources over realistic timeframes.

Within the market driver theme the three key elements for success were:

- 7) identifying viable internal (community-based) and external (mainstream) markets,
- 8) recognising the impact of government policy on program viability and the ability of communities to focus on planning and development, and
- 9) deeply appreciating that cultural primacy and the goal of self-determination and economic independence are the foundations that underpins all development aspirations for Indigenous people.

Table 1a. Success factors that impact on effective cross-cultural engagement

Cultural Engagement		
Communication & Relationship ^{1 2 3 4 5 6}	Clarifying Aspirations ^{5 6 7 8 9 10 11} (motivations for entrepreneurship)	Valuing Both Traditional & Western Knowledges ^{2 11 12 13 14}
<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • engage in local, authentic communication and consultation • engage in strategic, partnership-based collaborative approaches with communities • ensure communities are engaged in priority setting and actively leading decision-making in program design, development and implementation • responsive to Indigenous priorities • committed to long-term sustainable relationships based on trust and integrity • plan for timelines set according to cultural protocols • design processes that builds local capacity • ensure effective communication and knowledge transfer to key sectors of the community • appreciate the influence of the historical and social context of communities on program design • have cultural knowledge and understanding of each place • recognise the contemporary fluidity of community life • seek to build a ‘shared understanding’ and build agreed meanings and ways forward • work with local governance structures and, in particular, with local Traditional Owners, Elders and organisations • use culturally appropriate communications methods that enable local people to be fully informed 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • understand the extent that social and cultural norms impact (positively or negatively) on engagement in entrepreneurship • understand that the prime motivation for Indigenous entrepreneurs globally appears to be for self-determination through preservation of heritage, customs and traditions • recognise the dynamic potential inherent in culture, rather than seeing it as a problem blocking commercial development • recognise that Indigenous entrepreneurial activities are often embarked upon to achieve desired social outcomes, rather than just economic goals • recognise that globally social entrepreneurship has an important role to play in the process of addressing the socioeconomic circumstances of Indigenous peoples • ensure flexible work arrangements to allow Indigenous employees to meet their work, family and community obligations - ensure continual improvement of policy is achieved through adequately funded evaluation programs - ensure evaluation programs align with Indigenous aspirations and wellbeing 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • recognise and value the cultural knowledge and skills of community organisations and Indigenous people • recognise that valuing Indigenous knowledge and building it into the ‘business’ model engages the local community and promotes a strong sense of community ownership of the enterprise - recognise that Aboriginal leaders perceive that the preservation of knowledge and the development of mechanisms (including economic activities) that perpetuate this knowledge are of highest priority • appreciate that gaps in existing scientific knowledge may be filled by knowledge about the local ecology and species held by the Indigenous communities • recognise that strong community engagement can be aided by increasing the use of local knowledge and expertise

¹ GCC, 2014; ² Hunt, 2013a; ³ Christie, 2013; ⁴ Puszka *et al.*, 2013; ⁵ Australian Institute of Aboriginal & Torres Strait Islander Studies – AIATIS, 2007; ⁶ Nikolakis, 2008; ⁷ Hindle and Rushworth, 2002; ⁸ Wood *et al.*, 2012; ⁹ Dana and Dana, 2005; ¹⁰ Wood and Davidson, 2011; ¹¹ Nguyen and Cairney, 2013; ¹² Anderson *et al.*, 2006; ¹³ Fordham *et al.*, 2010; ¹⁴ Morley, 2014

Table 1b. Success factors that impact on effective Indigenous business development

Business Development		
Enterprise RD&E (identifying and developing socio-cultural and economic opportunities) ^{1 2 3}	Entrepreneurial Capacity Building – (developing capacity for community governance and business management & Individual worker skills) ^{1 2 4 5}	Infrastructure, Supply Chain, Land Tenure, Capital, Funding ^{1 2 4}
<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • appreciate the importance of R&D in facilitating the growth and viability of new business opportunities • ensure R&D reduces the production and market risk for emerging businesses • ensure R&D includes investigations into socio-cultural requirements • ensure R&D is readily available to new, small and growing businesses 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • recognise that successful community-based enterprises are underpinned by good governance. It is the key ingredient – the foundation stone – for building sustainable development in communities • recognise that engagement is the first hurdle. Using activities like ‘Working on Country’ projects will more effectively engage people and achieve work readiness • recognise that for community-based enterprises having culture embedded within the business and its operations is vitally important for success • recognise that communities often lack social, human and organisational capital as well as financial capital • ensure community-based enterprises have good organisational governance, business planning and financial literacy • recognise the importance of access to business expertise, advice and mentorship, particularly early on in the business proposal (networks) • ensure the quality, relevance and depth of training is at the desired standard to effectively increase the skill level of Indigenous people via formal education and training • ensure timeframes and funding for external support, training and mentoring programs are adequate • ensure business support staff are competent and appropriately skilled in business management and development • ensure that communities have access to financial and business advice and ongoing support • recognise that financial literacy is the platform for improvements in Indigenous self employment • recognise that women may be crucial to the success of businesses as they tend to have a holistic view, are able to maintain systems and processes, and build self-esteem 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • ensure access to physical infrastructure – communications, utilities, transportation, land • ensure people can raise finance on their land to create a business • ensure availability of financial resources, equity, and debt for new and growing businesses, including grants and subsidies • assist Indigenous people to access finance that has otherwise not been available through commercial avenues • recognise that start-up funding to assist businesses needs to be coordinated and based on long-term commitment

¹ Hindle and Rushworth, 2002; ² Morley, 2014; ³ Hunt, 2013b; ⁴ AIATSIS, 2007; ⁵ Forrest, 2014

Table 1c. Success factors that impact on market drivers for Indigenous business development

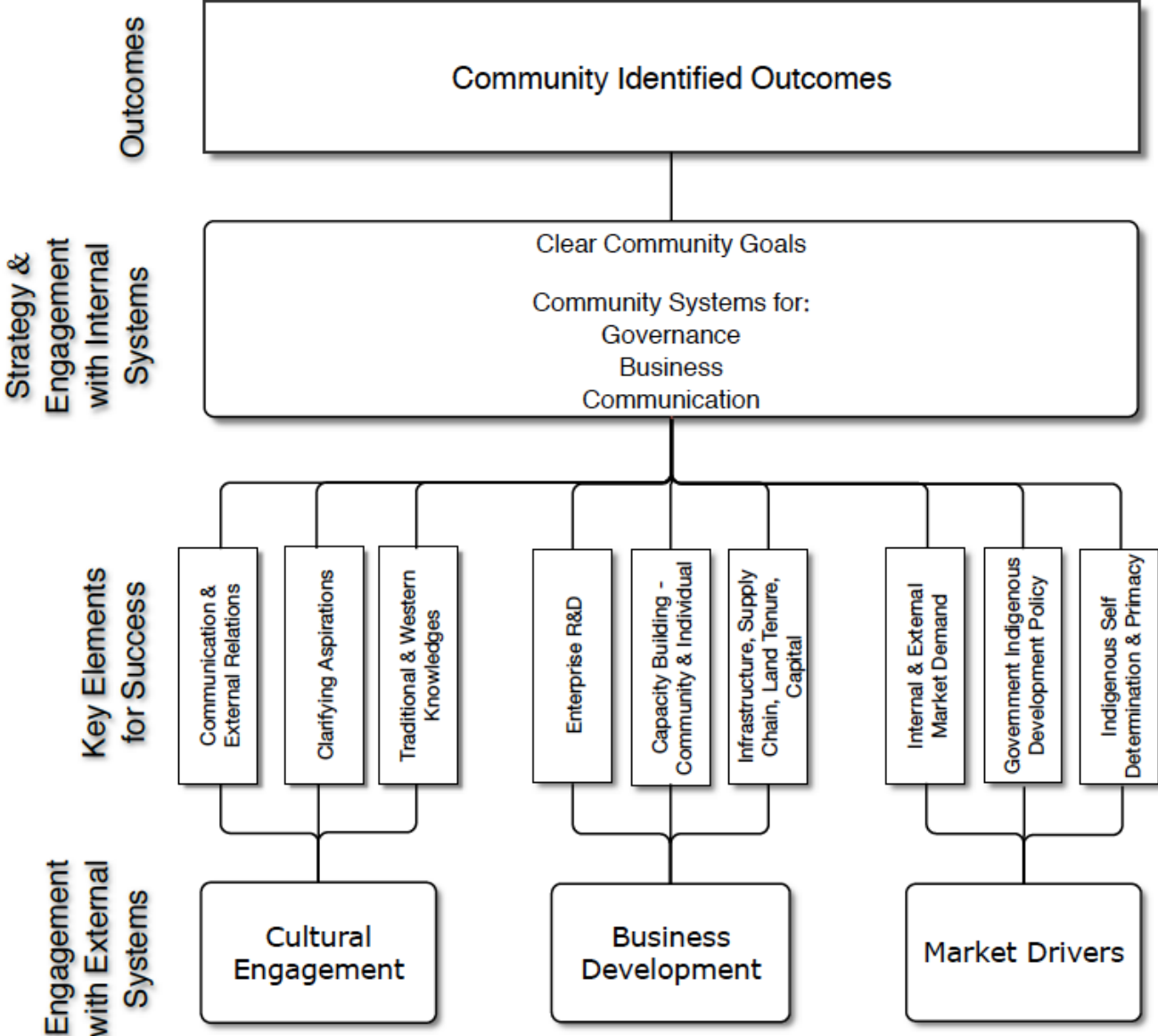
Market Drivers		
Internal & external market demand¹	Government policy & programs^{2 3}	Indigenous self determination & primacy^{4 5 6 7 8}
<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • assist Indigenous people identify and develop economically viable, culturally-embedded, businesses – assist Indigenous people engage with the mainstream commercial sector to identify mutually beneficial business opportunities • identify economically and logistically viable external markets for product export • recognise the opportunity to develop local markets as well as export markets (national and global) 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • ensure policies encourage and facilitate new and growing businesses • provide direct government programs to assist businesses at the national, regional and municipal level • ensure that existing commercial/institutions do not prevent the emergence of new or growing businesses • recognise the impact that poor Indigenous development policy can have on programs and community engagement 	<p>Governments and other stakeholders:</p> <ul style="list-style-type: none"> • recognise that one of the prime motivators for Indigenous people globally is the desire to rebuild their nations and their communities primarily by exerting control over traditional territories and, in doing so, improve their socioeconomic circumstances • recognise that a significant motivator for Indigenous people to engage in entrepreneurship is the desire for self-determination and financial independence (particularly from welfare), rather than acquiring wealth • recognise that the cardinal principle is to motivate and equip people to take control of their own lives and their contemporary living environment • recognise that some of the key drivers for Indigenous entrepreneurship is the desire for future generations not to have to experience the same hardships as their predecessors, to escape, individually or communally, from poverty, and to provide for family needs • address power inequalities • recognise that families and small legally incorporated groups are more successful in enterprises than larger community groups • where land and environmental issues are concerned, plan at the scale of each group's 'country' • understand that Aboriginal communities are not homogenous but are composed of different language and kinship groups, often with different interests in land; so factional disputes are the norm

¹ Austin-Broos, 2011; ² Hindle and Rushworth, 2002; ³ Fordham *et al.*, 2010; ⁴ Hindle and Lansdowne, 2002; ⁵ Wood *et al.*, 2012; ⁶ Trudgen, 2000; ⁷ Morley, 2014; ⁸ Double W Associates, 1998

Identify and Engage the Systems that Involve the Nine Success Factors

The three themes that emerged from the review process were used to identify and articulate the systems that drive business development. To effectively design policy and programs, three key systems must be engaged; Indigenous cultural systems to direct all planning and implementation activities, business systems to respond to economic opportunity and generate human capital and resources for all business development needs, and market systems to drive commerce. Figure 1 shows how these external systems (and associated success factors) are brought together within a business implementation framework that can be used by external facilitators to support and drive development programs. The framework also guides the long-term development of Indigenous-run businesses by building capacity for internal (community) systems of Indigenous governance, business management and communication.

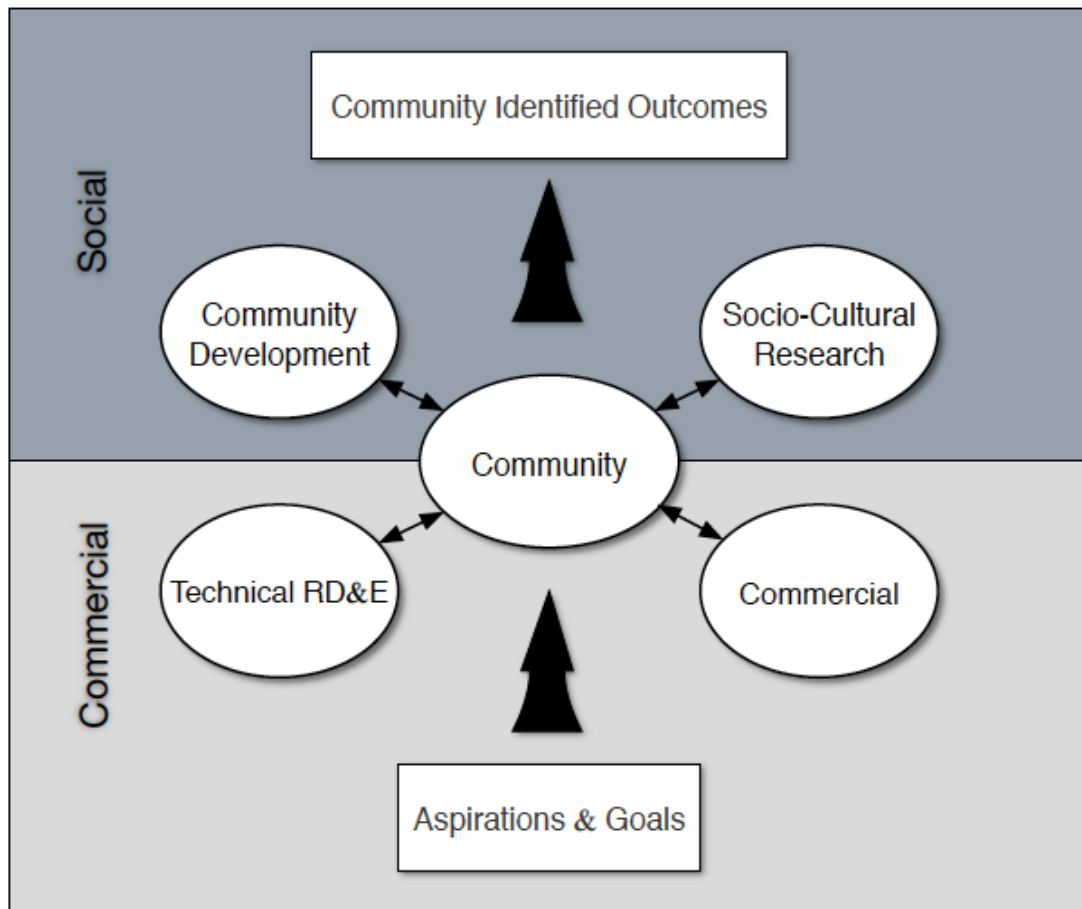
Figure 1. Implementation framework for critical success factors for Indigenous enterprise development



Creating a Collaborative Partnership Framework based on these Systems

The next step in program design was to identify and engage with the Indigenous clients and key stakeholders (including businesses, government agencies, non-government service providers and the wider community) that are involved in, or have a stake in, the three systems. These clients and stakeholders can be divided into social and commercial groupings (Figure 2).

Figure. 2 Collaborative partnership framework that engages all key systems for successful business facilitation



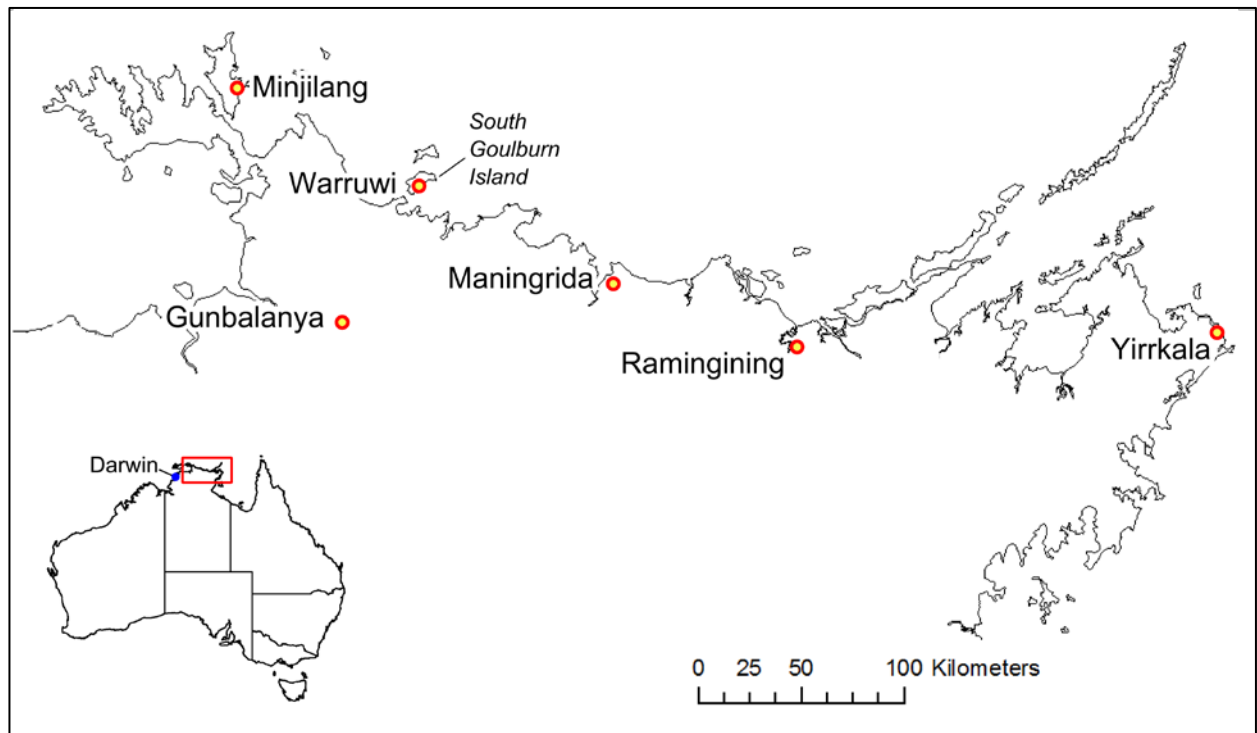
Within the commercial grouping are the technical R&D providers and businesses. Within the social grouping are those responsible for community planning and development (for both human capital and resource provision) and those responsible for socio-cultural research to facilitate cross-cultural communication, knowledge transfer, understanding and negotiations. The community straddles both commercial and social groupings as they provide cultural, social and economic knowledge to both, and partner with stakeholders within each grouping. Underpinning effective collaboration are clearly articulated and informed community aspirations and goals, clarified through culturally appropriate social research investigations. Outcomes are community-identified, but the terms are negotiated between the community and the commercial sector.

Program Implementation

The Case Study Site and Regional Indigenous Fisheries Initiatives

Program implementation was carried out at Waruwi, a small settlement of about 390 Indigenous people on South Goulburn Island, located 280km northeast of Darwin and 3km off the west Arnhem coast (Figure 3; see Fleming *et al.*, 2015 and Gould, 2010 for further detail on the historic, cultural and economic context of the study site). People from Goulburn Island belong to one of five major clan groups. They follow a patrilineal descent system, which gives clans ownership of particular areas of land, estuaries, beaches, sea and offshore reefs and islands (Gould, 2010). Rights to sea country are also obtained through matrilineal affiliations where people are classified as ‘managers’ for particular estates. Both owners and managers (sometimes called Traditional Owners and senior Elders) are responsible for that land and its resources.

Figure 3. Location of South Goulburn Island, Northern Territory



People from Goulburn Island have a deep connection with their sea country and continue to practice customary harvesting of marine foods and coastal fishing. They have a long history of participation in economic activities with external parties. As early as the mid-1700s the people of Goulburn Island worked and traded goods with the Macassan seafarers from Indonesia who visited the coast seasonally to fish for sea cucumber (Clark & May, 2013). Contact with European settlers was limited until a Methodist mission was established on the island in 1916 and continued until about 1974. During this period a range of horticultural, agricultural, fishing and natural harvest enterprises generated food for self-sufficiency as well as funds through sales (of sea cucumber, oysters, mussels, dugong, turtle and fish) into Darwin markets (McKenzie, 1976; Northern Territory Administration, 1968; Stanley, 1985). In the early 2000s two attempts to set up aquaculture enterprises were unsuccessful; one focused on the technical aspects of sea farmed bath sponges (Dobson, 2001, 2003) and another on a significant investment proposal for sea ranched sea cucumbers (Gould, 2010).

In 2010 the Aquaculture Unit of the Northern Territory Fisheries Division and the Warruwi community commenced sea farming trials for sea cucumbers (*Holothuria scabra*; common name sandfish; local name trepang) as well as growout trials for cultured blacklip tropical oysters (*Striostrea mytiloides*) and the fluted giant clam (*Tridacna squamosa*). The following reports on the partnerships, programs and activities to address the nine key success factors for Indigenous business success. Where possible, the report is presented chronologically, but in some instances it is presented to best convey the work achieved and the strategies and learnings behind the work.

Ideally, program implementation would begin with clarifying aquaculture development aspirations by the broader community. At the time, sufficient funds were not available for an extensive consultative phase, and, as was the case generally, factors were addressed as opportunity, funding and human resources became available. Initially the focus was on addressing the technical and market success factors – through R&D programs conducted by the Aquaculture Unit and through analysis of market viability by the commercial sector. As funding was secured, the focus broadened to address the key social, cultural and managerial success factors. The work presented here shows the progress achieved within the constraints faced at various implementation phases, and the gradual engagement with all three key systems within and outside the community – through cultural engagement, business development and engaging with

market drivers. Over time all nine success factors were addressed, as described in sections 1–10 following (note: the report on Business Development – Capacity Building is reported in two sections; Community and Individual).

1. Market Drivers – Identifying Internal and External Viable Markets

In 2010 the Aquaculture Unit identified potential marine aquatic animal candidates for farming on Indigenous communities that met key criteria for Indigenous business viability – including social, cultural, economic and environmental viability. Selection criteria were based on the findings of a review into past failure points associated with Indigenous aquaculture enterprise projects in northern Australia (Fleming *et al.*, 2015). In relation to business viability, past projects generally lacked robust market research and supply chain analysis and were dependent on significant startup capital for both production systems and supply chain needs. In addition, failure to engage early with the commercial sector often led to program failure during transition from the R&D phase to business startup. This was likely due to a general lack of business capabilities and resources, such as access to market and supply chain intelligence, financial literacy, business management capacity, access to capital and lack of financially sound business plans. For these reasons, the Aquaculture Unit recognised that market systems must be engaged early to drive the development process and provide industry knowledge, capacity and investment certainty while Indigenous capacities for business management are being developed. Based on this, the ability to engage and partner early with the commercial sector was a very strong criterion when selecting candidate aquaculture species in the current program. Markets and supply chains for successful candidate species were either 1) established and the business partner actively investing in industry development (as was the case for the sea cucumber ranching program) or 2) preliminary market analysis and supply chain analysis performed by the business partner and the product found to have strong market acceptance, be sufficiently high in value and have viable supply chain requirements (as was the case for blacklip oysters and fluted giant clams).

A single company owns all six wild fishery sea cucumber licences in the Northern Territory and has invested in sea cucumber ranching and stock enhancement R&D since 2004 (Bowman, 2012). Since the 1980s the company has operated in the wild harvest of sea cucumber across northern Australia, developed processing methods to produce high-value product and established supply chains into Chinese markets via Hong Kong (Fleming, 2012). Currently Indigenous communities that aim to develop sea cucumber ranching enterprises are dependent on this company for the supply of juveniles and for second stage product processing (both of which are highly skilled and capital intensive technical operations), and for distribution into international markets. As such, it is necessary that, for the foreseeable future, the company and Indigenous communities negotiate mutually acceptable business arrangements that meet the commercial needs and development objectives of both parties. The Aquaculture Unit identified this as a critical element of success in the program and, in 2014, secured funds for a business consultant to work with the Waruwi community and the company to produce a business plan for sea cucumber enterprises. This plan identifies the most suitable business arrangements to support sea cucumber (and other fisheries) enterprises and progressed negotiation for the terms of agreement between the sea cucumber company and the Goulburn Island community (discussed further in section 2). This natural transition into a business planning and startup phase follows the initial four-year R&D phase to develop suitable farming methods that were operationally feasible (technically, socially and culturally), and biologically and economically viable (discussed further in section 5).

Market research into the blacklip oyster and fluted giant clam was conducted by a major seafood wholesale distributor in Darwin. He visited Goulburn Island with aquaculture staff in 2011 and met with senior authority figures to gauge the community's commitment to supplying oysters and clams (and fish) into Darwin restaurants. He was supportive of a supply model where small volumes of product were sent when season and community commitments allowed. This aligned with the high value, "unique cuisine" experience that he planned for Darwin restaurateurs and was keen to explore with the community branding opportunities for Indigenous produced seafood. In Darwin he distributed oyster and clam samples to top restaurant kitchens so the chefs could handle the product and assess its placement in the restaurant trade. They were very positive about the potential to offer international tourists with an exclusive, Indigenous produced, uniquely Australian, seafood cuisine experience.

Ord and Mazzarol (2007) highlighted the choice Indigenous communities have when developing an economic development strategy to target either internal markets that address the market needs of the community, and/or to engage with external mainstream economies. The Goulburn Island community are planning to engage in both types of economies. In addition to the external seafood economies described above, Waruwi people aspire to use their fisheries resources to develop internal markets to meet demand for fresh nutritious seafoods. Fleming *et al.* (2015) found that one of the reasons Indigenous women on Goulburn Island aspired to engage in fisheries activities was to minimise reliance on store purchased foods, and to improve people's diet and nutritional status. The high cost of store purchased foods and the frequently poor quality of fresh product has been cited as a factor in the poor nutritional status of Indigenous people living remotely (Browne, Laurence & Thorpe, 2009). Internal economies are an obvious and relatively easy enterprise opportunity for Indigenous communities as they require little investment in market development and supply chain infrastructure. Equally importantly, such enterprises offer opportunities that people feel are familiar, realistic and achievable in terms of the skills, concepts and education required. Establishment of local markets can be seen as a stage towards engagement with more mainstream markets, offering opportunity for people to develop their capacity at their own pace. The 'Waruwi Women's Healthy Tucker Program' was used as a vehicle to meet women's entrepreneurship aspirations to improve the availability of fresh seafood on Goulburn Island (discussed in sections 3 and 4).

In 2011 the Waruwi community established its own not-for-profit community governance organisation (Yagbani Aboriginal Corporation), run by a committee comprising representation from each of the five main clan groups living on the island. Yagbani is planning to establish an independent corporate entity to support commercial enterprises and businesses for the benefit of the community. Yagbani's aim is to develop social and cultural programs (art centre, market garden, building and construction, women's projects, aquaculture and coastal line fishing). As such, it is targeting a diversified portfolio of small business investments that collectively will generate modest profits to support local employment needs.

During the period of program implementation on Goulburn Island the NT Fisheries Division secured funds to support East Arnhem Indigenous people establish fisheries businesses (in the region around Yirrkala shown in Figure 3). The Garngirr Fishing Aboriginal Corporation was formed in 2012. Garngirr's Indigenous board plans to develop a seafood co-operative (similar to Goulburn Island's plans – see section 2) to accommodate the different opportunities and aspirations of the clans living in the East Arnhem region. Licensed Indigenous fishers will decide amongst themselves where they fish within their traditional sea country system of authority, selling their catch to the co-operative. In the first instance, fresh seafood will be sold locally in East Arnhem. When the initiative moves to a commercial phase, the co-operative will take a percentage of sales, and potentially use this revenue to provide boats and fuel for fishers, as well as coordinating processing and marketing (Norwood, 2013). Through this initiative, the NT Fisheries Division is also supporting the Goulburn Island community to establish a coastal line fishing enterprise. An Indigenous fishing mentor visits the island regularly to train the local men participating in the aquaculture program. He trains them in a range of fishing industry skills, such as net manufacture and use, seafood handling, processing and packaging to maintain shelf life. As the Goulburn Island and East Arnhem fisheries co-operatives develop across the NT (and potentially additional Indigenous fisheries initiatives), collaborative opportunities will emerge to achieve economies of scale through regional programs, such as collective marketing and operational support systems, as well as shared capital investments.

2. Market Drivers – Cultural Primacy, Self-determination and Economic Independence

For many Indigenous Australians – and for most Indigenous people globally – the primary driver to engage in commercial enterprise and employment is the desire for economic independence and the benefits that this may bring, such as autonomy, self-determination, personal accomplishment, lifting socioeconomic disadvantage – particularly for their families and children, correcting negative social perceptions and social stratification based on race, and preserving heritage, culture and tradition (Wood & Davidson, 2011; Wood, Davidson & Fielden, 2012). Coastal dwelling Indigenous Australians seek from non-Indigenous Australians recognition that they have “*certain recognised rights associated with and based on the prior and continuing occupation of country and water and activities (e.g. fishing, gathering) associated with the use and management of these*” (Fisheries Research and Development Corporation –

FRDC, 2012, p. 1). They seek economic development opportunities arising from their cultural marine assets and associated access rights by engaging “*in economic activity based on the use of traditional aquatic biological resources and/or the right to share in the benefits derived from the exploitation of aquatic biological resources*” (FRDC, 2012, p. 2). Indigenous Australians also recognise they need significant capacity building opportunities to further their aspirations in the use of aquatic biological resources, and seek to engage with the commercial sector and build their general understanding of fisheries industries (FRDC, 2012). The people of Goulburn Island have expressed similar aspirations. Their motivations for setting up fisheries (and other) businesses are to achieve a degree of economic independence through engaging in culture-aligned employment, and in so doing, to achieve autonomy over their lives and futures, and maintain their cultural heritage (Fleming *et al.*, 2015). For a long time past, Goulburn Islanders have responded to opportunities to engage in fisheries commerce; from the very early contact and trade with the Macassan sea cucumber fishermen who visited the northern Australian coast seasonally from the mid 1700s to the early 1900s, to the mission era from 1915 to 1974 when the community exported seafood under missionary control and management, to the community’s current work towards ownership and control of their own fisheries-based businesses.

The strongly expressed motivation by Indigenous Australian people to engage with the business sector is a powerful enabler and driver for market development in remote Australia. The challenge is to equip people with the necessary skills and capacities so that cultural drivers can be mobilised under their own direction and control. To support the Waruwi community in achieving this, the Aquaculture Unit sought to implement key strategies to engage local people in entrepreneurial activities across a number of sectors of the community (senior school students, women, men, and the community organisation). Underpinning all activities was a deep appreciation of cultural primacy and self-determination as key motivators for people’s engagement. For example, facilitators sought to understand Indigenous ways of doing business and sought to incorporate these into business arrangements. In this way the program supported Indigenous and commercial partners to negotiate at the interface of culture and commerce, to build business partnerships that accommodated the needs of each, and to jointly develop business models underpinned by the motivational drivers of each.

The business model proposed for the Waruwi community is a foundational step towards the community achieving self-determination and economic independence. Initially a fisheries co-operative will be established (as a business arm under the Yagbani Aboriginal Corporation) to support the sea cucumber ranching industry, rather than developing a stand-alone seafood business (Ambrose Business Solutions, 2014). Clan-based ranching micro-businesses will be established under the co-operative to allow family groupings (based on traditional kinship relations) to conduct sea ranching (and other aquaculture activities) on their sea country and supply product to the co-operative. The ranching and harvesting stage will be undertaken by the local clan-based micro-businesses, while the processing stage will be undertaken by the co-operative. The co-operative will also provide operational support along with training and mentoring to the micro-businesses. The co-operative model is structured so that the central business operation (Yagbani Aboriginal Corporation) assists with the development, marketing and support of established and emerging clan-based sea cucumber farming ventures.

The co-operative model recognises that many Indigenous people do not currently possess the fundamental skills and capacities required to work in today’s competitive business environment. Lack of strong governance creates a dual barrier as many Indigenous people currently lack the ability to run businesses independently (and so cannot realise their aspirations for self-determination and autonomy) and lack legitimacy of governance necessary for investor surety and economic development. The proposed business model allows the provision of support from government (and industry) of operational assistance and with training and mentoring (Ambrose Business Solutions, 2014). In this way the model manages business investment risk by addressing the current barrier posed by limited business capacity of Indigenous people and at the same time puts in place the foundations to achieve their goal of operating and managing stand-alone businesses. It is anticipated that by year five and through to year 10, the co-operative will have a number of Indigenous fisheries businesses established and operating on Goulburn Island. However this is dependent on both direct and indirect funding support from relevant government agencies and a commitment from these agencies for a minimum of five years, and potentially up to ten years.

The capacity to effectively engage in business with each other – the capacity of both the mainstream fisheries sector and Indigenous communities – has been identified as critical in achieving successful Indigenous fisheries businesses (FRDC, 2012). As such, useful learnings (models, processes and templates) will flow from this work that will benefit other Indigenous communities (and the fisheries sector) when negotiating mutually beneficial terms of agreement.

3. Cultural Engagement – Cross Cultural Communication and Relationship Building

The Traditional Owners and Elders of Goulburn Island had, for many years, expressed a keen interest in sea cucumber farming and other fisheries activities, and had participated in trials and plans during the early to mid 2000s that were unsuccessful. In early 2010 aquaculture research staff were advised by international expert scientists that the marine habitat surrounding South Goulburn Island was potentially suitable for sea cucumber ranching. These considerations led the Aquaculture Unit to select Goulburn Island as the most suitable trial site for its sea cucumber research. Aquaculture staff sought to follow cultural protocols when first engaging with the Waruwi community and were assisted in this by the Northern Land Council (NLC) - the representative body for Indigenous people in this region under both the *Aboriginal Land Rights (Northern Territory) Act 1976* and the *Native Title Act 1993*. The NLC introduced staff to the appropriate Traditional Owners and Elders with authority to speak for the sea country surrounding South Goulburn Island. These authority figures confirmed their support for fisheries development on the island and directed aquaculture staff to work with the local rangers in fieldwork. Staff worked with the rangers for a period, then in 2011 they began working with the CDEP⁷ team, facilitated by the enterprise development officer for the region who ensured aquaculture activities were formally included in the CDEP work schedule. During this time, senior authority figures on Goulburn Island supported an expansion of the aquaculture program to include growout trials for tropical blacklip oysters and fluted giant clams.

In 2011 the Aquaculture Unit sought to engage more broadly with the Waruwi community and approached the local school principal to include aquaculture in the school teaching program. Aquaculture research staff worked with the senior class teacher to give the senior students an understanding of the current aquaculture activities on the island and the future employment opportunities to which they may aspire. The teacher also incorporated the sea cucumber trials (and the island's long history of contact with the international sea cucumber trade) into the class curriculum, teaching across a range of subjects with sea cucumber as the focus. Experiential learning was used where possible, for example a classroom-based aquarium was set up to allow students hands-on experience in caring for marine animals and understanding husbandry needs. Field trips to the research site also allowed students to learn first-hand about sea farming methods and interact with aquaculture staff.

In 2012 a small social research project on women's views on aquaculture development opportunities, conducted by Charles Darwin University (CDU) and commissioned by the Aquaculture Unit, highlighted the community's view that the aquaculture staff needed to improve communication and knowledge exchange with a broader sector of the community (Fleming *et al.*, 2015). Research participants (female and male) were generally supportive of aquaculture enterprises and the economic and social benefits it may bring, but some lacked knowledge about what the aquaculture work and the proposed business entailed. They also expressed a desire for their traditional sea country knowledge to be valued and used in decision making within the aquaculture program. It became apparent at this stage of program implementation that cross-cultural communication and knowledge exchange was such a critical element in program success that it required a dedicated staff position. The Aquaculture Unit re-allocated funding from its staffing budget for a dedicated Indigenous aquaculture program coordinator, tasked to focus fulltime on community engagement, cross-cultural knowledge exchange and communication. Although at the time of writing this position is not filled, it continues to be viewed as a critical element of successful project implementation.

² **Community Development Employment Projects (CDEP)** is an Australian Commonwealth Government funded initiative that provides activities for unemployed Indigenous people to develop work skills. The Australian Bureau of Statistics classifies participants in CDEP as employed because some activities provide essential services that would be considered employment in mainstream communities (SCRGSP, 2011).

In 2013 funds were secured to engage a female Indigenous academic researcher from CDU to trial various enterprise engagement strategies in the Warruwi community and to further build relationships with specific sectors of the community. One strategy was to engage with Warruwi women to help them establish the 'Warruwi Women's Healthy Tucker Program'. This initiative emerged from the earlier women's study (Fleming *et al.*, 2015) of the potential for women to take a leadership role in driving development on their communities through a desire to improve the lives of their families and children. For a number of years prior, the women of Warruwi had expressed a keenness to establish a healthy food enterprise (supplying wild bush foods and seafood to the community) but had not been able to progress its development. By harnessing women's aspirations to engage in enterprises, the aquaculture program sought to engage a broader sector of the community in fisheries activities (see also section 1 and 4) (Ford & Fleming, in prep).

4. Cultural Engagement – Clarifying Community Aspirations and Goals

From the start of the implementation process the Aquaculture Unit recognised that the community needed to make informed decisions regarding the type of aquaculture enterprises developed on their island and an understanding of the likely financial and social benefits. Key community leaders had some previous experience of aquaculture industries, for example a few community members had attended a study tour of Māori-owned aquaculture businesses to New Zealand and others had participated in previous aquaculture projects on the island. In the early stages of the program these community leaders were instrumental in advocating for fisheries development on the island and facilitating the partnership with the Aquaculture Unit.

As discussed in section 3, it was not until 2012 that funds were secured to conduct a small study to ascertain community (particularly women's) views on the preferred types of aquaculture enterprises and the flow of benefits they sought. Some women attended training in 'Participatory Action Research' techniques to allow them to be directly involved in the research process. The study focused on women's views as these are often under-represented in development initiatives, particularly within past fisheries projects. The findings confirmed that the aquaculture species and farming methods being trialed at the time on the island met the community's development aspirations (Fleming *et al.*, 2015). This was partly due to the early literature review process and the stakeholder workshop that allowed an informed selection of species and farming methods. As reported in Fleming *et al.* (2015), in general, *'women's reasons for supporting aquaculture in their community were the diverse social and cultural benefits it may bring, in addition to improving work participation. Female Traditional Owners and senior Elders strongly advocated for generating jobs within the community to engage the younger generations in work. They saw this as an essential aspect of addressing the youth's general disengagement with community life and considered aquaculture a way to encourage greater involvement of the younger generations in sea country management, to build their capabilities and improve employment opportunities'*. In addition, women participants believed aquaculture could strengthen links and improve access to sea country, and improve diets and nutrition, particularly for their own family groups and the elderly (see also sections 1 and 3).

These findings support international reports that Indigenous people seek to engage in entrepreneurship within their cultural worldview and value system. The flow of benefits they seek are likely to be for a range of perceived cultural, social and/or economical benefits rather than solely for personal economic gains (Dana, 1996; Pearson & Helms, 2012; Wood & Davidson, 2011). The information gained from the study into women's preferences was used to inform development pathways in terms of sea farming methods, engagement strategies, employment arrangements, business structures and flow of benefit (as reported throughout the paper). It is important to reassess people's aspirations throughout the development process as their views may change over time as they gain a better understanding and as needs and priorities change. In particular, young people's motivations and preferences for working in aquaculture need to be better understood so that employment programs can be tailored to effectively engage this sector.

5. Business Development – Provision of R&D to Improve Economic Opportunity

The suite of R&D trials conducted on Goulburn Island since 2010 aimed to identify suitable growout sites and farming systems, and generate production data to conduct economic assessments for the three species under investigation. Table 2 outlines the trials conducted during this period in partnership with Indigenous communities, research partners and the commercial sector.

Table 2. Outline of the trials and research conducted during program implementation to develop viable aquaculture farming opportunities for Indigenous communities

Time	Objectives	Location	Farming methods	Partnerships (in addition to the community partners)	Funder
Sea cucumbers					
2010 – 2012	Growth/ survival/ economic viability	Goulburn Island Groote Eylandt	Ranching; hand seeding of 3-5g juveniles into intertidal seagrass beds during low tides. Hand harvest during extreme low tides	<ul style="list-style-type: none"> • Commercial partner • Philippines and Vietnam research partners 	Australian Centre for International Agricultural Research/ WorldFish
2012 – 2014	Hatchery and Nursery juvenile production methods	Darwin Aquaculture Centre		<ul style="list-style-type: none"> • Commercial partner 	Australian Seafood Centre for Cooperative Research
2013 – 2015	Juvenile release methods/ Suitable site indicators/ non-diving harvest methods	Goulburn Island Groote Eylandt	Ranching; release from boat via chute of 3-5g juveniles into intertidal seagrass beds during neap tides. Harvest during extreme low tides (or by boat when technology is developed)	<ul style="list-style-type: none"> • Commercial partner • Philippines research partners 	Australian Centre for International Agricultural Research/ WorldFish
Blacklip oysters					
2011– 2013	Suitable sites/ suitable farming methods/ Growth/ survival/ Economic viability	Goulburn Island Tiwi Islands	Initially in baskets attached to racks in intertidal areas; access only during extreme low tides. In 2013 moved to floating baskets on long line; allows access at any time from a boat	<ul style="list-style-type: none"> • Commercial partner 	NT Government
2010 – current	Hatchery methods for oyster seed production	Darwin Aquaculture Centre		<ul style="list-style-type: none"> • Commercial advisor 	NT Government
2012 – 2013	Assess heavy metal content of oysters	Goulburn Island		<ul style="list-style-type: none"> • Charles Darwin University 	Fisheries Research & Development Corporation
2014 – 2015	Develop Quality Assurance Protocols for shellfish production	Goulburn Island		<ul style="list-style-type: none"> • Charles Darwin University 	Northern Australian Marine Research Alliance

Fluted giant clams

2011 – current	Suitable sites/ suitable farming methods/ growth/ survival/ transport methods/ economic viability	Goulburn Island Groote Eylandt	Initially in cages secured to sea floor. In 2013 moved to open ranching among suitable reef	• Commercial partner	NT Government
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In 2010 the Aquaculture Unit partnered with a sea cucumber company to conduct research at the Aquaculture Unit’s research facility – the Darwin Aquaculture Centre – into hatchery and nursery methods to mass produce many hundreds of thousands of sea cucumber juveniles annually. During this period the Aquaculture Unit also undertook collaborative research (both with the sea cucumber fishing company and with international sea cucumber research agencies in the Philippines and Vietnam) to investigate sea ranching methods and allow comparison of data across trial sites. The company conducted comparable ranching trials at Little Lagoon, on Groote Eylandt in East Arnhem Land.

An equally important objective of the technical research was to develop socially and culturally suitable growout methods and husbandry protocols that met the preferred farming practices and employment arrangements of the community. The research done in 2012 into women’s preferences for aquaculture reported that *‘women preferred the concept of low maintenance, simple infrastructure, sea-based aquaculture, carried out in a way respectful to culture and directed by community’* (Fleming *et al.*, 2015). Women were keen to explore ways that aquaculture employment could accommodate cultural commitments and family obligations. They proposed job sharing between the men and women as a potential solution to this tension. In addition to flexible work arrangements, women wanted work opportunities that allowed the youth to regularly visit sea country, learning traditional knowledge and be involved in healthy (mentally and physically) activities. The sea farming systems developed on Goulburn Island met these work preferences. The research has further refined the farming methods to provide flexible, low maintenance farming systems and husbandry methods that meet people’s preferred development pathways, safety concerns and work practices.

An example of the importance of choosing appropriate farming systems to suit Indigenous preferences was highlighted during the review of failure points of past aquaculture enterprises (Fleming *et al.*, 2015). An extensive five-year program into the viability of farming sponges on Goulburn Island did not adequately address the fact that most Indigenous people were not prepared to dive to manage stocks (due to the risk of crocodile and shark attack). In the current trials, sea cucumber farming was initially targeted for intertidal areas where people could seed the juveniles by hand and harvest farmed stocks during extreme low tides. But limiting sea cucumber ranching to intertidal areas constrains the profitability of the business as suitable ranching sites are limited (in terms of presence of seagrass, sediment characteristics, protection from currents, etc.) and stocks tend to migrate to deeper water over time. Research by the Aquaculture Unit led to the development of a successful juvenile release technique conducted from a boat during neap tides, allowing releases at any time of the year. In addition, the commercial operator is trialing a scoop-like harvesting device towed from a boat that aims to improve access to deeper ranching sites and offer safe harvesting throughout the year.

For Indigenous communities to sell shellfish into Australian seafood markets the product must meet the food standards set by the Australian Shellfish Quality Assurance Program (ASQAP); a national program that requires shellfish harvest areas be classified on the basis of a sanitary survey and the results of an ongoing water-sampling program. This precautionary measure is required as shellfish bio-accumulate pathogens, chemicals and toxins derived from surrounding waters, and because they are often eaten raw or only lightly cooked with the gastrointestinal tract intact. All Australian oyster farmers must routinely monitor potential contaminants to minimise the risk to human health. To address this farming requirement, a year-long monitoring program was conducted in 2012-2013 to measure the heavy metals in tropical oysters and assess the implications for placement of oysters into the Australian seafood market (Fleming, Gibb, Campbell, Fortune & Birch, 2014). In 2014 this work was expanded to include all

potential contaminants listed under the ASQAP food standards. The resulting database will be used to establish a Quality Assurance Protocol for commercial shellfish production in Goulburn Island waters.

6. Cultural Engagement – Valuing Both Traditional and Western Knowledge

Indigenous people place a very high importance on their traditional knowledge being recognised and valued by non-Indigenous people (FRDC, 2012; Northern Land Council, 2004). Recognition and appropriate use of traditional knowledge can be an effective way to engage the community in development programs (Morley, 2014). The 2012 study into Warruwi women's aquaculture preferences highlighted the desire for their traditional knowledge to be respected, valued and used within the current programs on Goulburn Island (Fleming *et al.*, 2015). As discussed in sections 3 and 4, in 2013 funds were secured to engage a female Indigenous academic researcher from the CDU to trial various enterprise engagement strategies on Warruwi and to further build relationships with specific sectors of the community. One of the engagement strategies sought to gather and document traditional sea country knowledge about the shellfish species being trialed for potential sea farming enterprises on Goulburn Island. It was anticipated that the local knowledge might inform various shellfish farming development decisions by the community and supporting partners. For example, local knowledge may identify the best sites for farming oysters, the best harvesting times for optimal taste and nutritional value, and may also identify environmental cues for times when oysters may be unsafe to eat. The Warruwi community's traditional ecological knowledge was documented on a website, together with western research conducted in the region on potential shellfish contaminants (Ford & Fleming, in prep).

7. Business Development – Capacity Building – The Worker

In 2011, the aquaculture research staff began a successful collaboration with the local CDEP team (which consisted of about 15 men) to conduct the aquaculture field trials. This arrangement continued until the federal government ceased funding CDEP as an Indigenous employment strategy in mid-2013. After this time the Aquaculture Unit sourced funds to pay the Indigenous aquaculture team hourly wages for their work supporting research staff in the field. Management of the Indigenous aquaculture team's work program and their work skills development was the responsibility of the community development officer. This officer engaged the CDU's Vocational Education and Training Program to provide locally delivered aquaculture training to the men. For the past two years a CDU trainer has visited every 4-6 weeks to develop the skills needed for the current research work as well as employment skills for the future aquaculture operations. The trainer also provides additional literacy and numeracy education where needed. The trainees are supported by the aquaculture research staff to ensure their skills are practiced during fieldwork. When completed, the men will hold a Certificate II level vocational qualification in aquaculture. An Indigenous coastal line fishing mentor and seafood processing trainer (employed by the NT Fisheries Division) also provide periodic fishing and seafood processing training to the men, who also gained their restricted Coxswains Certificates. An Indigenous coastal fishing licence was also issued during this period. In 2014 the vocational training program was expanded to include senior students at the local school. The new principal was keen to implement a formal aquaculture school-to-work transition program into the school's curriculum. This program will give senior students formally recognised credits towards a vocational qualification in aquaculture as well as skill sets required for employment in future aquaculture businesses and enterprises on Goulburn Island.

A successful funding application by the Yagbani Aboriginal Corporate (that was facilitated by the Aquaculture Unit and CDU) secured resources for the women's healthy tucker program (to purchase a boat, trailer, bus and tractor), and included funds for women to gain qualifications in food handling and boat handling. Along with recent access to facilities to house a women's centre, it is anticipated that the Warruwi women will now have all the necessary resources and support to progress their healthy tucker enterprise.

Capacity building of the future workforce for aquaculture enterprises on Goulburn Island progressed well over the 4-year implementation period. Both men and women developed work skills that will allow them to enter into paid work when fishing and aquaculture operations begin. Future capacity building should focus on engaging additional sectors of the community, in particular young adult male and female school leavers and underemployed young adults who choose to remain living on the island. The senior authority figures constantly advocate for the need to provide employment opportunity for the youth in the

community. This is one of the primary community drivers for economic development on Goulburn Island. However, many of the younger generations on Goulburn Island who have expressed aspirations to engage in culture-aligned work on sea country have often shown limited capacity for making positive lifestyle choices on a daily basis when provided with such work opportunities. Such responses arise from the effects of decades of welfare dependency (and associated poor lifestyle opportunities, capacities and personal choices) and limited understanding, experience, and role models for paid work practices (and associated learnt responsibilities and lifestyle disciplines). Further investigations into the motivators and drivers of young adults (both male and female) to engage in work in general – and fisheries enterprises in particular, are critical to further improve work engagement models and strategies on Goulburn Island.

8. Business Development – Capacity Building – The Community

The 2012 study into women's aquaculture development preferences reported that all project participants (both male and female) were very keen to see locals run their own businesses, and especially the older generation saw this a very important criterion for future development (Fleming *et al.*, 2015). When the aquaculture program began on Goulburn Island in 2010 there was no governance body and consequently residents relied on the regional shire council to manage all town services and community programs. Residents felt frustrated with the lack of control of their own affairs and lack of focus on community development programs, especially for economic development. To address this, residents were putting plans in place to set up their own corporation.

As discussed in section 1, when the enterprise development officer (employed by West Arnhem Shire Council) began work on Goulburn Island in 2011 he assisted the community establish its own not-for-profit community governance organisation (Yagbani Aboriginal Corporation) run by a board comprising representation from each of the five main clan groups. In 2012 board members undertook preliminary governance training provided by the Office for the Registrar of Indigenous Corporations, but required extensive ongoing training in governance and business management. The 2012 study into women's aspirations for aquaculture enterprises also reported that all participants (male and female) placed a lot of faith and confidence in the newly established community board to make decisions and manage future businesses. Despite people's desire for community independence, they acknowledged the need, at least for the foreseeable future, for sustained external support at most levels of enterprise function, such as management and financial capacities, technical training, mentoring, funding and resourcing (Fleming *et al.*, 2015).

It was clear to all facilitators that developing the capacity of Yagbani's members for governance and business management was critical to ensuring planned aquaculture ventures were viable into the future. It was also clear that, in the interim, a manager sourced from outside the community was required to assist Yagbani to continue its community development work. In 2013 the enterprise development officer secured funds from the investment arm of the Northern Land Council to continue his work supporting Yagbani and was formally elected as manager by the Yagbani board in late 2013. In 2014 the Aquaculture Unit secured funds to employ a business consultant (who specialised in Indigenous-appropriate training methods) to provide the Yagbani board with further governance training and business management training (as well as produce a business plan and other documents required to progress aquaculture business development initiatives – see sections 1 and 2). A critical next stage of program implementation on Goulburn Island is to adequately resource this essential work – and over a sustained period – to develop local capacity for business planning and management.

The impost on facilitators to constantly secure financial and human resources for Indigenous business capacity development is significant. Not only are the timeframes set by many funding providers inappropriate given the task at hand, but also sourcing sufficient funds for key programs is often very difficult. Given the long timeframes required to achieve viable businesses on remote Indigenous communities – likely 5 to 10 years, a more strategic approach is needed, such as regional strategies (10-20 year plan) for Indigenous business development that provides business education, training and mentoring, as well as business advice, industry specific training and industry mentoring programs (see also section 2).

9. Business Development – Infrastructure, Financial Resources and Land Tenure

Early market analysis done by the Aquaculture Unit highlighted the potential barrier to investment caused by unsecured land tenure and lack of adequate capital for supply chain infrastructure. Also timeframes for delivery of these assets is critical as protracted delays can stall development momentum and compromise investment interest (Fleming *et al.*, 2015).

During 2013–2014 the Yagbani Aboriginal Corporation secured a number of town leases from the local council so that the corporation had access to suitable land and facilities for their suite of development objectives, including a site suitable for a seafood processing facility. In recent years the federal government has introduced land tenure reforms to encourage Indigenous people to enter into 99-year leases over Indigenous owned lands (which under the *Aboriginal Lands Right (NT) Act 1976* can be leased but cannot be sold or individually owned). These reforms are said to provide options to leverage greater investment opportunities in Indigenous communities (Scullion, 2014). From late 2013 onwards the Yagbani manager also secured funds for administrative and management support for Yagbani and staff positions to support a range of development initiatives.

In late 2013 the Yagbani Aboriginal Corporation sought funds (supported by the CDU and Aquaculture Unit partners) from the Aboriginal Benefits Account (which invests mining royalties into businesses to benefit Indigenous Australians) to build a seafood facility on Goulburn Island for first stage sea cucumber processing (gut, boil and freeze), as well as for shellfish and wild-caught fish. The funding bid was unsuccessful but a further submission is planned for 2015. This new submission will be strengthened by a business plan for sea cucumber ranching and a formal business agreement between the Yagbani board and the commercial partner (see also section 1 and 2).

The next 5-10 years are critical to the future of the aquaculture program on Goulburn Island and will depend on future actions of all stakeholders to build community capacity and secure sufficient financial resources (for staffing, operational and infrastructure provision) over this extended period. The realistic timeframes required to support business development in remote communities pose a significant challenge to facilitators, given most funding cycles fall far short of this. Longer-term funding commitments are required that recognise both the importance and challenge of building local community capacity for business planning, management and operations.

As the fisheries businesses transition into the early business startup phase, investors and funders must be convinced of the community's legitimacy in managing businesses before they commit significant financial investments. Such legitimacy will come from sound business plans, supported by a demonstrated commitment by the community to development activities and a track record by the governance body in maintaining efficient and accountable financial, administrative and management systems.

10. Market Drivers – Impact of Government Policy

Impact of government policy is included within the list of success factors as government economic Indigenous development policy has significant potential to facilitate and support business partnerships between the commercial sector and remote communities, if designed and implemented well. To do this well, governments must provide strategic and effective programs that equip Indigenous people with the necessary business capabilities to independently engage and negotiate with the business sector. Governments must also provide an enabling regulatory environment to attract investment in Indigenous estates (see also section 9) and ensure associated legislative frameworks allow and encourage Indigenous commercial fishing and aquaculture businesses.

Impact of government policy is also included within the list of success factors to highlight the significant negative impacts it can have on program implementation. Unlike the other success factors, this factor is outside the control of the community and program implementers. This constant threat to program viability requires resilience by all participants to sustain effort and create innovative solutions to maintain program momentum. Impacts to program viability can occur in various ways. The most significant during the four years of the aquaculture program on Goulburn Island were from the constant, and poorly implemented, changes by the federal government to their remote Indigenous employment programs and associated

employment funding strategies. In late 2013 the government phased out the last of the CDEP program and the Indigenous aquaculture team was left unemployed and without an income. Tensions and mistrust by community members arose over the following months as aquaculture research staff sought to engage the local support team but locals saw this as unpaid labour. Funds were eventually sourced by the Aquaculture Unit to provide hourly wages. In the meantime aquaculture research staff worked on the trials without community input. In mid-2014 the new form of Indigenous employment program, the Remote Jobs and Community Program (RJCP), was implemented. The manager of Yagbani has negotiated for this employment program (and associated employment work plans) to be managed by the Yagbani board.

These constant changes to government policies and programs, and slow, inefficient and often confusing transitions from one program to the other, severely impacted the progress of the aquaculture development program and threatened to erode relationships that had taken time and resources to build. The community's ability to fully attend to, and participate in, development programs is constantly compromised as their time and energy is focused on attending to daily crises and demands brought on by government actions. At these times the influence of key drivers to sustain programs is critical. Indigenous people's enduring drive to create a better future for the next generation and the commercial sectors drive to generate new market opportunities both must sustain effort, despite the impact of poor government policy.

Discussion

Effectiveness of the business support framework in guiding development on Goulburn Island

Use of the business support framework proved highly effective in enabling the commercial sector to invest with greater surety in Indigenous businesses on Goulburn Island. The framework was used to ensure that equal importance was placed on delivering both corporate and cultural economic goals, needs and processes. Most importantly it clarified the need for both Indigenous and business parties to directly negotiate development pathways that accommodated the different ways that business and culture engage in and do business, their disparate goals regarding desired flow of benefits from employment programs and their differing drivers for market engagement. In practice this was achieved by the government sector forming collaborative partnerships with both the commercial sector and the social sector to inform, facilitate and support engagement between potential business partners and the community.

Viewed through the framework, the two key systems for driving economic development in remote communities – business and culture – proved responsive to market opportunity and so were effectively engaged in the business development process on Goulburn Island. The fisheries sector sought to generate business profits through increased access to seafood product. Similarly, Indigenous people sought self-determination through Indigenous-run businesses utilising their natural marine resources. Interestingly, drivers for Indigenous business development occurred at two levels; at the community level (to provide operational and business support for fisheries enterprises) and at the clan level (to work in sea-based fishing and aquaculture operations within traditional land/sea ownership structures). Such arrangements accommodate both cultural aspirations for flow of benefit based on ownership of lands and seas, in addition to community aspirations for employment and social benefits. As the framework outlines, Indigenous people's strong motivation for self-determination and control is a powerful force that can drive remote economic development, if people can be equipped with the business skills to realise their vision. This is where concerted effort must now be focused within the development program on Goulburn Island.

Use of the framework to guide and analyse programs more broadly

The framework proved to be an effective tool to guide Indigenous business development on Goulburn Island and may prove to be useful across all government agencies tasked to improve economic outcomes on remote Indigenous communities. It can be adjusted to suit different Indigenous groups, both within Australia and, potentially, internationally. It can be used to assess proposed development initiatives, and evaluate and troubleshoot existing programs. Current Indigenous employment programs and policies can be analysed retrospectively through the implementation framework to better explain their success. For

instance, the Indigenous land management initiatives (Working on Country, Indigenous Rangers, Indigenous Protected Areas) successfully integrates cultural value systems and employment aspirations with western market demand for the services they deliver. The employment arrangements these programs offer suit Indigenous capacities, draw on their cultural knowledge and strengths, enhance connections to country and accommodate lifestyles centered on culture and family. Such employment programs bring together both the customary and the mainstream market in a mutually beneficial economic arrangement, but rely on ongoing government support as they deliver ‘public good’ services (Altman, 2005, 2007, 2012).

Indigenous culture-aligned economies that deliver high-value commercial products or services should, theoretically, not require ongoing government support beyond the point the business makes a positive return on investment. The Indigenous art industry matches Indigenous aspirations for culturally aligned, flexible work opportunities with a strong global market demand. The global demand for high-value Indigenous Australian art suggests that market and cultural drivers should be sufficient to sustain this industry. Viewing the Indigenous art sector through the framework suggests that, for some communities, limited capacity to craft innovative business models and targeted marketing strategies that fully harness potential global market drivers have hampered their ability to operate without government support. Similarly, the number of successful stand-alone Indigenous-run cultural-tourism businesses is surprisingly low, given the very strong demand by international tourists for cultural tourism experiences in Australia (ACG, 2013). Again, the framework highlights the lack of business innovation to successfully craft new ways to expand the tourism product and its appeal for domestic and international tourists, particularly through product development and business strategies that target sophisticated eco-cultural branding and marketing (Whitford & Ruhanen, 2009).

The Northern Territory’s Indigenous Pastoral Program demonstrates a highly effective collaborative partnership between Indigenous Land Councils and government. The program effectively engaged the Northern Territory cattle industry with Indigenous land owners to develop pastoral businesses on Indigenous lands and provide employment opportunities for Indigenous youth as stockmen (Department of Primary Industries, Fisheries and Mines, 2005). Viewed through the framework, this program has addressed many of the success factors, although the challenge in the coming years is to improve capacity for Indigenous landowners to take a lead role in managing a greater proportion of those pastoral businesses set up on their lands. Viewing mainstream industries through the framework also offers a greater understanding of their continual failure to engage Indigenous people living remotely. Industries such as mining, agriculture, construction, retail and transport offer no cultural connection nor accommodate flexible employment arrangements around a lifestyle centered on culture, i.e. they fail to recognise the critical role the Indigenous cultural system plays as a market driver. Interestingly, Indigenous Canadians living on their traditional lands have devised new development pathways in partnership with mainstream industries where they have negotiated entirely new organisational arrangements to ensure wealth is generated to fund social objectives (Anderson *et al.*, 2006). In Australia where mainstream industries (mainly in the mining sector) have been set up on Indigenous owned lands, very little economic benefit has resulted in the neighbouring Indigenous communities despite many hundreds of millions of dollars in royalties being paid. Rather than well-advised investment in infrastructure and capacity development, private sector investment has generally resulted in an exchange from government welfare to corporate welfare (Ord & Mazzarol, 2007). This highlights the critical need to assist Indigenous communities build leadership and governance structures to ensure economic development is driven by Indigenous leaders and organisations that are empowered to negotiate and manage beneficial agreements in accord with local and regional Indigenous aspirations. The successful business partnerships achieved between Indigenous Canadians and the business sector show that such effectively negotiated business arrangements (supported by enabling government policy and empowered community leaders) can result in profitable mainstream industries delivering culture-aligned economic development objectives for Indigenous communities.

Use of the framework to identify limitations of key internal (community) support systems

The use of the framework highlighted the limitation of some key internal systems on Goulburn Island that will require sustained additional effort and resources to address. Limited local capacity for community leadership, governance, and business planning and management is likely to limit, for some time to come,

the Warruwi community's ability to independently operate community-based businesses. The capacity of Indigenous Australian people to engage in entrepreneurship generally is very low (6% for males, 4% for females) compared to similar Indigenous people globally (Wood & Davidson, 2011). Frederick and Foley (2006) contend that Australian Indigenous disadvantage is so entrenched and pervasive that entrepreneurial activity will remain the exception, rather than the norm, for some time to come. For example, many of the 5,000 Indigenous Aboriginal corporations registered across northern Australia have very limited capacity to independently operate and manage their own community-based businesses (Michelmores, 2013). A significant body of policy research has been published in Australia on contemporary Indigenous governance and how best to facilitate pragmatic but effective, legitimate governance arrangements and capabilities within Indigenous communities (Hunt *et al.*, 2008). As a result there are many competent Australian Indigenous organisations that have secured community legitimacy by successfully balancing their cultural imperative and practice with the demands of legal incorporation and government funding regimes.

The need for a more strategic approach to Indigenous business capacity development

In contrast to the concerted efforts to improve Indigenous governance systems, there is a general lack of formalised and strategic programs to develop remote-living Indigenous people's capacity for small business entrepreneurship. Reporting on the low entrepreneurial activity by Indigenous Australians within the broader context of the annual Global Entrepreneurship Monitor project, Hindle and Rushworth (2002) recommended that national, diversified Indigenous entrepreneurship education, training and mentoring programs are a priority. The Canadian Government has established such a program with numerous regional service centres (in partnership with program delivery providers and Aboriginal financial institutions) to provide a range of services and investment capital for Indigenous Canadians living remotely (Government of Canada, 2014). For remote-living Indigenous Australians a similar regional business development program is needed, delivered locally on communities and offering a range of services, such as business planning, business support, business-related training, financial services and mentoring services. Provision of such a program in Australia needs to be delivered within a formalised, and targeted structure, informed by community strategic development plans (or preferably regional ones), drawing expertise from the tertiary sector on Indigenous education/training and providing linkage with relevant industry and small business sectors. This could be supported by a mentoring scheme with support networks offering greater involvement by the private sector in Indigenous organisations (Ord & Mazarol, 2012). The program would require surety of funding over a decadal timeframe and include similarly structured and targeted programs to build the capacity of workers.

The need for pragmatic Indigenous business support models in the interim

Until Indigenous people's capacity for entrepreneurship is increased, viable alternative models for local business management must be adopted. Some communities may choose to employ (mostly) non-Indigenous business managers directed by an Indigenous-run corporation, or they may negotiate joint venture arrangements where corporate partners take responsibility for business management and provide employment and/or financial returns to the local Indigenous people to invest in their community programs. These are viable, pragmatic models that must, for the present, be used to engage remote-living Indigenous people in equitable partnerships with the market sector. If the terms of engagement are negotiated with equal power on both sides, such models can meet both cultural drivers for self-determination and corporate drivers for profit. If they are implemented and managed well, Indigenous Australians can design their own economic futures – within the framework of their own political, economic and social systems – to innovate new ways of engaging with the commercial sector.

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5.0 Discussion and Recommendations

Key barriers to establishing aquaculture enterprises in northern Australian Indigenous communities

The analysis of past attempts at establishing aquaculture enterprises in northern Australian Indigenous communities highlighted the limited reporting on these development projects in general, and in particular the lack of informative reporting on the process of facilitation used by external agents, the barriers encountered and how they were addressed, and an analysis of the causes of ultimate project failure. As a result, subsequent agents working this field are limited in their ability to build on learnings from past efforts. When working in such a complex policy area, it is critical that knowledge management strategies are in place to ensure continual learning by the organisation and effective transfer of knowledge between successive lead managers.

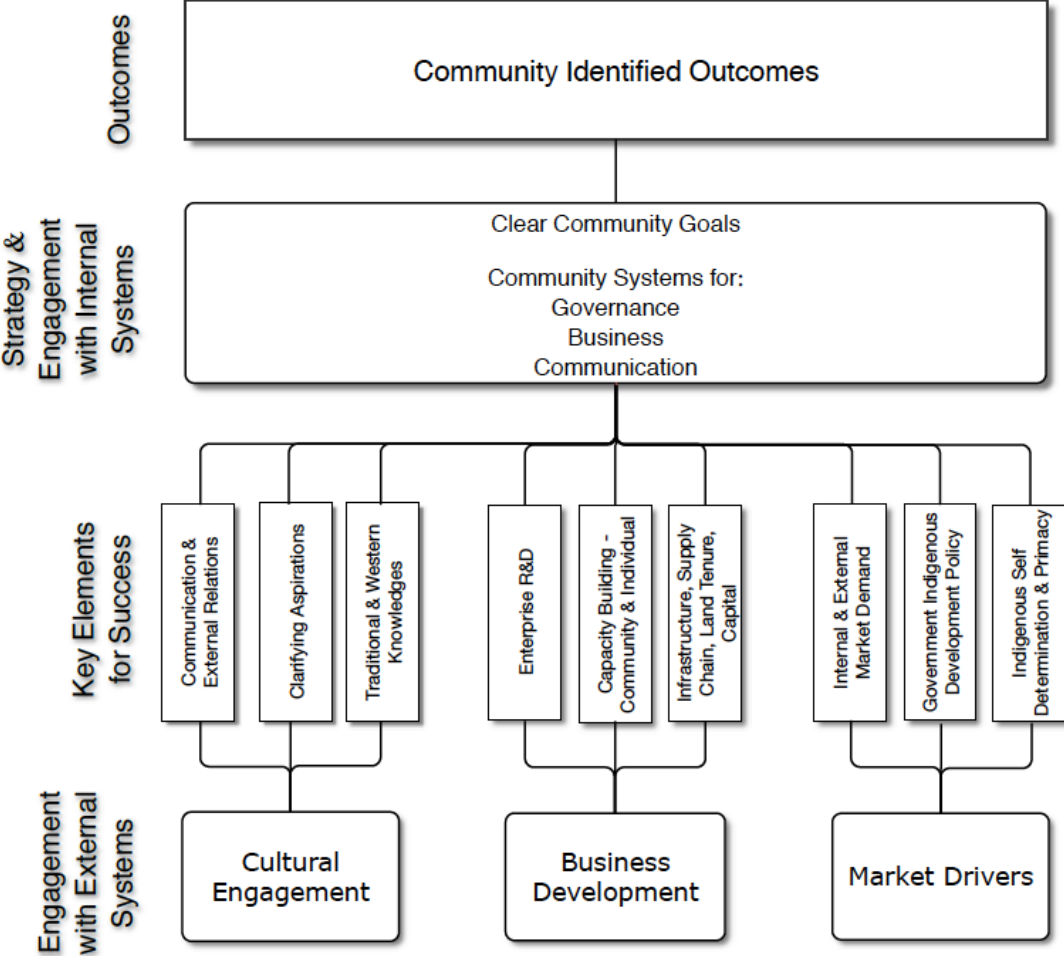
Based on the literature available, it was evident that facilitators of past aquaculture enterprise had focused almost exclusively on the technical aspect of development (and in some cases commercial aspects were addressed to varying degrees) without adequate consideration of the social and cultural aspects of development. Generally, past work tended to operate at the project level, was focused on a particular challenge (generally technical) and failed to place Indigenous beneficiaries at the centre of decision making and control. The analysis highlighted the need for a holistic, multi-discipline program approach to Indigenous fisheries development in remote northern Indigenous communities. It highlights the need for facilitators to work in collaboration with key partner organisations and Indigenous people who, collectively, contribute essential knowledge, skills and resources to address all key factors for success across technical, commercial, managerial, social and cultural considerations.

Key factors driving successes in aquaculture enterprises on Indigenous communities – presented as a framework to inform fisheries-based enterprises/businesses development

The capacity of both mainstream fisheries sectors and Indigenous communities to effectively engage in business with each other has been identified as critical in achieving successful, self-sustaining Indigenous fisheries businesses (FRDC, 2012). The analysis of the international literature on Indigenous entrepreneurship conducted in this study highlights the critical need to create effective Indigenous enterprise and entrepreneurship frameworks “*for determining what works and what does not work*” (First People Group, 2009). Such frameworks can be used to facilitate partnerships between business and Indigenous communities, but at the same time recognise and accommodate the significant differences between Indigenous and non-Indigenous motivations and capacities for engaging in entrepreneurship.

This project has established, for the first time, an Indigenous Australian business development framework that identifies key systems for driving business development in remote Indigenous communities, and the key success factors necessary for viable businesses, including fisheries-based enterprises. This in turn has identified the partnerships and processes that are required to ensure key systems are engaged and key success factors are addressed during each of the pre-commercialisation phases of business/enterprise development (Figure 4). This is a fundamental first step in our understanding of how best to support and facilitate fisheries-based industry development on remote Indigenous communities in northern Australia.

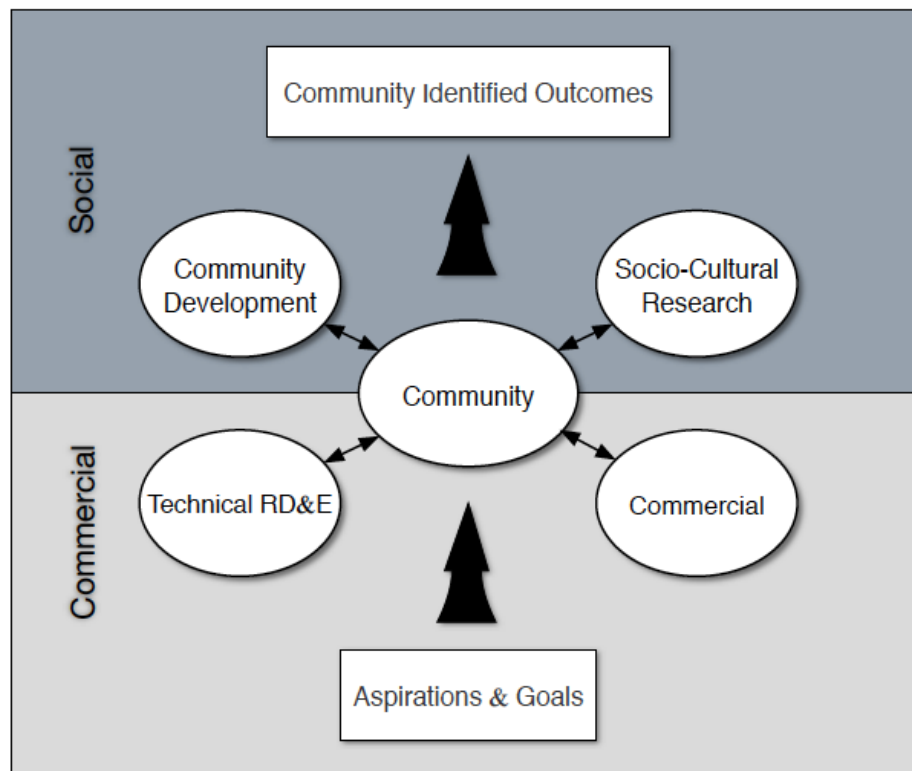
Figure 4. Implementation framework for critical success factors for Indigenous enterprise development



Implementation of the aquaculture program on Goulburn Island - guided by the business support framework

Guided by the business development framework, the NT Government implemented an aquaculture development program on Goulburn Island over the past five years, as outlined in section 4.0. Concerted effort was made to address all key success factors and to engage all key systems to drive the business process. This was achieved by establishing strategic partnerships to bring all essential knowledge, skills and resources for technical RD&E, commercial, socio-cultural research and community development into the program (Figure 5).

Figure. 5. Collaborative partnership framework that engages all key systems for successful business facilitation



Although this program is only part way to achieving economic outcomes for the Waruwi community, significant progress was achieved within the first four years. As reported in section 4.0, the aquaculture program is transitioning from an R&D phase to a business planning and enterprise startup phase. As part of the diversified business portfolio proposed by Yagbani, fully operational enterprises will collectively generate sufficient profits to support local wages. A number of male and female community members are now employed under the new Indigenous employment program (managed by Yagbani) to conduct aquaculture and fisheries work, and as coordinators for the various enterprises. In early 2015 Yagbani and the sea cucumber industry partner conduct their first joint harvest of wild stocks and the company provided training in product processing on board a commercial vessel. The local aquaculture team will soon take responsibility for independently setting up and managing a small-scale oyster farm and the Waruwi women have begun harvesting seafood and will soon be employed by Yagbani to sell product into local markets. The various aquaculture and fisheries enterprises under development on Goulburn Island have delivered significant outcomes in terms of capacity development, strategic business planning, engagement and employment of young adults (both male and female) in culturally and economically viable activities, and renewed community optimism for the future in terms of culturally-aligned employment and business prospects on Goulburn Island.

Analysis of capacity development needs within the aquaculture program on Goulburn Island - guided by the business support framework

Use of the business support framework to guide the implementation of the aquaculture program on Goulburn Island highlighted where additional effort needed to be placed to develop critical capabilities (for both Indigenous people and for external facilitators) within key systems and processes, in particular:

- Capacity of Indigenous community leaders for corporate governance and community leadership, and business planning and management

- Capacity of Indigenous workers (particularly the youth) to fully engage and participate in culturally-aligned work
- Capacity of external facilitators to effectively engage in culturally appropriate communication and relationship building

The limited local capabilities for both corporate governance (and associated leadership) and business management (and associated planning) in many Indigenous communities across northern Australia were seen as critical barriers to Indigenous people achieving full control of their own affairs and attaining economic independence. Frederick and Foley (2006) contend that Australian Indigenous disadvantage is so entrenched and pervasive that entrepreneurial activity will remain the exception, rather than the norm, for some time to come. This highlights the enormous challenge, both for Indigenous Australians living in remote communities and for external facilitators seeking to assist them, in building this ‘social capital’ within communities. Nevertheless, it is key to empowering Indigenous people to proactively seek and negotiate development opportunities that meet their aspirations and allow them to make informed decision throughout the development process. In this way Indigenous people can directly negotiate and manage beneficial agreements with the commercial sector in accord with their local and regional development aspirations.

Key recommendations to address development needs for Indigenous-run aquaculture businesses in northern Australia Indigenous communities

In summary this study has led to greater knowledge of:

- the type of fisheries-based development opportunities that meet remote-living Indigenous Australian people’s aspirations for local enterprises/businesses and employment,
- the critical cultural, business and market systems that must be engaged to support fisheries business development on remote communities,
- the critical success factors (and associated key processes and principles) that need to be addressed across social, cultural, commercial, managerial and technical considerations to support viable Indigenous fisheries businesses, and
- the main capability gaps (both for Indigenous people and for external facilitators) constraining fisheries-based development on remote Indigenous communities.

Given these challenges to building Indigenous capacity to participate in fisheries based activities, the following questions arise:

- how can fisheries agencies and Indigenous people (and the appropriate partner agencies) work to build the capabilities of Indigenous people for fisheries-based businesses/enterprises across the Territory?
- what interim arrangements can support community-based fisheries businesses (and individual entrepreneurs) while Indigenous people are developing these capabilities?
- how can external facilitators improve their own capacity to work within a cultural framework, particularly for effective cross cultural communication and relations building?
- how can governments improve their capacity and administering policies and/or legislation to support, encourage and facilitate Indigenous fisheries-based businesses/enterprises?
- what research will be most effective in further assisting agencies and Indigenous people understand how best to work together to support development initiatives, both in the short term and for the longer term vision of Indigenous economic independence?

Each of these challenges is discussed below and strategies to address them are proposed. These proposals are presented as recommendations specifically to NT Fisheries and to associated Indigenous organisations, the corporate sector, the federal government, funding and philanthropic agencies, employment service providers, training providers and other stakeholders involved/potential involved in Indigenous fisheries business development in the NT.

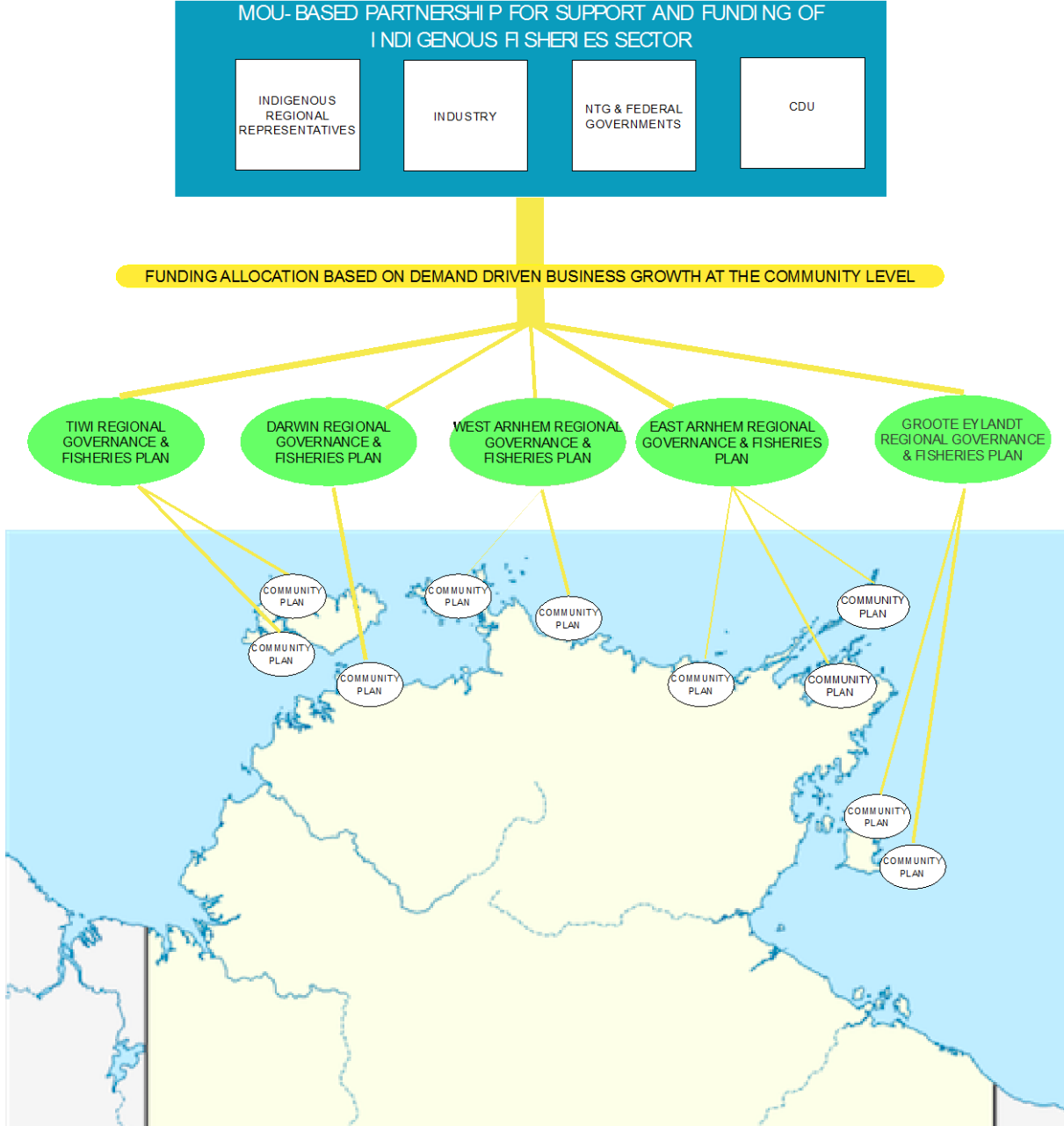
Recommendation 1: Develop a structurally-integrated regionally-based Indigenous fisheries development program – to establish an Indigenous fisheries-based sector across the Territory

To date the Indigenous fisheries programs implemented by NT Fisheries have been supported by cyclic, short-term investment by the NT Government and project-based investment by external funding agencies. This has been a successful R&D model during the pre-commercialisation phases of Indigenous small business development. It has established small foundational fisheries and aquaculture programs that, potentially, could provide the catalyst for rolling out numerous commercial Indigenous fisheries ventures across remote northern Australia. Current programs have facilitated engagement between Indigenous communities and other stakeholders, including the commercial fisheries sector, that will lead, over time, to demand-driven development rather than government-supported programs. However, for these fisheries initiatives to develop into viable, self-sustaining Indigenous businesses, it is essential that they secure long-term financial support and high-level leadership to support a larger, structurally integrated, regionally based partnership model. Such a model would ensure that communities, industry and government co-ordinate capacity building services for Indigenous leadership, governance, business management and industry skills. This model should rely on demand-driven financial support at the regional level where local development drives the rate and level of investment. This investment is finite and discontinues once businesses become commercially viable and/or they attract private investment. The Principle Investigator proposes the following key recommendations for establishing such a partnership model:

- Develop structurally-integrated regionally-supported, culturally appropriate Indigenous fisheries development programs
- Link financial backing with investment demand driven by development at the regional level
- Continue to broaden current training programs to include business planning and management capacity development, linked with industry mentoring and networking programs
- Ensuring community/regional leadership and governance is in place to support fisheries businesses
- Improve Indigenous participation in fisheries work through further social research into effective engagement strategies

To achieve the substantial outcomes envisioned above, sustained, long-term support is needed over a decadal timeframe for Indigenous people to develop the capabilities needed to independently operate and run their own businesses. It is anticipated it will take this length of time (at least) for current fisheries programs to reach commercial viability and be independent from government support. To provide the confidence for corporations, governments and philanthropic organisations to engage and invest in the program, a backbone partnership-based organisation is required that brings together key organisations, including Indigenous and fisheries funding agencies, Indigenous peak bodies, Traditional Owners, regional development authorities, Charles Darwin University, NT Seafood Council, the NT Government and the federal government. To attract this level of cross sector support, a highly strategic, structurally integrated development program is needed, supported by formalised long-term strategic investment and governance plans and formalised partnership agreements endorsed at the highest level. Differences between communities and Indigenous groups must be catered for through 10-year regional fisheries development plans (such as for Groote Eylandt, East Arnhem, West Arnhem, Tiwi Islands and the Darwin region). Regional plans need to be negotiated and developed to service the various community fisheries development plans within each region. Regional delivery of business support services need to be integrated and aligned with other Indigenous economic development agendas to achieve efficiencies of scale in servicing and supporting business development and operational training programs across all Indigenous entrepreneurial activities. Figure 6 presents a model for an Indigenous fisheries development program designed to deliver a substantial Indigenous fisheries sector across the Territory. It seeks to achieve the key elements of effective Indigenous advancement, namely collaboration across regions, across sectors and place-based. This model supports activities at each of these levels through tailored programs, provision of external support and facilitating the creation of alliances between corporate and Indigenous leaders.

Figure 6. Proposed high-level partnership agreement to deliver integrated programs for building an Indigenous fisheries sector in the Northern Territory. Regional Plans, Community Plans, and funding allocations are given as hypothetical examples only.



Broadening the delivery of current industry training programs

Currently NT Fisheries offers a small Indigenous fishing mentoring program where an Indigenous trainer visits 4-5 communities every 4-6 weeks to deliver training in fishing, boat handling, net maintenance, seafood handling and packing, etc. Funding has recently been sourced to employ an additional Indigenous mentor to service communities. The CDU currently provides an accredited program for VET training delivery in aquaculture on Goulburn Island. These training programs are highly tailored to meeting the skill needs of future employees in emerging Indigenous fisheries businesses, but they are far too small in scale to achieve substantial outcomes in improving Indigenous employment and establishing Indigenous businesses across the Territory. Current programs need to be formalised and broadened into a capacity

development program that includes skill development along the entire supply chain from the point of catch and/or farm gate to sales into seafood markets. As a component of the program, delivery of fisheries career options (and associated training) within the senior school year of local community schools would ensure engagement and work readiness of the younger Indigenous generations in the future fisheries work on communities. Proposed training programs need to be integrated and aligned with the skills needs identified within regional Indigenous fisheries development plans. Training needs to be effectively delivered by qualified and highly capable cross-cultural trainers, who have been trained through quality, Indigenous appropriate fisheries training programs. In this way the training offered would achieve the highest impact in terms of meeting current and future skill demands, and help to ensure cost benefit efficiencies are achieved through regionally coordinated program delivery. To achieve even greater efficiencies, Indigenous training programs could be further broadened to support other emerging primary industry small businesses in remote Indigenous communities, as identified within the Indigenous economic development strategies of the Department of Primary Industry and Fisheries.

Broadening current programs to include business capacity development

As reported in section 4.0, the international literature review highlighted the general lack of formalised and strategic programs to develop the capacity of remote-living Indigenous Australian's for small business entrepreneurship and the need for Indigenous entrepreneurship education, training and mentoring programs. Providing training for Indigenous people to engage in fisheries activities, as is the current focus of the NT Fisheries' programs, is a sound first step towards Indigenous engagement in the fisheries sector. However, business related training programs to develop Indigenous capabilities for managing small businesses are needed so that Indigenous people can achieve their longer term vision for economic independence through managing and running their own businesses. For remote-living Indigenous Australians, a regional business development program is needed similar to the Canadian model where numerous regional service centres (in partnership with program delivery providers and Aboriginal financial institutions) provide a range of services (such as business planning, business support, business-related training, financial services and mentoring services) and investment capital for Indigenous Canadians living remotely (Government of Canada, 2014). Provision of such a program in Australia needs to be delivered within a formalised, and targeted training provider structure, informed by community plans for fisheries development that are coordinated and aligned with regional strategic fisheries development plans. Such training programs need to draw expertise from the tertiary sector on Indigenous education/training and provide mentoring linkages with relevant industry and small business sectors. Mentoring by successful small business entrepreneurs could be established through a national network of volunteers wishing to gain credible corporate social responsibility credential for their business. This could be supported by a mentoring network scheme offering greater involvement by the private sector in Indigenous organisation governance and business management. The program would require surety of funding over a decadal timeframe and include similarly structured and targeted programs to build the capacity of workers.

The challenge of providing cost effective fisheries education, training and mentoring services to people in extremely remote and widely dispersed Indigenous communities across northern Australian requires innovative delivery strategies, including quality, cross-cultural training programs that produce effective fisheries trainers. Learning environments need to be developed beyond the remote delivery, face-to-face teacher/student environment and allow for long distance instruction and mentoring where the teacher/mentor is remote from the student. The use of media based technologies for fisheries business training and mentoring should be extensively explored to address these capacity development challenges in remote communities. The CDU has significant expertise in remote Indigenous training and education using computer and mobile phone-based technologies. These training and education methods meet Indigenous people's preferred learning styles and target media technologies and platforms that Indigenous people have access to and regularly use. Such technologies should also be explored to support business incubator services, allowing aspiring Indigenous fishers and community business organisations to network with each other and with fisheries industry mentors and small business mentors. For example, web-based networking of Indigenous youth could provide business incubator support and mentoring opportunities specifically for young people from senior school age to about 25 years. Indigenous youth could develop business and entrepreneurship skills through simulations of various small fisheries business development processes. They could develop their own small business ideas, business plans and

skills through networking opportunities to members of the fisheries industry and small business mentors. Gender specific programs must be developed for the different development needs and aspirations of Indigenous males and females.

Ensuring community governance is in place to support fisheries businesses

Unless ongoing, formalised programs of training and mentoring for community leadership and governance are set in place, models where external non-Indigenous individuals take on key management roles within communities will remain. Currently training programs for community and corporate governance are generally offered by the Office of the Registrar of Indigenous Corporations (ORIC) or through paid consultants. These tend to be sound programs aimed at training Indigenous directors in corporate governance knowledge, skills, efficiency and accountability within their corporations, but are not sufficiently regular nor offer the ongoing industry and corporate mentoring that is needed longer term. To enable the community to set its own economic goals and govern its development agenda, community members need capacity in leadership, decision-making and planning, governance and effective communication mechanisms with external supporters. Only by targeting the full suite of skills and capabilities needed for independent business management will Indigenous people (and Indigenous communities) be empowered to manage their own economic agenda and achieve self-determination through economic independence.

Ensuring community leadership is in place to support community development programs

Training in leadership must be a key element of all training and mentoring programs as it is essential that community leaders, entrepreneurs and community business managers are provided with the knowledge, skills and capabilities to make sound and informed decisions for the benefit of local businesses and the community's economic future. Strong local leadership is essential to support effective, well-governed organisations at the local level, which in turn are essential to support local Indigenous-run businesses. Leadership training needs to be within a cultural context to allow discussion and exploration of viable models that address the tension between cultural obligations to share resources with corporate legal requirements for transparency and accountability. Training providers, such as CDU, are well placed to deliver such programs.

Recommendation 2: Identify business models that integrate both cultural and corporate fisheries business and governance arrangements – while in the interim, pragmatic models continue to be used

Until Indigenous people's capacity for entrepreneurship is increased, viable alternative models for local fisheries business management must be adopted. Some communities currently choose to employ (mostly) non-Indigenous business managers directed by an Indigenous-run corporation, while others negotiate joint venture arrangements where corporate partners take responsibility for business management and provide employment and/or financial returns to the local Indigenous people to invest in their community programs. If capacity is inadequate, these are viable, pragmatic models that must, for the present, be used to engage remote-living Indigenous people in equitable partnerships with the market sector. If the terms of engagement are negotiated with equal power on both sides, such models can meet both cultural drivers for self-determination and corporate drivers for profit. However, for these business models to be based on equitable partnerships, Indigenous people themselves must be in control of all key decisions, negotiations and agreements. To achieve equitable partnerships, Indigenous people - particularly Indigenous community leaders - need to have the knowledge, understanding, skills and resources to manage their own business affairs. Too often models where external managers or corporations hold considerable control of management of community affairs and major development decisions are regarded as the only viable alternative for Indigenous business governance and management. As a result, limited or no effort is made to effectively educate and train local people in key leadership and management roles. Failure of Indigenous people to meet the obligations and practices of good corporate governance have been attributed to disparate value systems, pervasive failures in communication, and the lack of recognition and engagement with Indigenous social and cultural concepts of business and resource sharing (Altman & Cochran, 2005; Burgess *et al.*, 2005; Vemuri and Gorman, 2012) Similarly the tendency of Indigenous cultures towards a focus on the family group rather our western focus on the individual has been cited as a reason for the lack of entrepreneurship within Indigenous populations.

The challenges posed by the different value perspectives and governance practices between Indigenous and western people are significant, but must be addressed through targeted research into innovative governance and entrepreneurship models that bridge two way cultural and corporate ways of doing business, defining value from utilisation of fisheries resources and sharing benefit. This may indeed lead to models where external managers continue to be used, but with a greater capacity for Indigenous people to be in control of decision making regarding their economic futures and to negotiate business development pathways best suited to achieving their vision for the future. Of course, Indigenous people need to be full participants in developing these hybrid models as they are the best placed to create and innovate culturally suitable solutions that meet their community's needs and aspirations.

In the case of Indigenous businesses and enterprises that utilise marine natural resources, such as fisheries-based initiatives, business models also need to recognise and accommodate traditional ownership of sea country and the authority structures that allow clans and family groups to fish and harvest its resources. An FRDC Project (No. 2013-218: *Building the capacity and performance of Indigenous fisheries*) is investigating this further for trepang enterprises and proposes a business model where clan groups fish their country and sell (or are paid a wage) to supply seafood product to a central seafood cooperative, which operates through a business arm of the local Indigenous corporation. For fisheries initiatives that have a strong social enterprise element, the business model also needs to recognise and accommodate the diverse values and flow of benefits (beyond work and profit) that Indigenous people traditionally place on marine resource utilisation (such as improve local seafood supply, transfer of cultural knowledge to the young, working on country, sharing harvested resources with family groups, etc.). In particular, it is important to identify and accommodate differences between gender groups, between younger and older generations, and between Indigenous communities in their desired value outcomes from fisheries opportunities (between economic, social and cultural value) and their benefit sharing preferences. This knowledge can then be used to identify development pathways and fisheries governance/management models that accommodate these different development aspirations between communities and community sectors. This is particularly important for those underrepresented in current Indigenous fisheries programs, such as women and young adults.

Recommendation 3: Improve Indigenous participation in fisheries work through further social research into effective engagement strategies

Building the skills and capabilities of the future workforce that will engage in aquaculture enterprises on Goulburn Island progressed well over the 4-year program implementation period reported in this study. Both Indigenous men and women developed work skills that will allow them to enter into paid work when fishing and aquaculture operations begin. However, many of the younger generations on Goulburn Island who have expressed aspirations to engage in culture-aligned work on sea country often show limited capacity for making positive lifestyle choices on a daily basis when provided with such work opportunities. Such responses arise from the effects of decades of welfare dependency (and associated poor lifestyle opportunities, capacities and personal choices) and from a limited understanding, experience, and exposure to role models for paid work practices (and associated learnt responsibilities, lifestyle disciplines and working for future benefits).

This and other studies (reviewed in Fleming *et al.* 2015) have identified that Indigenous women are particularly underrepresented in Australian Indigenous fisheries development programs and so research is needed to identify fisheries based employment programs and small businesses that meet women's employment preferences, business aspirations and desired flow of benefit to family and community (across social, cultural and economic benefits), such as the healthy tucker program investigated in this study. Ongoing research needs to identify the more nuanced motivations and personal drivers for engaging in work so that employment strategies can lever the cultural and social motivators essential for engagement in work. For example, research is also needed to gain a better understanding of the desired flow of benefit (and definition of benefit) between and within community stakeholders and how business models can be developed to achieve distribution of benefit according to community preference, and thus engagement by these sectors. This research needs to be done across key target sectors potentially involved in future fisheries work, particularly women, young adults (both men and women need to be investigated for potential differences in motivators and drivers, and desired flow of benefits) and school leavers.

In recent years NT Fisheries has employed Indigenous trainers and mentors to regularly visit communities to provide training and mentoring in seafood industry skills. Such positions also serve as an important conduit between NT Fisheries and communities. By broadening fisheries development programs beyond the current focus on young adult men, a significantly greater impact on Indigenous employment rates and Indigenous small business development can be achieved through current government investments.

Recommendation 4: Develop fisheries agencies' capacity to facilitate Indigenous fisheries activities

As discussed in section 5.0, a critical success factor in Indigenous fisheries development programs is the capacity of external facilitators to effectively communicate and form trusting working relationships with Indigenous partners. A key factor in past unsuccessful enterprises is the pervasive failure in communication, and the associated lack of recognition and engagement with Indigenous social and cultural concepts of planning, consulting, negotiating, conflict resolution, conducting business and resource sharing. This study identified key general principles and processes for effective consultation, communication and relationship building when supporting small business and enterprises, such as fisheries-based activities. The importance of effective, regular and ongoing communication between the Aquaculture Unit and community members led to the establishment of a dedicated position to ensure regular communication and knowledge exchange. The requirement for regular community visits for communication and relationship building activities highlights the importance of adequately resourcing activities as part of Indigenous fisheries research and development programs.

Government agencies also need to consider whether their fisheries management and associated legislation/regulatory arrangement provide an enabling environment to support and facilitate Indigenous participation in commercial fishing and aquaculture activities. In particular, each jurisdiction needs to review their regulatory framework to ensure it encourages and allows Indigenous economic development to take place through fisheries-based commercial activities.

Recommendation 5: Develop fisheries agencies' capacity to facilitate Indigenous participation in commercial fisheries

The Aquaculture Unit of NT Fisheries has substantial experience and capacity in conducting R&D into the technical and operational aspects of new Indigenous aquaculture opportunities and supporting communities through the 'proof of concept' stage of commercialisation. In recent years the Aquaculture Unit has also addressed new species through the 'proof of product opportunity' stage by seeking customer/retailer feedback on the commercial opportunity in terms of price, volume and product specifications. Recently NT Fisheries has grown its capacity to provide business development support across the agency's Indigenous programs. It is recommended that agencies involved in providing technical support for Indigenous fisheries development should also provide business support services as part of the program, or to partner with organisations that specialise in this field. Business support services could be integrated and align with the broader northern development plans for both fisheries and primary industries. This would facilitate the integration and alignment of Indigenous business training programs across fisheries and other primary industry-based developments.

Recommendation 6: Develop industry's capacity to effectively negotiate mutually beneficial commercial arrangements with Indigenous people

The seafood industry in the NT has limited understanding and experience in directly negotiating and engaging long term with Indigenous communities. As a result misunderstanding and mistrust can develop between individual companies and Indigenous groups, leading to enduring barriers to forming productive commercial partnerships. Individual companies need to develop credibility and capacity to engage in trusting relationships with Indigenous communities in the long term. As a step to achieving this, it is recommended that NT Fisheries develops an engagement protocol to guide seafood industry sectors when engaging with communities and negotiating the terms of the proposed business partnerships. Such protocols should be broadly defined, but clearly articulated. Companies could use this protocol as a guide to develop a tailored engagement strategy with each community, which would include their proposed

communication and consultation processes. Partnership agreements and MOU between companies and communities can then be negotiated, based on the principles of the engagement strategy.

As part of building credibility and trust, companies need to clearly state their main drivers for engaging in commercial partnerships with Indigenous communities. Drivers may include increased volumes of seafood product, access to Aboriginal owned lands to support production and processing infrastructure, access to Aboriginal owned coastline to support sea transport, access to Aboriginal owned intertidal areas to support seeding and/or growout operations, etc. Companies also need to clearly state their value proposition to Indigenous people, which may include local employment, payments for product sold, industry training and skill development, pathways to industry employment, establishment of infrastructure, etc. They need to clearly state the type of employment on offer, which may include any one or combinations of the operational processes along the value chain, including seeding, growout, harvest, processing and packaging, transport, etc. Such value propositions need to be clearly quantified, timeframes given for meeting targets and performance indicators developed to assess compliance with partnership agreements. Measures to address non-compliance of either party need to be negotiated and agreed upon at the commencement of the agreements. Communities need to ensure that propositions for commercial engagement meet and align with their stated aspirations, needs and desired social and economic benefits, as articulated in their community fisheries development plans.

Partnership proposals need to be backed by a business plan that clearly articulates the respective roles and responsibilities of project partners, show the financial cost and gains for each party (projected out to 5-10 years) and the external support (financial, training, infrastructure) needed over this period prior to full commercialisation. Points of negotiation on cost of inputs by both parties and prices paid for product need to be identified and negotiated to ensure commercial viability for both parties.

6.0 Conclusion

The research and development conducted within this project delivered substantially against many RD&E Priorities set out by the FRDC's Indigenous Reference Group⁸ (IRG). Table 3 presents a reporting matrix of the knowledges, processes, capacities, policies and initiatives delivered from Project No. 2010/205. These are reported against the IRG's desired RD&E outputs, the 11 key RD&E Principles and 5 strategic R&D aspirations (see Appendix 2 and 3). In particular the project delivered an Indigenous business development framework that identified key systems for driving economic development in remote Indigenous communities, and the key success factors necessary for viable businesses. This in turn identified the partnerships and processes that were required to ensure key systems were engaged and key success factors were addressed during each of the pre-commercialisation phases of business development. Use of the framework during program implementation allowed continual analysis of program progress and highlighted problem areas where further or alternative actions were needed. It also identified critical barriers to achieving fully independent Indigenous entrepreneurship in the longer term, highlighting where targeted, long-term Indigenous business capacity development programs are needed.

The use of the business development framework will ensure governments can more effectively support Indigenous economic development and employment programs to an investment ready stage where the commercial sector can engage with more confidence in economically viable, culture-aligned businesses. This study showed that pragmatic, placed-based approaches are the most likely development model to succeed in remote Indigenous communities, but only if *all* key success factors are addressed and *all* key drivers are engaged.

This project has achieved solid gains in identifying the type of fisheries activities that are likely to meet Indigenous aspirations. It also contributed substantially to understanding and documenting culturally aligned processes and programs to support communities during the development process – presented in the form of a business support framework, policy and protocols. It has established a foundational fisheries program that has effectively engaged Indigenous people and the seafood industry sector to drive the commercial process.

The current Indigenous development programs of the NT Fisheries have established small foundational fisheries and aquaculture programs that, potentially, could provide the catalyst for rolling out numerous commercial Indigenous fisheries ventures across remote northern Australia. To date these programs have been supported by cyclic, short-term investment by the NT Government and project-based investment by external funding agencies. Despite the ad hoc nature of this investment reasonable success has been achieved in negotiating the various pre-commercialisation phases of Indigenous small fisheries business development. Current programs have facilitated engagement between Indigenous communities and other stakeholders, including the commercial fisheries sector, that will lead, over time, to demand-driven development rather than government-supported programs. However, for these fisheries initiatives to develop into viable, self-sustaining Indigenous businesses and to achieve substantial policy outcomes against remote Indigenous economic development goals and Indigenous employment rates, it is essential that they secure long-term financial support and high-level leadership to support a larger, structurally integrated, regionally based partnership model. Such a model would ensure that communities, industry and government co-ordinate capacity building services for Indigenous leadership, governance, business management and industry skills. This model should rely on demand-driven financial support at the regional level where local development drives the rate and level of investment. This investment is finite and discontinues once businesses become commercially viable and/or they attract private investment.

A number of recommendations have been presented in this report to grow this program into a sustainable initiative that can deliver significant economic and social benefit to Indigenous Australians through fisheries development across northern Australia. These recommendations focus on establishing structured and integrated programs that will deliver capacity across the suite of skills sets needed by Indigenous

⁸ The scope of the Indigenous Reference Group is primarily to ensure that fishing and seafood industry focused RD&E delivers improved economic, environmental and social benefits to Australia's indigenous people. The IRG is expertise based, advisory in nature, and makes recommendations to FRDC on strategic issues relevant to indigenous RD&E in the fishing and seafood industry.

people to independently operate and manage their own fisheries-based businesses. The implication for stakeholders is to now take the necessary steps toward achieving substantial Indigenous economic development outcomes for remote-living Indigenous Australians through fisheries-based businesses. In this way Indigenous people will be better positioned to realise their aspiration for self-determination through economic independence.

7.0 Extension and Adoption

The learnings from this project have been communicated in the following way.

- Two papers were published in international peer-reviewed journals to communicate the learnings of this report to the national and international professional community involved in Indigenous economic development policy, Indigenous entrepreneurship, and Indigenous fisheries development.
- To facilitate adoption within the NT Government, an internal governmental report containing the recommendations in this report was prepared for distribution to the director, relevant executive staff, directors and managers within NT Government agencies.
- A copy of the policy paper and key findings/recommendation of this report was sent to the FRDC Board.
- The PI will consult with the leader of the FRDC's IRG to decide how best to communicate the findings to IRG members.
- The final report will be submitted to the manager of Yagbani. Fisheries staff will seek his advice on how best to extend the information in the report to members.
- The final report and associated documents/papers will also be sent to the Northern Land Council, NT Seafood Council, Department of the Prime Minister and Cabinet (Indigenous Affairs), ANU's Centre for Aboriginal Policy for Economic Research, CDU's The Northern Institute, CDU's Research Institute for the Environment and Livelihoods, Ninti One Limited, CRC for Remote Economic Participation, Northern Australian Indigenous Land and Sea Management Alliance, Noel Pearson, Jon Altman, Marcia Langton, and Andrew Forrest.
- It is suggested that the framework and key recommendations is sent to the lead community contacts within the FRDC Project 2013/218 Building the Capacity and Performance of Indigenous Fisheries

Table 3: Matrix of knowledges, processes, capacities, policies and initiatives delivered from Project No. 2010/205. These are reported against the IRG's desired RD&E outputs, the 11 key RD&E Principles and 5 strategic R&D aspirations. See 5.0 for discussion and recommendations based on these outputs.

Legend		
OUTPUTS	Knowledge	Includes <u>recorded or retained</u> data, assessments, feasibilities, papers, reports, submissions, recordings, images, either published or unpublished in printed or electronic form. This is about verifiable BASELINE FACTS and OPTIONS that are an OUTPUT.
	Facilitation Process	This is about CHANGE INPUTS & DESIGN. This is about Indigenous facilitation processes, not research processes. Transferrable facilitation processes about how to conduct Indigenous consultation, communication, facilitation, trust building, etc. needs to be captured in protocols, manuals, guidelines, principles, etc.
	Policy	Includes policies (formal and observed informal), regulations, protocols etc. implemented by Indigenous communities, Fisheries agencies and third parties that are integrated into Indigenous governance frameworks, locally or nationally. This includes regulations within Fisheries Agencies regarding Indigenous participation in fisheries management. This is about ENABLING and COMPLYING.
OUTCOMES	Capacity	Includes capabilities, either learned or acquired, at an individual, organisational or institutional level. These include qualifications, accreditations, licences, access rights, networks, organisations, alliances, collaborations, partnerships, agreements, contracts, MOUs, entities or companies, funds, and enabling resources. This is about verifiable quantifiable capacities created as an outcome.
	Fisheries Initiative	Identifies fisheries <u>Development</u> initiatives achieved from projects – the ultimate structural outcomes from <u>Research</u> . This is about the substantive structural, organisational, investment and community assets that are created by the development from the project.

IRG's key R&D Principles and endorsed RD&E Outputs	IRG's Strategic R&D Aspirations				
	Primacy for Indigenous People Indigenous people have certain recognised rights associated with and based on the prior and continuing occupation of country and water and activities (e.g. fishing, gathering) associated with the use and management of these.	Acknowledgement of Indigenous Cultural Practices Indigenous people have the right to maintain and develop cultural practices to address spiritual, cultural, social and economic needs associated with aquatic resources and landscapes.	Self determination of indigenous rights to use and manage cultural assets and resources Indigenous people have the right to determine courses of action in relation to use and management of aquatic biological resources	Economic development opportunities arising from indigenous peoples cultural assets and associated rights Indigenous people have the right to engage in economic activity based on the use of traditional aquatic biological resources and/or the right to share in the benefits derived from the exploitation of aquatic biological resources	Capacity building opportunities for indigenous people are enhanced Indigenous people have the right to access capacity building activities to further their aspirations in the use and management of aquatic biological resources
	A. PRIMACY	B. CULTURAL PRACTICES	C. SELF DETERMINATION	D. ECONOMIC DEVELOPMENT	E. CAPACITY BUILDING
Principle 1 – RD&E that seeks to - Enhance Aboriginal and Torres Strait Islander Recognition					
1) Identify and define what is customary fishing within their sector		Knowledge: Paper published on women's traditional seafood harvesting practices		Policy: Published and implemented on Goulburn Island the Indigenous Business Support framework that aligns women's fisheries development strategies with their traditional harvesting practices	
2) Protect customary fishing rights					
3) Achieve legislative recognition from government and management of the Aboriginal and Torres Strait Islander connection to land, waterways, sea country and species					
4) Support the development and adoption of Aboriginal and Torres Strait Islander regional and national fishing strategies					
5) Incorporate Traditional Fishing Knowledge					

(TFK) and Traditional Fisheries Management (TFM) into legislation that leads to improved self governance					
6) Build capacity of indigenous and non indigenous participants in the decision making process			Process: Protocol to facilitate Indigenous women's decision-making about their own fisheries-based enterprises and development pathways		Capacity: Developed Indigenous people's capacity for leadership, decision-making and negotiation during fisheries program facilitation (women in Healthy Tucker enterprise; Yagbani members in aquaculture development) Developed Fisheries staff capacity for effective negotiation and decision making within a cultural framework
7) Recognise appropriate Aboriginal and Torres Strait Islander allocation of the resource and ongoing access to traditional land, waterways, sea country and species.				Policy: Published Indigenous Business Support framework that identifies development based on traditional ownership of sea country and allocation of its resources as a key success factor in Indigenous small business development	
Principle 2 – RD&E that seeks to - Resolves Issues Around Access					
1) Have equitable access for Aboriginal and Torres Strait Islander people to fish stocks and fisheries and identify options for equitable distribution					
2) Identify impacts on native title rights arising from management decisions, including the establishment of Marine Parks, fishing limits and allocation of fishing rights to other sectors					
3) Maintain and improve access to aquatic and land areas, including Commonwealth or State/Territory protected areas such as marine and terrestrial reserves and parks					
4) Maintain cultural practice and knowledge to improve access, knowledge and use of legislative processes/obligations to ensure Aboriginal and Torres Strait Islander input is improved and recognised					
5) Access and inclusion to the decision making processes					
6) Develop frameworks for consultation regarding decisions that could impact on access and improve engagement capacity					
7) Identify the social and economic benefit derived for Torres Strait and Aboriginal people from access and use of fish stocks					
8) Assess cultural and socio-economic impacts for Torres Strait and Aboriginal people arising from resource utilisation by other sectors					
9) Develop management measures that improve Aboriginal and Torres Strait Islander access to the resource and fisheries for commercial purposes.					

Principle 3 – RD&E that seeks to - Improves Governance and Provide Pathways to Better Representation and Management Models					
1) Identify the best structure to provide a focal voice and 'push' for Aboriginal and Torres Strait Islander fishing representation					
2) Through appropriate consultation address the inconsistencies across jurisdictions regarding Aboriginal and Torres Strait Islander fishing rights and access,					
3) Develop bottom up and community focused planning and fishery governance models			Policy: Published Indigenous Business Support framework that recognises culturally-aligned governance models as central to effective local control of planning and development	Initiative: Established a foundational aquaculture program on Goulburn Island. Implemented through a 5-year (ongoing) program based on bottom up and community focused planning and governance (The Aquaculture Program under Yagbani management). Informed by the Indigenous Business Support framework	Policy: Published Business Support framework that recognises building Indigenous peoples' capacity for local governance is critical to effective control of planning and development of local businesses
4) Develop mechanisms to incorporate TFM as a standard governance model					
5) Improve real Aboriginal and Torres Strait Islander involvement in the decision-making processes			Policy: Published Business Support framework that recognises culturally appropriate governance, business management and communication as critical to achieving real involvement in decision-making		Policy: Published and implemented Indigenous Business Support framework that recognises building Indigenous people's capacity for real involvement in decision-making is critical to effective local control and self determination Capacity: Developed Indigenous people's real involvement in decision-making and negotiation during fisheries program facilitation (women in Healthy Tucker enterprise; Yagbani members in aquaculture development)
6) Improve Aboriginal and Torres Strait Islander representation and build capacity (including resourcing) for indigenous people to have a broader representative role in fisheries management					
7) Improve Aboriginal and Torres Strait Islander engagement and buy-in into the management process, including greater involvement in appropriate committees across sectors and agencies					
8) Improve the recognition of traditional law and develop compliance options that give Aboriginal and Torres Strait Islander people the right and capacity to undertake cultural fishing compliance					
9) Identify social and economic benefits from improved governance and management models.		Knowledge: Published paper on International evidence that improved local Indigenous governance and business management systems are key	Policy: Published and implemented Indigenous Business Support framework that recognises effective local Indigenous	Policy: Published Indigenous Business Support framework that recognises building effective local systems for community governance and small business management are	Policy: Published Indigenous Business Support framework that recognises that significantly building Indigenous people's capacity for governance and

		to empowering Indigenous people to maintain and develop cultural practices	governance and business management systems are key success factors for achieving self determination (and associated economic and social benefits)	key success factors in achieving social and economic benefit from Indigenous small businesses	business management is critical to delivering social and economic benefit
Principle 4 – RD&E that seeks to - Provide Resourcing Options in a User Friendly and Culturally Appropriate Manner to Encourage Greater Aboriginal and Torres Strait Islander Involvement					
1) Reduce the complexity surrounding the funding process and subsequent reporting, including when multiple funding resources and support are involved					
2) Improve linkages across potential projects that have similar objectives or outcomes					
3) Improve capacity of Aboriginal and Torres Strait Islander people to take a greater and wider role in development, management and reporting of RD&E projects.					
Principle 5 – RD&E that - Leads to Improved Capacity That Empowers Aboriginal and Torres Strait Islanders					
1) Protect Aboriginal and Torres Strait Islander rights as part of resource use					
2) Develop and start new commercial initiatives that maintain ongoing interests and concerns in the fishing and seafood industry				Initiative: Established a foundational aquaculture program on Goulburn Island. Implemented through a 5-year (ongoing) program based on community goals for new commercial initiatives that maintain ongoing employment and local businesses in the fishing and seafood industry Initiative: Established and resourced a women's healthy seafood enterprise (Waruwi Women's Healthy Tucker Program) as a staged approach to engaging women in the seafood industry	
3) Link Aboriginal and Torres Strait Islander community small business aspirations	Policy: Published and implemented Indigenous Business Support framework that recognises Indigenous people's cultural primacy is a key success factor in Indigenous small business development	Knowledge: Published paper on women's aspirations for aquaculture development	Policy: Published and implemented Indigenous Business Support framework that identifies Indigenous self determination as a key success factor in Indigenous small business development	Policy: Published and implemented Indigenous Business Support framework that identifies Indigenous aspirations for economic independence as a key success factor in Indigenous small business development	Capacity: Developed Indigenous people's capacity to conduct social research into the type of fisheries businesses that Indigenous people aspire to work in and the development processes they prefer
4) Identify investment opportunities, including benefit sharing resource agreements e.g. Indigenous Land Use Agreements				Facilitation Process: Facilitated communication and negotiation between Yagbani Aboriginal Corporation and Tasmanian Seafoods for mutually beneficial agreement on a new investment opportunity in the NT - trepang farming	
5) Empower Aboriginal and Torres Strait Islander			Capacity: Facilitated the		

communities through development of social capital			Warruwi community's networks with organisations, industry and individuals so that community members had improved access to support, knowledge, resources, mentoring and opportunity		
6) Improve commercial performance through culturally appropriate and innovative business management solutions					
7) Develop community capacity and involvement, including an understanding of mainstream sciences and management processes			<p>Knowledge: Developed the Indigenous Aquaculture Team's knowledge and involvement in mainstream aquaculture sciences through mentoring and training provided by Fisheries staff during field work.</p> <p>Knowledge: Developed the community's access to research knowledge and aquaculture through provision of resources on the Yagbani's website established under this project</p>	Policy: Published and implemented the Indigenous Business Support framework that identifies building community capacity and involvement in management processes as a key success factor in Indigenous small business development	Capacity: Partnered with organisation that supported and facilitated the development of an Aboriginal Corporation to support small business development on Goulburn Island
8) Formally upskill Aboriginal and Torres Strait Islander people to increase employment and engagement opportunities		Knowledge: Published paper on preferred employment opportunities and work arrangements of Indigenous women			Capacity: Developed Indigenous people's capacity to operate sea farms (Women – sources funds for training in boat handling, food handling; Men – partnered with CDU to deliver Cert II VET training in aquaculture, Senior school students – partnered with CDU to deliver Cert 1 training in aquaculture)
9) Develop long-term employment strategies, including within agencies and for regional communities				Policy: Published and implemented Indigenous Business Support framework that identifies long term, commercially viable employment strategies as a key success factor in sustainable Indigenous small business development	
10) Develop indigenous solutions to indigenous opportunities.					
Principle 6 – RD&E that - Leads to Agencies Developing Capacity to Recognise and Utilise Aboriginal and Torres Strait Islander Expertise, Processes and Knowledge					
1) Develop strategies that lead to higher levels of Aboriginal and Torres Strait Islander employment in key agencies – across all industry sectors and occupations					

2) Incorporate traditional fishing knowledge and traditional fishing management practices with the mainstream					
3) Develop two-way discussion and consultation processes that align with Aboriginal and Torres Strait Islander cultural needs and norms		Facilitation Process: Protocol to guide Fisheries staff in culturally aligned communication and facilitation processes during fisheries development programs Facilitation Process: Created a position within the Aquaculture Unit of Fisheries to manage two-way communication and consultations processes		Policy: Published and implemented Indigenous Business Support framework that recommended resourcing a dedicated staffing position within Fisheries to manage two-way communication and consultations processes between the community and external facilitators	
4) Put in place policies and regulations that are cognisant of the cultural needs of Aboriginal and Torres Strait Islander clients		Policy: Published and implemented on Goulburn Island the Indigenous Business Support framework that recognises addressing the cultural aspirations and needs of Indigenous people is a key success factors in small business development			
5) Ensure that Aboriginal and Torres Strait Islander people are involved in and have representation on all appropriate committees, and are resourced appropriately					
6) Build relationships with Aboriginal and Torres Strait Islander clients		Facilitation Process: Protocol to building trusting relationships with Indigenous people		Policy: Published and implemented Indigenous Business Support framework that identifies building long-term, trusting relationship with Indigenous individuals as a key success factors in Indigenous small business development	
7) Assist in building Aboriginal and Torres Strait Islander capacity.					
Principle 7 – RD&E that - Leads to Recognition of Customary Rights and Knowledge, Including Processes to Incorporate Aboriginal and Torres Strait Islander Traditional Fishing Knowledge (TFK) and Traditional Fisheries Management (TFM)					
1) Formalise recognition of TFK (and Ecological) and TFM in fisheries legislation, including defining cultural rights and access					
2) Assess the value of TFK and TFM, including its broader resource management contributions		Knowledge: on traditional knowledge of seafood seasons for best shellfish harvesting times			
3) Develop community based fishing activities and capacity building that leads to full engagement		Policy: Published and implemented Indigenous Business Support framework that recommends use of both TFK and mainstream science in the planning process as a key success factor in full engagement of Indigenous		Policy: Published and implemented Indigenous Business Support framework that recommends local, bottom-up, community based, TFK informed, Indigenous small business development as key success factors in full engagement of Indigenous people	

		people			
4) Document Aboriginal and Torres Strait Islander TFK and TFM practices and identification of Intellectual Property that may arise		Knowledge: Established community-owned website with data on shellfish TFK collected in this project (and to be used as a repository of data from past and future studies)			
5) Strengthen community capacity to implement appropriate and acceptable compliance that leads to improved cultural governance					
6) Use TFK and TFM to create solutions to industry issues		Knowledge: on unsafe locations to grow oysters based on TFK			
7) Incorporate TFK and TFM with the mainstream decision making processes		Knowledge: on best locations to grow oysters based on TFK			
8) Improve levels of environmental awareness and the understanding of the impacts of a broad range of fishing and non fishing activities on the ecosystem.					
Principle 8 – RD&E that seeks to - Improves Knowledge and Awareness of Impacts on the Environment and Traditional Harvest					
1) Identify, gather baseline information and quantify ecosystem impacts of non-indigenous fishing and non fishing activities, including; <ul style="list-style-type: none"> a. discharge and impacts on the environment b. on target, bycatch and totemic species , including marine mammals, such as dugong and whales, and reptiles such as turtles and crocodiles 					
2) Monitor the impact of non-indigenous fishing and non fishing activities					
3) Maintain biocultural diversity for Aboriginal and Torres Strait Islanders					
4) Identify impacts of bag, possession and size limits on Aboriginal and Torres Strait Islander culture and practice.					
Principle 9 – RD&E that seeks to - Provide management arrangements that lead to improved access, protection and incorporation of Traditional Fishing Knowledge (TFK) and Traditional Fisheries Management (TFM) input to processes					
1) Acknowledge TFK and TFM and where appropriate incorporate into mainstream processes, including broader management arrangements, regional approaches, compliance, self management and protection of rights					
2) Develop two way communication processes to optimise outcomes, build relationship across sectors and ensure greater involvement and engagement of Aboriginal and Torres Strait Islander people in management roles and committees					
3) Better define access and rights to fish (indigenous and non indigenous)					
4) Develop models to encourage and support Aboriginal and Torres Strait Islander people involvement in the broader fishing and seafood industry which allows for capacity growth					

5) Identify innovative means to resource and improve engagement processes and capacity at all levels					
Principle 10 – RD&E that - Leads To an Increased Value for Aboriginal and Torres Strait Islanders (Economic, Social, Cultural, Trade, Health, Environmental)					
1) Facilitate research into traditional foods and food security		Knowledge: Published paper on women's traditional seafood harvesting practices, access to healthy foods and issues maintaining traditional practices			
2) Look at new models to ascertain the value of Aboriginal and Torres Strait Islander fishing, including; <ul style="list-style-type: none"> a. identifying social return on investment b. understanding the economic value of involvement in fishing is broader than direct return (e.g. social, cultural, health, management) c. developing mechanisms to determine agreed valuation methods d. determining the historical value of indigenous catch (lost opportunity and actual catch) 		Policy: Published and implemented Indigenous Business Support framework that ensures benefit from economic activities flows across social, cultural and economic factors and that Indigenous people themselves determine flow of benefits			
3) Identify how improved Aboriginal and Torres Strait Islander cultural practices can lead to increased community and individual wellbeing		Knowledge: Published paper on international and Australian evidence that improved cultural practices lead to increased community and individual health and wellbeing			
4) Identify infrastructure required to improve Aboriginal and Torres Strait Islander participation in the fishing and seafood industry				Policy: Published and implemented Indigenous Business Support framework that identifies adequately attending to infrastructure, the supply chain, land tenure and capital as key success factors in small business development	
				Capacity: Sources \$230K in this project to fund capital items needs in Waruwi Women's Healthy Tucker Program	
				Capacity: Submitted ABA application to fund infrastructure needs for trepang/seafood processing facility (unsuccessful)	
5) Identify investment opportunities, including overseas' investment and branding				Policy: Published and implemented Indigenous Business Support framework that identifies viable local and external markets suitable for Indigenous small businesses	
				Knowledge: Conducted export trials (economic and logistics) of clams for overseas aquarium markets	

				<p>Knowledge: Conducted market acceptance assessments for clams and oysters at top-end Darwin restaurants</p> <p>Facilitation Process: Facilitated partnership arrangements between Warruwi community and Tasmanian Seafoods to export trepang to overseas markets</p>	
6) Consider opportunities for benefit sharing from resource use and access					
7) Protect Aboriginal and Torres Strait Islander people's rights as part of resource use					
8) Gain long-term employment opportunities for Aboriginal and Torres Strait Islanders - especially in regional and remote communities.				<p>Policy: Published Indigenous Business Support framework that identifies long term, self sustaining, commercially viable employment strategies as a key success factor in Indigenous small business development in remote communities</p> <p>Initiative: Created part-time employment (and Cert II training) for a team of Goulburn Island men through the federal government's RJCP wage program. These men will gain long term employment within future aquaculture businesses</p> <p>Initiative: Created opportunity for women to be employed through the federal government's RJCP wage program to conduct the nutrition program</p>	
Principle 11 – RD&E that - Leads To Benefit Sharing					
1) Identify different ways to extract benefits from resource use for Aboriginal and Torres Strait Islander people				Initiative: Implemented new aquaculture initiatives that led to diversified fisheries opportunities and benefits from marine resources in Goulburn Island	
2) Increase employment and economic opportunities for Aboriginal and Torres Strait Islander people.	Policy: Published and implemented Indigenous Business Support framework that recognises cultural primacy and the goal of self-determination and economic independence are the foundations that underpin all development aspirations for Indigenous people	Knowledge: Published paper on international and Australian evidence that Indigenous leaders aspire for culturally aligned economic opportunities to provide meaningful work for their young, social and cultural outcomes for their communities, and achieve self determination and recognition of their cultural primacy for their people		Initiative: Implemented foundational aquaculture development programs on Goulburn Island that led to increased employment and economic opportunities	

Appendices

Appendix 1. Fleming, A., Petheram, L, and Stacey, N. 2015. Australian Indigenous women’s seafood harvesting practices and prospects for integrating aquaculture. Journal Of Enterprising Communities: People and Places in the Global Economy, Vol. 9(2).

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Abstract:

Purpose – This case study explored Australian Indigenous women’s customary use of marine resources and views on aquaculture as a development opportunity. The value participants placed on economic, social and cultural outcomes were explored, as were benefit sharing, governance and business considerations.

Design/methodology/approach – Using a form of action research, workshops were conducted with a focus group of Indigenous women and interviews with men and women living on a remote island off northern Australia. Multi-media materials and a game were used to elicit deeper understanding and discussion.

Findings – Women preferred aquaculture options respectful of culture and accommodating cultural and family obligations, that engage young adults in meaningful work, improve access to sea country, and provide local foods and support economic development. Participants placed significant dependence on their governance body to support businesses and expressed disparate views on profit sharing. Women continue to engage in customary harvesting and fishing but various limitations impact on this.

Research limitations/implications – Conclusions based on one case study need to be confirmed in other communities. Future research should include a broader representation of youth and strategies to improve people’s understanding of aquaculture operations and business management.

Social implications – This research improves our understanding of Indigenous women’s preferred economic development pathways and their advocacy role within the community. These findings are relevant for policy makers, businesses, other Indigenous communities and researchers.

Originality/value – This paper seeks to recognise and integrate Indigenous women’s economic and cultural aspirations within development policy. Such a place-based, gender-based consultative process is generally lacking in the Australian Indigenous policy arena.

Key words: aquaculture, Indigenous, women, food, development, policy

Article type: Research paper

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Introduction

Indigenous disadvantage in remote northern Australia

The Northern Territory (NT), located in central northern Australia, has a total population of about 212,000 people. In 2011 about 56,800 Indigenous people (identified as either of Aboriginal or Torres Strait Islander origin) lived in the NT, making up 27% of the population; the highest percentage of any Australian state or territory (ABS, 2012). About 20% live in remote areas and 60% in very remote areas.

About 50% of NT land (some 600,000 km²) is classed as Aboriginal land under freehold title and approximately 84% of the coastline is Aboriginal owned (NLC, 2011). There are hundreds of Indigenous communities scattered across remote and very remote parts of the NT and neighbouring parts of northern Australia, ranging in size from small family groupings living at outstations on their homelands to townships of over 2,000 people (Gorman and Vemuri, 2012). Despite Indigenous people owning vast tracts of relatively undamaged tropical savanna across northern Australia and many living adjacent to biodiverse coastal waters (Hobday *et al.*, 2009), access to these lands, seas and their resources has not improved the economic wellbeing of many of the Indigenous people (Altman, 2005; 2007; 2012). Those living remotely are the most marginalised and the most disadvantaged people within Australia (Sutton, 2009; SCRGSP, 2011; ACG, 2014). Indigenous health is poor across the whole life span leading to a life expectancy 10.6 years less for Indigenous men and 9.5 years for women compared to non-Indigenous Australians (ABS, 2012).

Economic drivers of disadvantage in remote regions

Key drivers of Indigenous disadvantage in remote regions of Australia are a lack of economic opportunity due to the low productivity of the lands (Altman, 2005; Gorman *et al.*, 2008), inadequate supply chain infrastructure (Dillon and Westbury, 2007) and the low level of participation in the few conventional mainstream economies (such as mining and tourism) currently available to Indigenous people (Pearson, 1999; Austin-Broos, 2011). The Indigenous labour force rate (employed plus unemployed looking for work) in remote regions of the NT was 49% in 2011, with just 42% actively participating in work (ABS, 2012). The employment rate of Indigenous people working in mainstream economies is much less, as these figures include workers employed in the Community Development Employment Program (CDEP⁹). Gray and Hunter (2011) estimate that in remote areas of Australia the employment rate in market-based jobs is 38.9% for males and 30.7% for females.

There has been a concerted effort by successive federal and state/territory governments over several decades to increase the employment rate of Indigenous Australians using both demand and supply side policies. A strong focus has been placed on the supply side by developing the human capital of the Indigenous population through education and training, and employment incentive programs (Hunter and Gray, 2012). On the demand side, establishing mainstream commercial opportunities in reach of Indigenous people has not generally had the desired employment effect (Stoeckl *et al.*, 2013; NAILSMA, 2013a). Stoeckl *et al.* (2013) found that in remote regions where customary lifestyles are still practised, stimulating local mainstream economies does not generally benefit Indigenous people via a passive, trickledown effect due to the nature of customary economies practiced. These types of economies included the cash and non-cash exchanges within and between households, such as the sharing of harvested and hunted foods. As Altman *et al.* (2012: 166) argues, these customary economies do not '*fit neatly into the categories of public or private sector, or state or market sector because they might be informal or un-marketed*'.

⁹ **Community Development Employment Projects (CDEP)** is an Australian Government funded initiative that provides activities for unemployed Indigenous people to develop work skills. The Australian Bureau of Statistics classifies participants in CDEP as employed as some activities are essential roles that would be considered full employment in mainstream communities (Productivity Commission, 2011). The CDEP program has recently undergone some major changes including being phased out in many areas.

Another significant strategy that governments have pursued to increase Indigenous employment has focused on fostering socially and/or culturally aligned community-based businesses and enterprises, but results have been mixed. For example, the development of wildlife-based enterprises (e.g. bush plums, wattle seed, bush tomatoes, crocodile eggs) in remote Indigenous communities has seen only a handful of successes (see Zander *et al.*, 2014 for a review). This is surprising given the seemingly natural fit of this form of commerce into Altman's (2012) hybrid economy model and its natural extension to customary harvesting activities. Factors influencing commercial success of enterprises lie both on the supply side and the demand side. On the supply side is the challenge in establishing businesses and supply chain infrastructure so remote from markets and the placement of new, unfamiliar products into the marketplace. On the demand side is the challenge of developing a well-skilled workforce and the sustained financial and human capital that this requires (Evans, 2007; Austin and Corey, 2012). The third factor in enterprise success is cultural integration; in particular the challenge of developing culturally suitable local governance structures and processes to meet the business needs of wildlife enterprises. Failure to achieve suitable governance arrangements have been attributed to disparate value systems, pervasive failures in communication, and the lack of recognition and engagement with Indigenous social and cultural concepts of business and resource sharing (Altman & Cochran, 2005; Burgess *et al.*, 2005; Vemuri and Gorman, 2012). In addition to cultural differences affecting employment participation, the impact of decades of welfare dependency needs to be considered. Austin-Broos (2011) acknowledged the role that disadvantage, incurred through social and economic marginalisation, plays in people's unwillingness to engage and respond to opportunities presented. Such abject social inequality has led to widespread and long-term welfare dependency that in turn has led to widespread and intergenerational demoralisation experienced as 'poverty'. Consequently, Austin-Broos (2011) calls for effective strategies for mainstream schooling, along with a dual approach to economic development that includes community-based, culturally aligned employment strategies and engagement with mainstream labour markets.

Local economic development through natural resource management

One of the most successful labour market strategies to date for improving Indigenous work participation in remote regions of northern Australia has involved people working at the intersection between cultural obligations for 'caring for country', and employment in natural resource management programs. The term 'caring for country' describes Indigenous people's customary management responsibilities to maintain their lands and seas and to sustainably utilise their resources. The core activities in 'caring for country' include: time on country, ceremony and the intergenerational transmission of knowledge, burning of annual grasses, gathering of food and medicinal resources, producing artwork and artifacts, and protecting and maintaining sacred areas. The most substantial areas of employment generated in the natural resource management sector are land and sea ranger positions, where ranger groups are contracted to undertake weed and feral animal management tasks, biosecurity and fisheries compliance patrols, and fire management and carbon sequestration work (NLC, 2014). Other more limited employment opportunities that facilitate Indigenous people's access to and/or ability to manage country has come from work on road maintenance, NorForce (an Australian Army Reserve regiment that patrols northern Australia), cattle stations, management of culturally significant sites and in the arts sector.

By facilitating connections to country through employment in land and sea management activities, traditional ecological knowledge is practised and maintained, resulting in documented improvements in social, cultural and physical health as well as the health of the landscape (see Altman and Kerins, 2012 for a recent review). Australian Indigenous health and wellbeing is defined as '*achieved qualities, developed through relationships of mutual care of kin, non-human affiliations and observance of ethical conduct described by the law or dreaming that is encoded within the landscape*' (Burgess *et al.*, 2005:118). The significance of this relationship between wellbeing and 'caring for country' was highlighted in a study by Burgess *et al.* (2009) who reported a direct and substantial correlation between working on country and clinical measures of health (e.g. diabetes and cardiovascular risk) and wellbeing. Since then, extensive research has shown the positive linkage between healthy people, healthy country (or landscapes) and the rapid growth in employment through Indigenous natural resource land and sea management programs (Altman and Kerins, 2012).

Altman (2005; 2007; 2012) developed the concept of the hybrid economy to articulate and model the way both the customary and the mainstream market is brought together, through government supported natural resource management programs, in a mutually beneficial economic arrangement. Recent reports suggest there are approximately 660 Indigenous land and sea rangers working over 80 sites across northern Australia resulting in the rapid growth and transformative professionalism of ranger work (Altman and Kerins, 2012). These data highlight the potential of employment programs that are based on Indigenous people's enduring connection to country.

These studies, policy analyses and demonstrated successes of culturally integrated employment programs highlight the critical influence that culture and disadvantage – and how they interact - has on Australian Indigenous economic participation in remote areas (Austin-Broos, 2011). They demonstrate the need for more nuanced policy approaches in providing Indigenous people with employment opportunities that engage people in work that has culturally defined meaning and value, while at the same time recognising people's capacities to engage. For Indigenous economic development to achieve broad and lasting success, policy makers must focus on the nexus between customary responsibilities and contemporary employment opportunities and seek to grow and diversify these opportunities. Studies on Indigenous entrepreneurship globally have also highlighted the '*need to reconcile tradition with innovation and the need to understand how Indigenous world-view and values impact upon enterprises*' (Hindle and Landsdowne, 2002: 1). Similarly, the Indigenous leader, Noel Pearson, stresses the need to find ways to reconcile and blend the best in mainstream and Indigenous cultures as a major issue for Indigenous Australian entrepreneurship (Hindle and Rushworth, 2002). There is strong supporting evidence from historically and culturally comparable Indigenous populations that an economic development policy approach based on culture is critical to broad and lasting success. In New Zealand, the United States and Canada significant increases in Indigenous entrepreneurship rates have been largely attributed to a shift in government policy that encourages self-directed advancement and accommodates non-economic motivations (cultural and social) for engaging in the economy (Hindle and Landsdowne, 2002; Hindle and Rushworth, 2002; Wilkins, 2007).

Local economic development through aquaculture

Harvesting, hunting and fishing of marine foods is an integral part of customary harvesting for Indigenous coastal-dwelling people and, as such, has traditionally provided a very important food source for coastal people living in tropical northern Australia (Meehan 1977; Altman, 1987; Busilacchi *et al.*, 2013). Given this, it may seem surprising that there are no fully operational market-based Indigenous enterprises using marine wildlife through fisheries and aquaculture businesses in northern Australia, despite Indigenous people themselves continually expressing a strong desire to utilise their marine assets through such approaches (NLC, 2004; FRDC, 2011; NAILSMA, 2013b).

Over the past decade a number of attempts have been made by various government agencies and consultants to establish commercial aquaculture enterprises and businesses in northern Australian Indigenous communities. Most notably sea-based sponge (various species) farms at Goulburn Island, NT (Dobson, 2001; 2003), the Torres Strait Islands, Queensland (Duckworth *et al.*, 2007) and Palm Island, Queensland (Tedesco and Szakiel, 2006). Mudcrab (*Scylla serrate*) farming was attempted in earthen ponds in an Aboriginal community in urban Darwin, NT (Hewitt, 2006; Tedesco and Szakiel, 2006) and in mangrove habitat in Maningrida, NT (NTG, 2006). Trochus (*Trochus niloticus*) hatchery production was attempted at One Arm Point, north of Broome, Western Australia (Lee *et al.*, 2004; Tedesco and Szakiel, 2006).

The failure points associated with these projects include a range of issues on both the supply and demand side (Table 1), including technical and commercial issues that pose a risk to commercial viability as well as significant social and cultural barriers to engagement, participation and control by the Indigenous clients.

Table 1. Failure points associated with past Indigenous aquaculture projects in northern Australia (Fleming, 2009).

Technical/Commercial Aspects		Social/Cultural Aspects	
Supply Side Issues	Demand Side Issue	Cultural Barriers	Development Processes
<ul style="list-style-type: none"> • lack of technical knowledge causing barriers to production development • lack of adequate startup capital and inadequate planning for time-critical infrastructure investment • lack of robust market research and supply chain analysis 	<ul style="list-style-type: none"> • highly technical work unsuitable for enterprise participants with limited skills and significant education barriers • unrealistic financial expectations (profits and timeframes), • low wages during development coupled with demanding daily operational schedules • crocodile safety concerns excluding diving as part of operational practices 	<ul style="list-style-type: none"> • lack of community control and decision-making • conflict between work attendance and attendance to cultural obligations and demands • inappropriate cross-cultural communication, negotiation and decision making processes 	<ul style="list-style-type: none"> • inadequately short timelines for external managerial, administrative and financial support • lack of long-term planning beyond the tenure of project timeframes, particularly for local governance and business management capacity

These past attempts at establishing aquaculture enterprises have generally focused almost exclusively on the technical and commercial aspect of development (Tedesco and Szakiel, 2006) without adequate consideration of the sociocultural aspects, in particular the appropriateness of enterprises selected in terms of cultural alignment, adequate development of worker capacity and local governance capacity for business management, the methods of facilitation and the strategies for local participation and control. Approaches to Indigenous aquaculture development appear more likely to be successful if the suite of technical, commercial, managerial, social and cultural factors listed in Table 1 are carefully considered, appropriately planned for and responses to them adequately resourced.

Drawing on the success of employment programs based on Indigenous people's enduring connection to country and an understanding of the failure points of past aquaculture initiatives, the NT Government sought to investigate whether aquaculture may offer a new contemporary employment opportunity if linked to customary marine harvesting activities. In particular, the government and research partners sought to investigate whether low technology, low maintenance, sea-based activities that emulated and enhanced traditional wild caught harvesting activities was an appropriate development opportunity.

In this paper we report on the results of a preliminary study on South Goulburn Island in the west Arnhem region of the NT to understand Indigenous Australian women's aspirations for aquaculture development and the potential benefits to themselves and their community. We collected qualitative data on Indigenous women's harvesting of marine resources, and their views regarding potential benefits from low technology, sea-based aquaculture, as well as preferred support and governance arrangements. Qualitative research methods were used to inform how aquaculture businesses are best conducted within the specific culture and environment on Goulburn Island. As Dana and Dana (2005) suggested, quantitative research is needed within Indigenous entrepreneurship scholarship to investigate *how* Indigenous people conduct small business and *how* they can be encouraged to succeed. To achieve this they advised that it is useful to have a case study in which the important aspects of the culture and environment are analysed and understood to gain a holistic understanding of the entrepreneurial process (Dana and Dana, 2005). This study provides a first step towards achieving such an understanding. Women were the focus of this study as our previous observations of this community and studies in other communities (Dana, 1996; Pearson and Helms, 2012) suggest women play a significant advocacy role in community development.

This information was used to inform the NT Government's policy and programs to support Indigenous development in the NT through aquaculture enterprises. This work is part of a suite of programs to address the technical, commercial, managerial, social and cultural constraints identified from past programs. In this way the NT Government aims to develop an integrated Indigenous aquaculture

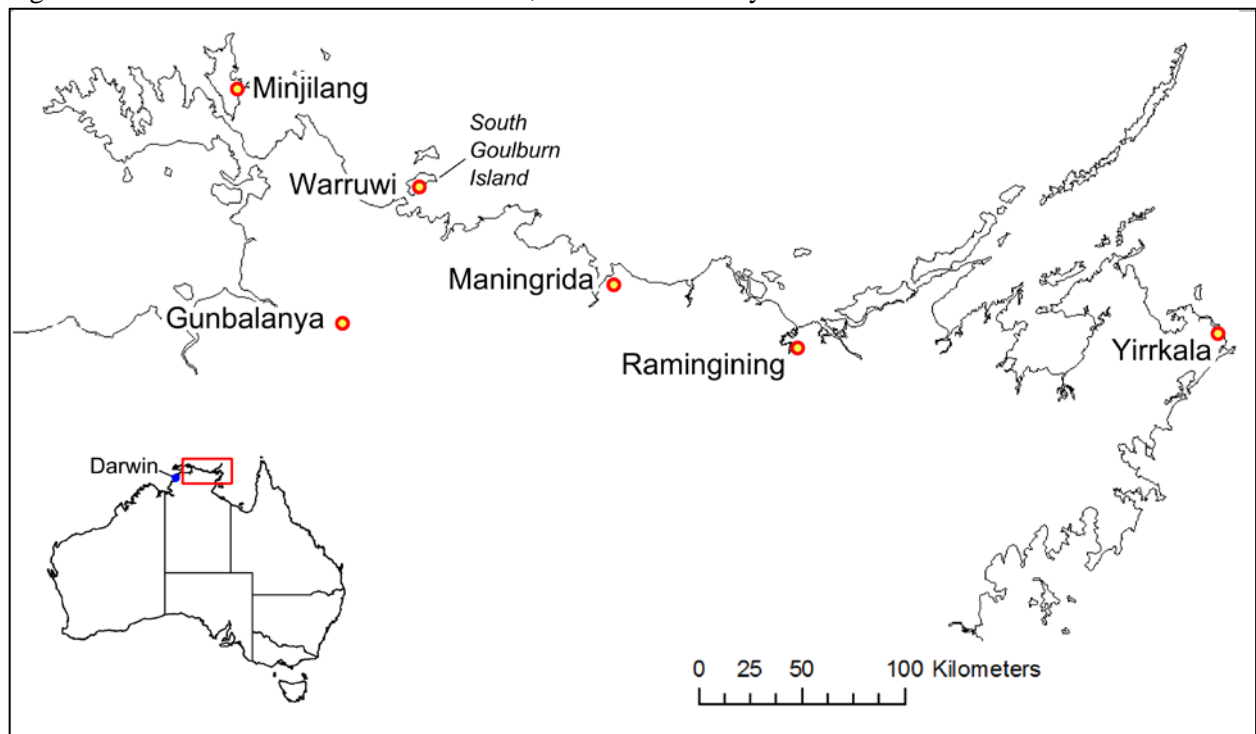
enterprise development model that offers a greater likelihood of success than past project-based initiatives.

Methods

The study site: cultural, political and economic context

The research was carried out at Warruwi, a small settlement of about 390 Indigenous people on South Goulburn Island, located 280km northeast of Darwin and 3km off the west Arnhem coast (Fig.1; Gould, 2010). A daily ‘mail plane’ connects the community to Darwin. During the dry season there is a high degree of mobility to and from other regions, particularly between nearby Croker Island, the west Arnhem mainland region and Darwin. The settlement has a local general store, clinic, arts centre, school, crèche, ranger and CDEP groups and women’s centre. Most people’s income is from social security payments.

Figure 1. Location of South Goulburn Island, Northern Territory



For most people, English is not their first language and people speak two or three Indigenous languages. *Mawng* (or *Maung*), the language of the region, is the most widely spoken (Gould, 2010). People from Goulburn Island follow a patrilineal descent system, which gives clans (*nguya*) ownership of particular areas of land, estuaries, beaches, sea and offshore reefs and islands (Gould, 2010: 174). There are five major clan groups collectively referred to as ‘*Madjugurru*’ or ‘people of the islands’ (Gould, 2010: 175). Rights to sea country are also obtained through matrilineal affiliations where people are classified as *jungai* (loosely translated as ‘managers’) for particular estates. Both owners (sometimes called Traditional Owners and senior Elders) and managers are responsible for that land and its resources. The application of traditional laws and practices for access and use of the sea and land, spiritual belief systems and cultural sites of significance are fundamental to Aboriginal systems of creation, ceremony and religion and cultural traditions from the distant past (NOO, 2004). All people are assigned through birth to a moiety – *Dhuwa* or *Yirritja* (everyone or everything is classified as either one or the other). Primary totems are pandanas, stone, fire and sun, with other plants and animals then attached. People’s plant or animal totems may play a factor in what they can and cannot hunt and eat (Gould, 2010). Other Indigenous people reside in Warruwi (through marriage or other associations) who are from other parts of northern and central Australia, and the Torres Strait Islands (Gould, 2010).

People from South Goulburn and other settlements in the west Arnhem Land region have a history of working and trading goods with the Macassan seafarers from Indonesia who visited the Arnhem coast from the early-mid 1700s to fish for sea cucumber (now locally called trepang as a result of this contact) (Clark and May, 2013). In the early 1900s permits were introduced by the Australian government and by 1907 the Macassans ceased visiting the region.

Up until the early 1910s contact with Europeans was limited to periodic interactions with the various traders, pastoralists and government officers that operated along the coast (Gould, 2010). The Goulburn Island Mission was established in 1916, and was the first and longest operating Methodist mission in the NT, ending about 1974. A range of seafood and agricultural enterprises were operating on South Goulburn during the mission era. Missionaries managed local people to work in a range of horticultural, agricultural and natural harvest activities. These enterprises were promoted by missionaries to engage people in work (paid in rations), as well as strive for self-sufficiency in food production and generate funds through sales (of trepang, oysters, mussels, dugong, turtle and fish) into Darwin markets (NTA, 1968; McKenzie, 1976; Stanley, 1985). In about 1974, the church handed over control to local town councils during the transition to 'self determination' (Ellemor, 1966; McKenzie, 1976). The island became Aboriginal freehold land following the *Aboriginal Land Rights Act (Northern Territory)* in 1976 (Gould, 2010).

In the early 2000s a consultant worked on Goulburn Island to research suitable species of commercial bath sponges for international export (Dobson, 2001; 2003). The project did not progress beyond the technical and market research stage. In 2004-6 the Northern Land Council and the Waruwi community held discussions about the development of a trepang farming industry. A consultant was engaged to develop a business plan, set up a hatchery on the island and conduct trials in spawning and grow-out of sea cucumbers (Gould, 2010). However the project was dependent on significant funding from an Indigenous investment group, which did not materialise. In 2009 the Aquaculture Unit of NT Fisheries and the Waruwi community, in partnership with the CDEP team of fifteen men, commenced sea trials for sea cucumbers (*Holothuria scabra*) at an 18 hectare research site at *Wighu* (McPherson Point) as well as growout trials for blacklip tropical oysters (*Striostrea mytiloides*) and the fluted giant clam (*Tridacna squamosa*) (Fleming, 2012). These trials were underway during the time of this research. The Charles Darwin University's Vocational Education and Training Program provided community-based tailored aquaculture training to the CDEP men.

In 2011 the Waruwi community established its own not-for-profit community governance organisation (Yagbani Aboriginal Corporation) run by a committee comprising representation from each of the five main clan groups living on the island. The aim of the corporation is to develop social and cultural programs. An independent corporate entity is planned to support commercial enterprises and businesses for the benefit of the community.

Conceptual framework and data collection and analysis

This research was part of a larger project that investigated Indigenous women's understanding of climate change in relation to its potential impacts on customary marine harvesting and their views on sea-based aquaculture as a potential adaptation strategy (Petheram *et al.*, 2013). This paper focuses on the results relating to preferences for aquaculture development.

As a framework for this study, a form of action research was used that involved both research (understanding) and action (change). The research process was guided at later stages by the results that emerged during the study. In particular, a 'research oriented action research' approach was followed, whereby change (either cognitive or behavioural) was a 'desired but not an essential outcome' (Dick *et al.*, 2002: 162). As part of this approach participants were encouraged to contribute to project design, data collection and analysis.

Fieldwork in the Waruwi community was carried out over five visits from February 2012 to February 2013 and involved five workshops and numerous meetings. Workshop participants consisted of female Traditional Owners, senior Elders and young adults. Occasionally a few male participant attended the

workshops. Thirty semi-structured interviews (12 men and 18 women aged from 18-65 years) were conducted, and informal discussions and observations made. The fieldwork was largely conducted in English, although during workshops and key informant interviews, participants talked among themselves 'in language', and a local adult female co-facilitator translated between several languages and English.

The first workshop and associated interviews focused on the general context of Warruwi life as well as marine food dependence in the region. The second was on climate change, the third on aspirations for the future and adaptation to climate change; the fourth on aquaculture; and the fifth on preferences for aquaculture development. Strong emphasis was placed on participatory and visual techniques to aid engagement, reflection, open discussion and learning about complex topics (Petheram *et al.*, 2013). Participants usually recorded video summaries of members talking about the major themes and reflections from the workshops. This provided a means of review at the next workshop, for participants to view in their own time, and for use in other communication material. Participants were also engaged in diagramming – particularly in describing their local environment. An interactive iBook was developed with participants that incorporated photos, video clips and text to summarise the results.

A board game about aquaculture operations and management was developed by one of the researchers and used with participants in the final workshop. The objective of the game was to encourage participants (and researchers) to discuss and reflect about the types of choices participants might make under various aquaculture scenarios, and ways that these decisions may impact on the local community, environment and aquaculture enterprises. In teams, participants chose an aquaculture enterprise, the location in the sea where farming would take place, ways they wanted to invest their money, the way the enterprise would be managed and financed, extent of collaboration with scientists, industry and government and other specifics. Once each team established the details of their enterprise they played the board game. This presented them with different farm management situations, requiring them to make decisions regarding different scenarios, such as cyclones, disease of farmed animals, time commitments to community funerals and ceremony, etc. After making each decision, they would then discuss and reflect on the way this decision would impact on the community, environment and their aquaculture enterprise (e.g. health and productivity of stock).

Before and after workshops, interviews were conducted with men and women from the community (some of whom had attended the workshops). Interviews covered participants' understanding of aquaculture, receptiveness to, and preferences for aquaculture development. Sometimes the iBook was used during later interviews to explain to participants some of the discussions during the earlier workshops, to elicit further response from the interviewees, and to communicate workshop processes, discussions and outcomes. Brochures presenting a summary of the research project were developed and shared with participants and other community members at the end of the project and a radio presentation was made to the local community by one of the women. A final field trip was arranged to report research results through the brochures and iBook, and to verify results among research participants.

The data collection, sampling and analysis (data coding) for this project were part of a continuous cycle (Elliot and Lazenbatt, 2005). The 'data' were the words and meanings derived from verbal responses and researcher observations. Data from interviews and workshops were recorded by hand and/or on video and later transcribed to a word processor for analysis. Visual data, such as photographs, video and diagrams were also recorded, together with participants' oral interpretations of these (in the form of text). The results were considered and reported in the context of secondary data from the literature.

Results¹⁰

Marine harvesting practices on Warruwi

¹⁰ See Petheram *et al.*, 2013 for an expansion on results, especially relating to harvesting of marine resources.

All research participants placed high importance on harvesting, fishing and hunting—predominantly for marine species. A strong respect for the sea and its interconnectedness with the intertidal and broader landscape and their lives, and the importance of both elements in meeting different needs in people's lives, were other significant themes. One woman explained '*it's more than just the food... it's being on country with our family and clan and also learning*'. There was evident excitement by both younger and older people in the way they spoke about harvesting and consumption of fresh wild harvest foods. Being '*out on country*' and participating in harvesting trips with kin were highly valued and were perceived as '*healthy*' (physically, mentally and emotionally) by all participants.

During workshops, women participants commonly stated their favourite food items for collection and eating. These were oysters (blacklip and milky), mud crab, turtle, dugong, barramundi, crayfish and stringray. Mud mussels, pipis, clams and fish were also popular. Groups of children commonly collected pipis and other shellfish from the shore close to home. Women normally collected shellfish (except for clams) and men more commonly collected dugong, turtle, clam and larger fish. Men and women both fished for and collected mud crab. Trepang (sea cucumber) was avoided as a food source, but people were very proud of their history of contact with the Macassans through the trepang trade (Clark and May, 2013).

The amount of time spent harvesting and the type of food collected varied widely with age group, family size and background, monetary situation, and the season. Seasonal hunting depends on abundance, food condition, and family income. Many older participants expressed concern that the younger generation were not harvesting regularly and had become very dependent on store foods. Some said they were worried that the young would not only become unhealthy but would also lose knowledge and respect for country and lose '*direction*'.

Some conflicting information was given about sharing food, and bringing harvested foods home for elderly and other people. Importance was placed on such sharing, but, when prompted, some people admitted that sharing did not always happen. People commonly cook harvested food on fires when out '*on country*'. Sometimes special types of foods are hunted to provide for ceremonial purposes.

Older participants remembered when they were children, people used spears, fishing line, string or nets ('*sometimes with safety pins or bits of wire as hooks*') to catch fish. Today, they use spears, hand reels, nets and sometimes rods. Previously, night hunting at low tide for crabs or fish was common, using burning bark from paperbark trees for a lantern (called *iradj*). Fishers often used hand nets or folding nets to either trap or scoop fish. People still fish at night periodically (with modern torches), but older participants explained that there are more crocodiles today and '*many people are afraid to go into the waters*'. Pointed sticks are made to poke into holes to catch mud crabs – a practice participants said has not changed. The methods for collecting shellfish has not changed, except now people prefer to travel by car to harvesting sites.

People commonly stated that the main limitation to going harvesting, hunting and fishing was the lack of transport (car, boat or fuel). Many were concerned that people were not as fit nowadays and very dependent on cars and boats. Other reasons cited were health problems and demands on time from paid work, volunteer work and childcare.

Aspirations for improving local food supply

Older people reminisced fondly of '*mission times*' when fresh oysters and fish were exported to the mainland, and a range of fresh foods were produced locally, such as eggs, milk, beef and bread. One senior elder told a favourite story about the times when '*Goulburn Island oysters were famous all the way to Tennant Creek*'. Some people talked proudly of these past farming activities and were very optimistic and hopeful about aquaculture enterprises in relation to these times. There was a strong interest by older participants in recreating today those productive mission times when people were more physically active. A lot of the older generation talked about how they would like more foods to be grown on the island in general – for greater self-sufficiency. When prompted, some talked about how it would be good to have a '*healthy kitchen*' to provide healthier foods to the community. There is

currently a home delivery meal service for older people that provides '*balanda food*' (term for white people's food). Some suggested this service could include more traditional (and healthier) seafoods.

Perceptions of aquaculture and preferred flow of benefits

There were relatively positive responses from both older and younger participants relating to aquaculture – as a suitable work activity and as a community enterprise. There were generally stronger, more formed and previously considered responses from the older generation who were involved in past aquaculture discussions and planning on the island. Two of the male participants interviewed are involved in the current NT Government aquaculture trials and vocational training and gave very positive responses about their involvement. One stated that they '*were learning a lot and wanted to learn more*'. Most other participants were not very familiar with the term 'aquaculture' – but were used to the term '*fisheries*'. Many confused the term aquaculture with agriculture (perhaps a pronunciation issue). Some participants perceived aquaculture as natural harvesting of what is already there. Very few understood that it involved 'planting' younger animals and growing them.

Despite the strongly held views of the potential benefits of aquaculture within the community, many of the women interviewed, particularly the younger women, had a very limited understanding of what this type of work entails. The men working on the aquaculture trials were more familiar with the working routines required to manage and raise stocks, but had limited understanding of the business aspects of aquaculture enterprises and what skills, capabilities and work demands this entails.

Most participants showed no strong preference for farming any particular marine species. Suggestions included crabs, clams, mussels and oysters - all suggestions were highly influenced by previous experience eating seafoods. When prompted, many thought trepang would also be a good option (for trade only as it is not eaten), which was probably related to their previous association through the earlier trade of this product. Many people thought that a variety of different products would be appropriate.

When photos of different aquaculture infrastructures were shown, people consistently preferred simple infrastructure, low maintenance aquaculture options. Some participants talked about the importance of the aquaculture system emulating '*nature*'. Because people were not fully aware of the different types of work involved in aquaculture, it was difficult to discuss this topic in depth. Both older and younger women felt both women and men should be involved in sea farming tasks, and that this would be culturally appropriate. Some said women should be trained in the same tasks as men, so that they could work instead when men were attending to ceremonial or other commitments.

When asked about income and profit (or returns for not-for-profit activities), most women and men participants were not opposed to generating money from an aquaculture enterprise and employees earning an income. Almost all women thought that both economic and community needs should be met, in particular generating employment, providing skills and knowledge, keeping the younger generation occupied, and providing greater access to fresh foods (shared or sold at a cheap rate).

Through playing the board game, women confirmed their interest in generating income, particularly for the young adults, as well as providing for community health needs. Despite this interest in employment and learning skills, many people were not interested in conventional 'office' jobs, but wanted involvement for themselves (and younger generations) in jobs that involved the environment, or were aligned closely with more culturally related and defined roles. Employment *per se* did not generally contribute to a sense of identity among participants. There were also marked differences in opinion by participants over the handling of money and especially income – i.e. some thought profits should be evenly distributed amongst family groups working on the enterprise, while others thought they should benefit the whole community.

Views and awareness of managerial needs and perceived community capacities

All participants were very keen for an enterprise to be an Indigenous run business and especially among the older generation this was a very important criterion for future development. Some liked the

idea of selling a 'concept' or 'product' that was from their region and community, e.g. associated with harvesting customary foods, fresh remote food and foods with a history. Many people seemed quite proud about the prospect of being involved in aquaculture work and business relating to these areas. But at the same time there was little knowledge of the capacity needed to run community enterprises, such as resources, funds, expenses, skills and expertise. When prompted about how these may be obtained, many said 'Fisheries' (i.e. the NT Government's Fisheries agency) might be able to provide this support. Not all participants were aware of the logistics and other issues involved (e.g. sourcing of juvenile stocks, money management, marketing). After playing the board game, the participants talked about how it would be important to learn more about the different logistical issues as well as gain skills and knowledge relating to other technical and scientific information. All participants believed that the board of the Yagbani Aboriginal Corporation should be responsible for decision making regarding proposed aquaculture enterprise. There was a lot of faith and confidence in the community board to make decisions, manage new enterprises and handle difficulties including issues associated with profit distribution.

Discussion

Women's perspective of aquaculture

The Indigenous women of Warruwi were supportive of the concept of aquaculture on South Goulburn and viewed its development within the context of their deep connection to sea country, marine foods and the complex interactions between these and humans. Globally, maintaining connections to sea country plays an essential role in Indigenous people's identity and (emotional and physical) wellbeing (NLC, 2004; United Nations, 2009; NAILSMA, 2013b). Many Warruwi women continue to practice customary harvesting of marine foods and coastal fishing. Women participants believed aquaculture could strengthen links and improve access to sea country, improve supply and access to locally sourced seafoods particularly for their own family groups and the elderly, minimise reliance on store purchased foods, improve diets and nutrition and provide local jobs for young adults. In general, women's reasons for supporting aquaculture in their community were the diverse social and cultural benefits it may bring, in addition to improving work participation. Female Traditional Owners and senior Elders strongly advocated for generating jobs within the community to engage the younger generations in work. They saw this as an essential aspect of addressing the youth's general disengagement with community life and considered aquaculture a way to encourage greater involvement of the younger generations in sea country management, to build their capabilities and improve employment opportunities. These findings support international reports that Indigenous women across many cultures engage in entrepreneurship primarily to benefit family and community, which may be for a range of perceived cultural, social and/or economical benefits rather than solely for personal economic gains (Dana, 1996; Wood and Davidson, 2011; Pearson and Helms, 2012). Indeed, Australian Indigenous women's motivation to be economically independent may often supersede the social stigma they risk from entrepreneurship (Dana, 1996).

There is overwhelming evidence in the international literature of the powerful leverage potential in fostering economic growth when women are empowered to engage in fisheries and aquaculture (see Williams *et al.*, 2012 for a review; Harper *et al.*, 2013). The United Nations and World Health Organisation consider that focusing effort specifically on raising the status of women and girls has tremendous multiplier effects throughout their communities, as it brings educational, economic, health and social benefits to all in the community, not only females (United Nations, 2013; WHO, 2013). Many Australian Indigenous women appear to maintain a significant, culturally determined role in the community, taking a lead role in decision-making in both social and political arenas (Davis, 1992). Today Australian Indigenous women are considered to be more politically stable, their involvement tends to be more effective and enduring, and they command a higher degree of respect in the community (Davis 1992). In addition, reports from both from Australia (Pearson and Helms, 2012) and Canada (Findlay and Wuttunee, 2007) emphasis how Indigenous women entrepreneurship can be fostered through women's cultural, social and community socializing networks. Wood and Davidson (2011) suggest that such qualities and traits would equip Indigenous women well in entrepreneurial ventures within the community, if the opportunities presented themselves.

Although limited data is available, the trend for Australian Indigenous women to take an even more prominent and vocal leadership role in modern community life is seen nationally. For example, a report from southern Australia suggests *'they play an important role as influencers, informal decision-makers, and initiators of projects to improve the lives of their families and communities. In this way they carry significant responsibility for others' wellbeing now and in the future'* (NSW Government, 2013: 1). This trend appears to be in part due to the diminished traditional roles of men, as expressed by an Australian Supreme Court judge when she reported that *'women take a far more important role within communities because they have been the power where men have fallen away,...'* (Puddy, 2013: 1). Based on this, and observations of Australian Indigenous women's assumed leadership roles within community life (NSW Government, 2013), including small business development (Pearson and Helms, 2012), we contend that gender-specific fisheries and aquaculture development programs need to be better recognised in government policy and strategies. Such a policy approach would offer a powerful leverage opportunity in fostering remote microeconomic growth by empowering women to engage in and manage sea-based enterprises.

Types of aquaculture technologies preferred

Women preferred the concept of low maintenance, simple infrastructure, sea based aquaculture, carried out in a way respectful to culture and directed by community, with support from external agents. People's preferences suggest that more familiar, less technically complex sea farming options pose less of a challenge, both physically and conceptually. Some participants talked about the importance of the aquaculture system emulating *'nature'*, suggesting people were keen to maintain their sea country in a natural state. These expressed aspirations confirm the current approach on Goulburn Island where aquaculture enterprises are being piloted and developed in a way to enhance harvesting practices *'on country'* through sea ranching and simple sea-based structures. Such aquaculture development approaches appear to be meet Indigenous people's preference for employment opportunities using their natural marine assets. If developed in a way to enhance (by increasing stock volumes and/or improving access) customary harvesting practices through stock enhancement, sea ranching or simple sea-based structures and using low maintenance sea-farming techniques, this approach may sit well with Indigenous people's preferred development aspirations and sea management practices.

Understanding the operational aspects of aquaculture was limited amongst the women participants, but the male participants (some of whom were engaged in aquaculture vocational training) had a better grasp. After an explanation of likely operational activities, women were keen to take an active role in all aspects of sea farming production and did not see traditional gender roles affecting participation. They thought training both men and women would allow attendance at ceremonial and other commitments when needed. This highlights the importance of flexible work options for meeting cultural and family obligations, which, at times, are highly inflexible and attendance mandatory.

Perceived benefits from aquaculture

Many Indigenous people living on Waruwi aspire to engage in work, recognising it as essential to improving mental and physical wellbeing and living conditions. Participants expressed specific aspirations as to how they prefer to engage in work, based partly on their desire for work that is an extension of their cultural values and obligations and partly on self-recognised capacity limitations. These findings support the vast body of international reports of Indigenous people's desire for business and work opportunities that have cultural value and meaning, which are often non-economic. Dana and Anderson (2007) cite many examples internationally of non-economic motivators, such as Bedouin tribesmen who persist in raising sheep, even at an economic loss, for *'maintenance of Bedouin traditional life'*. Similarly, the Cree people of the Lac La Ronge Cree Nation in northern Saskatchewan, Canada engage in an organic mushroom harvesting and marketing enterprise, not purely for economic returns, which are low for the harvesters, but because the hours *'on the land'* are highly valued. Given the central role of culture in Indigenous entrepreneurship, Dana and Anderson (2007) call for a deeper understanding of Indigenous people's cultural perception of opportunity as a key causal variable driving entrepreneurship.

The primary driver to engage in commercial enterprise and employment for many Indigenous Australians, and for most Indigenous people globally, is the desire for economic independence and the benefits that this may bring, such as autonomy, self-determination, personal accomplishment, lifting socioeconomic disadvantage – particularly for their families and children, correcting negative social perceptions and social stratification based on race, and preserving heritage, culture and tradition (Wood and Davidson, 2011; Wood *et al.*, 2012). This is despite Australian Indigenous individuals being generally less likely to pursue business activities due to the strong collectivism ethos within community life, that places a much greater emphasis on community orientation, consensus decision making, sharing of resources and cooperation (Schaper, 2007). Many studies on Indigenous cultures globally have shown that individuals from some cultures have a greater propensity to engage in entrepreneurship than do others who have unlike values and social norms (Dana and Anderson, 2007). These findings highlight the need to identify Indigenous people's motivations to engage in economic activity and harness these enablers within development policy (Dana and Anderson, 2007; Wood *et al.*, 2012).

The Warruwi community's relatively positive attitude to work and earning money may be due to the elder generation's positive views about the mission times when the community members were engaged in producing goods for their own needs and for export off the island (e.g. fisheries products) (Gould, 2010). Nevertheless, similar to McRae-Williams and Gerritsen's (2010) study, employment appeared to contribute little to a sense of social identity and, in particular, was not a high priority among younger female participants in Warruwi. This is in contrast to many of the men currently working on the aquaculture trials (gaining vocational training in aquaculture in addition to boat coxswains certificate and coastal fishing licences), who over the past five years have clearly expressed to the Shire Council officer their desire for local employment opportunities at some level (Tupper, pers. comm.). The intergenerational (and possibly gender) differences in attitudes to work found in this study suggests external facilitators must ensure that views and aspirations towards work opportunities are sought from all sectors of the community, particularly the next generations who are most likely to benefit from current programs.

It became clear throughout the study that, although participants were very keen to support aquaculture development, many had only a rudimentary understanding of the type of work involved. This highlights the challenges in supporting people to plan their economic futures when they are of different cultural and language backgrounds and, as a consequence of decades of disadvantage, lack the autonomy, knowledge and resources to lead program planning and implementation. These findings highlight the importance of policy that meets the challenges posed by disengagement and demoralization by creating opportunities people feel are familiar, realistic and achievable in terms of the skills, concepts and education required, and are delivered within appropriate timeframes.

Articulation of the hybrid economy model

The preferred development aspirations expressed by participants in the study can be seen as an articulation of Altman's (2012) hybrid economies approach. Women's aspirations also align with the recommended 'triple bottom line' approach to community development (Rogers and Ryan, 2001) (with the addition of culture as a critical aspect of Indigenous wellbeing). Women expressed a desire for aquaculture development to provide benefit across their cultural priorities (harvesting and visiting sea country and the associated deeply spiritual wellbeing that comes from this), as well as social (healthy food enterprises), economic (jobs and local businesses) and environmental (sustainable use of marine assets) priorities. These findings are similar to the findings of Fordham *et al.* (2010) that existing customary harvesting practices may not lead to an interest in harvesting of wildlife with a solely commercial focus and that income-generating is likely to be but one aspect of the hybrid economy in which people choose to operate. On Goulburn Island the range of aquaculture enterprises (species) being trialed may offer either social/cultural and/or economic outcomes. Through the potential of aquaculture to provide benefit across all four priority areas of community development, Indigenous people may choose how they proportion benefit between social/cultural versus economic outcomes, depending on their capacities and values. Such a development approach, that offers the ability to balance economic and non-economic outcomes, has been highlighted by Dana and Anderson (2007) as

a critically important factor in engaging many Indigenous people in entrepreneurship globally. As people gradually develop capacity and familiarity for farming those species that are locally consumed, they may shift or broaden emphasis from local food supply towards more mainstream economic outcomes (market), potentially leading to commercial export into mainstream seafood markets. Based on the learnings from other wildlife enterprises (Fordham *et al.*, 2010), regionally local markets (short supply chain) that seek small, irregular/seasonal volumes of seafood product may prove economically viable.

Participants' views on business management and flow of benefit

Many of the senior Traditional Owners and Elders of the Warruwi community regularly express to the primary author their very strongly held desire for greater community independence, autonomy and empowerment, particularly in ways that align with cultural and community identity. This may partly explain participants' receptivity to aquaculture development. That is, it was seen as an approach that could allow community members, particularly youth, to spend more time on country and strengthen connections to the landscape, while at the same time being gainfully employed. The community's desire for greater autonomy originates from a history of external control of the community both during the mission era and in more recent times through a succession of council reforms. In 1974, when the mission era was over, a senior traditional authority on Goulburn Island and the first Indigenous Methodist reverend, Lazarus Lamilami, expressed this long held aspiration by the community of Warruwi when he stated (Lamilami, 1974: 233) '*I think the settlement will be run by Aboriginal people. That is my idea, looking into the future. In the next generation, the Aboriginal people should be given the chance to take over all the jobs of running the station*'. Still today, Warruwi people desire the capacity to make their own plans and decisions, and run their own businesses and community programs, but have a limited understanding of the complexities of running businesses and the capacities and skills needed. As a consequence there appeared to be a lot of faith in, and dependence on the executive committee of the recently formed Yagbani Aboriginal Corporation for leadership and decision-making relating to aquaculture business management. This is encouraging in terms of the positive perception of the corporation in meeting community needs, but concerning that the weight of so much responsibility will be placed on a very new and inexperienced corporation. Despite people's desire for community independence, they acknowledged the need, at least for the foreseeable future, for some sustained external support at most levels of enterprise function, such as management and financial capacities, technical training, mentoring, funding and resourcing.

The recognition by the Warruwi community of their limited capacity to engage in business activity is reflected in the low rates of entrepreneurship by Indigenous Australians generally (in 2009 6% for Indigenous Australians – and only 4% for Indigenous women - compared to 17% for non-Indigenous Australians) (Wood and Davidson, 2011). This indicates the existence of severe barriers beyond the cultural misalignment with mainstream values, including severe socioeconomic disadvantage, discrimination and prejudice by the wider Australian community, alienation from Indigenous community life, poor formal education, limited prior work experience, lack of equity and access to finance, lack of role models and language barriers (Hindle and Rushworth, 2002; Wood and Davidson, 2011; Wood *et al.*, 2012). In contrast, in New Zealand the rate of Indigenous entrepreneurship is particularly high (12% of the Maori population compared to 14% of non-Indigenous New Zealanders), which can be partly explained by the Maori people's traditional modes of commerce prior to colonization (Wood *et al.*, 2012). These comparisons show that individuals from some cultures have a greater propensity to engage in entrepreneurship than do others who have unlike values and social norms (Dana and Anderson, 2007), highlighting the need to identify and build upon people's motivation to engage in economic activity (Dana and Anderson, 2007; Wood *et al.*, 2012).

Participants aspired for business management approaches aligned with traditional authority structures and resource sharing. For example, views on the flow of benefit from future aquaculture enterprises suggested a potential tension between Traditional Owners' expectations of benefit to self and family groupings and more western corporate structures and profit sharing generally applied by external development facilitators (and supported by some community members). Another challenging aspect of Indigenous run businesses is the tension between cultural obligations to kin that places pressure on

Indigenous employees to share business assets and funds (Evans, 2007; McRae-Williams and Gerritsen, 2010; Mahood, 2012). These aspects of Indigenous run businesses continue to be particularly challenging for economic development in remote Indigenous Australian communities. This finding is similar to many other Indigenous populations (e.g. the Bedouin herdsmen of the Negev Desert, the Sámi reindeer herders of Finland and the Indians of the Paraguayan Chaco) where social order amongst Indigenous peoples is often based on complex kinship ties, and is not created in response to market needs (Dana and Anderson, 2007). Consequently, it is difficult for the individual to differentiate between business and household and thus, but extension, between kin relations. Dana and Anderson (2007) emphasised the importance of reflecting this complexity in defining entrepreneurship from an Indigenous perspective.

At present, in Indigenous Australian communities a common strategy to manage the tension between western concepts of profit sharing and cultural obligation to kin is to import western business structures and (mostly) non-Indigenous staff to support community programs (Altman, 2005; Fordham *et al.*, 2010; McRae-Williams and Gerritsen, 2010; Mahood, 2012). Altman (2005) also advocated for continued effort to be focused on governance capacity building and institutional strengthening and, in the interim, a call for considerable attention to the issue of how Indigenous interests might gain access to external staff of high quality. For local people to be more involved in business management, culturally integrated governance and business management models and systems of accountability are needed that align cultural ways of doing business (and sharing profits) with corporate approaches that protect the commercial interests of all investors and stakeholders (Altman, 2005).

Support and training programs are in place on Warruwi to develop capacities across aquaculture production and business management, although progress is tenuous and very reliant on adequate funding streams, keeping competent support staff and negotiating community politics and tensions (Indigenous and non-Indigenous) that impact on the ability of support agents and community leaders to maintain progress. Similarly, the socio-economic circumstances of the community, the external political forces, the stress people are experiencing through extreme disadvantage and, in some cases, community dysfunction, will affect whether people can focus on planning for their futures (Taylor *et al.*, 2012). This challenging and complex work environment frequently leads to uncertainty in program viability. This is a common experience of enterprise support agents in remote communities (Fordham *et al.*, 2010; Altman, 2012; Mahood, 2012), and requires a high level of flexibility, cultural and social understanding, long timeframes, adequate resourcing and the ability to form trusting, culturally-attuned working relationships within the community. The need for effective communication and knowledge exchange is paramount and requires a dedicated program in its own right, but is difficult to adequately resource and sustain throughout the development process.

Conclusion: Implications for policy makers

This study contributes to our understanding of Indigenous women's continued customary seafood harvesting practices, and, in particular, women's placing of aquaculture development within their cultural relationship to the sea, its resources and their people. These findings support the view that Warruwi women were key advocates for community development and generating employment. Because women are strongly concerned for their children and families now and into the future, there is a real, untapped potential for Indigenous women to drive development programs in their communities.

The paper articulates Indigenous people's preferred development pathways towards improved wellbeing, using a new form of hybrid economy - sea based aquaculture - that offers a culturally integrated model of work aligned with people's customary practices on sea country. Such hybridised forms of work provide the space and time for Indigenous people to integrate and adapt cultural practice systems with western business systems. At the same time they enable Indigenous people to pursue cultural imperatives that may otherwise compel them to regularly leave more mainstream forms of work. Such hybridised economies recognise the capacities and aspirations of remote-dwelling Indigenous Australian *as lived and experienced today* and can serve as a mechanism that, over time, can lead to better engagement in mainstream economies. In this way policy can operate at the nexus between culture and western economies to help facilitate people's current capacities and harness their

willingness to adapt and negotiate a pathway towards better integration into mainstream economies, while maintaining the foundational, non-negotiable aspects of their cultural norms, language, laws and beliefs.

Government investment is needed to support many of these economies, at least for the foreseeable future, but such approaches pose a challenge to governments that aim for uniformity of programs and services, and are adverse to policy based on difference (Sanders, 2005; Altman *et al.*, 2012). Acknowledging that many Indigenous people seek to have full choice regarding participation in the mainstream economy, and that balanced policy analyses call for a dual approach to development that encompasses both community-based and mainstream economic opportunities (Austin-Broos, 2011), current policy must be pragmatic and harness hybrid economies as a bridging mechanism towards fuller economic participation. Such bridging economies can act as a policy instrument to help transition Indigenous people along a capacity building and employment pathway and, in so doing, address the current impasse in Indigenous economic development policy in remote Australia. Given this, it may be more strategic to call them ‘transition economies’ to better influence government investment in these economies.

Results from this study showed the strong desire for autonomy within the Waruwi community but it was also evident that the tension between aspiration, capacity and some aspects of culture are at odds with business management and benefit sharing. These findings demonstrate how external agents tasked to facilitate economic development on remote communities, such as on Goulburn Island, must ensure the right type of culturally-integrated economies are targeted to suit Indigenous people’s aspirations and capacities, particularly those of the youth. Equally, it was evident that the way agents facilitate, communicate and negotiate enterprise development and support local business management arrangements is critical. The research highlights the need for Indigenous economic development policy in remote northern Australia to craft employment programs based on the different values, aspirations, needs and contexts of Indigenous people. This policy position is supported by evidence from both within Australia (through the success of the ‘working on country’ program) and internationally, particularly New Zealand, Canada and the United States, where significant advances in economic engagement have been achieved using such an approach. We suggest policy makers should also better engage and empower Indigenous women and, through close collaboration, provide supportive sea-based enterprise programs to drive microeconomic development programs for their children and families.

The potential to achieve successful aquaculture enterprises in remote Indigenous communities is likely to rest on a holistic understanding of the factors that impact on business success (social and cultural as well as technical and commercial factors). It also rests on a community development approach that places the community at the centre, in control of their economic futures and empowered to make all key decisions. This community based approach is supported by the extensive international body of research on Indigenous entrepreneurship that calls for the accommodation of cultural values that influence Indigenous perceptions of opportunity, builds on traditional economies, are based on egalitarianism, sharing and communal activity, and accommodates traditional social organisational structures based on kinship ties (Dana and Anderson, 2007). To achieve this, a transdisciplinary framework of support is needed (to build and integrate systems and capabilities both within the community and external to it) that brings together expertise from the sciences, social sciences, commercial and Indigenous knowledge systems. Such an integrated, partnership approach has been formed to support aquaculture development on Goulburn Island as a testing-ground for government policy improvement in this field. Future work will report on this framework and its effectiveness in supporting clan-based aquaculture enterprises aligned with traditional sea ownership and kinship structures.

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Appendix 2. FRDC’s Indigenous Reference Group - Principles and R&D Priorities

Indigenous Research, Development and Extension (RD&E) Priorities for Fishing and Aquaculture - endorsed at the Cairns Forum 2012 - November 2012

Purpose of Document

These RD&E Priorities were developed by the FRDC Indigenous Reference Group (IRG) as part of a strategic and planned approach to identifying key RD&E priorities for indigenous participation in fishing and aquaculture in Australia.

The RD&E Priorities were based on 11 Key Principles that were identified at the Cairns Forum 2011¹ held in March 2011. At the forum participants charged the IRG with taking the principles forward and identifying key RD&E priorities.

In November 2012 a second forum was held in Cairns (Cairns Forum 2012²) and the following priorities were endorsed by participants as providing sound guidance on indigenous RD&E needs in the fishing and seafood industry.

Strategic Priorities	RD&E Actions To Achieve Priorities	Links to the 11 Principles Developed at the Cairns Forum 2011 ²
<p>Primacy for Indigenous People</p> <p><i>Indigenous people have certain recognised rights associated with and based on the prior and continuing occupation of country and water and activities (e.g. fishing, gathering) associated with the use and management of these.</i></p>	<ul style="list-style-type: none"> • Explore the means to ensure Australian indigenous fishing cultural assets and associated rights are met, or addressed, within the broader understanding of fishing rights in Australia. • Process to determine an indigenous catch and allocation model, e.g.; <ul style="list-style-type: none"> – examples of relevant allocation models – value of the allocation to various sectors – current status and case studies 	<ul style="list-style-type: none"> ▪ Customary cultural assets and associated rights acknowledged ▪ Allocation protocols developed ▪ Economic opportunities developed ▪ Legislative consistency and recognition mainstreamed ▪ Ranger connection improved ▪ Social analysis undertaken ▪ Traditional Fisheries Management (TFM) incorporated ▪ Traditional Fishing Knowledge (TFK) incorporated

Strategic Priorities	RD&E Actions To Achieve Priorities	Links to the 11 Principles Developed at the Cairns Forum 2011 ²
<p>Acknowledgement of Indigenous Cultural Practices</p> <p><i>Indigenous people have the right to maintain and develop cultural practices to address spiritual, cultural, social and economic needs associated with aquatic resources and landscapes.</i></p>	<ul style="list-style-type: none"> • Identify models to incorporate TFK/TFM into aquatic resource management processes • Examine what fishing and non-fishing practices impact on indigenous cultural fishing practices, including identifying key iconic species • Explore the means to ensure that Australian Indigenous cultural assets and associated fishing rights are being addressed in the broader understanding of fishing rights in Australia • Identify the real understanding of the non-indigenous groups (other fisheries sectors and conservation NGO's) about indigenous cultural fishing and develop processes/materials to enhance that understanding. 	<ul style="list-style-type: none"> ▪ Cultural fisheries values quantified ▪ Fishing and non-fishing impacts on indigenous practices quantified ▪ Fishing restrictions on customary use identified and addressed ▪ Iconic species role in TFM and TFK acknowledged ▪ Social indicators of commercial benefits of TFK and TFM developed. ▪ TFK acknowledged and incorporated into mainstream management ▪ TFM acknowledged and incorporated into mainstream management
<p>Self determination of indigenous rights to use and manage cultural assets and resources</p> <p><i>Indigenous people have the right to determine courses of action in relation to use and management of aquatic biological resources</i></p>	<ul style="list-style-type: none"> • Addressing barriers to full and effective indigenous involvement in mainstream fisheries decision making processes and forums • Identifying the cost benefit of effective indigenous consultation and extension • Improving the involvement of indigenous people in all levels of aquatic biological resource management. 	<ul style="list-style-type: none"> ▪ Co-management/self-management models in place acknowledging indigenous primacy and TFK/TFM ▪ Consultation models that meet indigenous peoples' needs utilised ▪ Engagement and involvement with indigenous people improved ▪ Governance models that enhance indigenous involvement developed and utilised ▪ Processes to enhance indigenous participation in RD&E process in place

Strategic Priorities	RD&E Actions To Achieve Priorities	Links to the 11 Principles Developed at the Cairns Forum 2011 ²
<p>Economic development opportunities arising from indigenous peoples cultural assets and associated rights</p> <p><i>Indigenous people have the right to engage in economic activity based on the use of traditional aquatic biological resources and/or the right to share in the benefits derived from the exploitation of aquatic biological resources</i></p>	<ul style="list-style-type: none"> • Develop and start new commercial initiatives that maintain ongoing indigenous interests and concerns in the fishing and seafood industry • Develop management measures that improves indigenous access to aquatic biological resources for commercial purposes • Explore innovative benefit sharing models from fisheries resource use and access (including employment) • Examine new models to ascertain the total 'value' of indigenous participation in fishing • Explore opportunities for branding (labelling) of indigenous caught seafood and fisheries product assessed 	<ul style="list-style-type: none"> ▪ Blockages to indigenous involvement in business around the fishing and seafood industry removed ▪ Commercial fishing governance structures that meet indigenous needs are adopted ▪ Commercial opportunities from indigenous branded fishing and seafood operations developed and supported ▪ Measurable economic outcomes derived from the fishing and seafood industry in place • Social sciences and economic modeling undertaken that ascertains the real value of indigenous participation in the fishing and seafood industry
<p>Capacity building opportunities for indigenous people are enhanced</p> <p><i>Indigenous people have the right to access capacity building activities to further their aspirations in the use and management of aquatic biological resources</i></p>	<ul style="list-style-type: none"> • Building capacity of mainstream sectors to effectively engage with indigenous fishing sector and communities • Building general understanding of fishing industry structures and processes • Improving capacity of (and opportunities for) indigenous people to engage in research, fisheries management, compliance and other commercial activity • Research outputs and information are available in appropriate formats and language (extension and adoption) 	<ul style="list-style-type: none"> • Culturally appropriate extension practices are in place that provide indigenous people with a better understanding of the fishing and seafood industry ▪ Fishery management and research agencies have sufficient adequately qualified staff to engage appropriately with indigenous people ▪ Indigenous people have a high level of engagement in a range of activities associated with the fishing and seafood industry across all sectors • Management programs acknowledge and incorporate TFK and TFM

Appendix 3. FRDC’s Indigenous Reference Group - Eleven key R&D Principles, Context and RD&E Outputs

Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 1</p> <p>RD&E that seeks to - Enhance Aboriginal and Torres Strait Islander Recognition</p>	<p>For Aboriginal and Torres Strait Islander people’s cultural fisheries to be implicitly recognised as a definitive sector within each level of the fishing and seafood industry.</p>	<ol style="list-style-type: none"> 1) Identify and define what is customary fishing within their sector 2) Protect customary fishing rights 3) Achieve legislative recognition from government and management of the Aboriginal and Torres Strait Islander connection to land, waterways, sea country and species 4) Support the development and adoption of Aboriginal and Torres Strait Islander regional and national fishing strategies 5) Incorporate Traditional Fishing Knowledge (TFK) and Traditional Fisheries Management (TFM) into legislation that leads to improved self governance 6) Build capacity of indigenous and non indigenous participants in the decision making process 7) Recognise appropriate Aboriginal and Torres Strait Islander allocation of the resource and ongoing access to traditional land, waterways, sea country and species.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 2</p> <p>RD&E that seeks to - Resolves Issues Around Access</p>	<p>Develop, maintain and improve access to aquatic resources and important areas for Aboriginal and Torres Strait Islanders.</p>	<ol style="list-style-type: none"> 1) Have equitable access for Aboriginal and Torres Strait Islander people to fish stocks and fisheries and identify options for equitable distribution 2) Identify impacts on native title rights arising from management decisions, including the establishment of Marine Parks, fishing limits and allocation of fishing rights to other sectors 3) Maintain and improve access to aquatic and land areas, including Commonwealth or State/Territory protected areas such as marine and terrestrial reserves and parks 4) Maintain cultural practice and knowledge to improve access, knowledge and use of legislative processes/obligations to ensure Aboriginal and Torres Strait Islander input is improved and recognised

		<ul style="list-style-type: none"> 5) Access and inclusion to the decision making processes 6) Develop frameworks for consultation regarding decisions that could impact on access and improve engagement capacity 7) Identify the social and economic benefit derived for Torres Strait and Aboriginal people from access and use of fish stocks 8) Assess cultural and socio-economic impacts for Torres Strait and Aboriginal people arising from resource utilisation by other sectors 9) Develop management measures that improve Aboriginal and Torres Strait Islander access to the resource and fisheries for commercial purposes.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 3</p> <p>RD&E that seeks to - Improves Governance and Provide Pathways to Better Representation and Management Models</p>	<p>To develop processes that best align with Aboriginal and Torres Strait Islander people’s needs, including self management or co-management which incorporates Traditional Fisheries Management (TFM) arrangements and techniques.</p>	<ul style="list-style-type: none"> 1) Identify the best structure to provide a focal voice and ‘push’ for Aboriginal and Torres Strait Islander fishing representation 2) Through appropriate consultation address the inconsistencies across jurisdictions regarding Aboriginal and Torres Strait Islander fishing rights and access, 3) Develop bottom up and community focused planning and fishery governance models 4) Develop mechanisms to incorporate TFM as a standard governance model 5) Improve real Aboriginal and Torres Strait Islander involvement in the decision-making processes 6) Improve Aboriginal and Torres Strait Islander representation and build capacity (including resourcing) for indigenous people to have a broader representative role in fisheries management 7) Improve Aboriginal and Torres Strait Islander engagement and buy-in into the management process, including greater involvement in appropriate committees across sectors and agencies 8) Improve the recognition of traditional law and develop compliance options that give Aboriginal and Torres Strait Islander people the right and capacity to undertake cultural fishing compliance 9) Identify social and economic benefits from improved governance and management models.

Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 4</p> <p>RD&E that seeks to - Provide Resourcing Options in a User Friendly and Culturally Appropriate Manner to Encourage Greater Aboriginal and Torres Strait Islander Involvement</p>	<p>To identify opportunities to reduce costs and the complexity of resourcing and funding for Aboriginal and Torres Strait Islanders.</p>	<ol style="list-style-type: none"> 1) Reduce the complexity surrounding the funding process and subsequent reporting, including when multiple funding resources and support are involved 2) Improve linkages across potential projects that have similar objectives or outcomes 3) Improve capacity of Aboriginal and Torres Strait Islander people to take a greater and wider role in development, management and reporting of RD&E projects.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 5</p> <p>RD&E that - Leads to Improved Capacity That Empowers Aboriginal and Torres Strait Islanders</p>	<p>To lead to increased commercial opportunities and management roles for Aboriginal and Torres Strait Islander people arising from resource use and access.</p>	<ol style="list-style-type: none"> 1) Protect Aboriginal and Torres Strait Islander rights as part of resource use 2) Develop and start new commercial initiatives that maintain ongoing interests and concerns in the fishing and seafood industry 3) Link Aboriginal and Torres Strait Islander community small business aspirations 4) Identify investment opportunities, including benefit sharing resource agreements e.g. Indigenous Land Use Agreements 5) Empower Aboriginal and Torres Strait Islander communities through development of social capital 6) Improve commercial performance through culturally appropriate and innovative business management solutions 7) Develop community capacity and involvement, including an understanding of mainstream sciences and management processes 8) Formally upskill Aboriginal and Torres Strait Islander people to increase employment and engagement opportunities 9) Develop long-term employment strategies, including within agencies and for regional

		communities 10) Develop indigenous solutions to indigenous opportunities.
Principle	Context	RD&E outputs that will assist end-users to
Principle 6 RD&E that - Leads to Agencies Developing Capacity to Recognise and Utilise Aboriginal and Torres Strait Islander Expertise, Processes and Knowledge	To ensure Government, as part of its responsibility to consult and engage with Aboriginal and Torres Strait Islander people on resource use, undertakes such discussions in a supported and culturally appropriate way.	1) Develop strategies that lead to higher levels of Aboriginal and Torres Strait Islander employment in key agencies – across all industry sectors and occupations 2) Incorporate traditional fishing knowledge and traditional fishing management practices with the mainstream 3) Develop two-way discussion and consultation processes that align with Aboriginal and Torres Strait Islander cultural needs and norms 4) Put in place policies and regulations that are cognisant of the cultural needs of Aboriginal and Torres Strait Islander clients 5) Ensure that Aboriginal and Torres Strait Islander people are involved in and have representation on all appropriate committees, and are resourced appropriately 6) Build relationships with Aboriginal and Torres Strait Islander clients 7) Assist in building Aboriginal and Torres Strait Islander capacity.
Principle	Context	RD&E outputs that will assist end-users to
Principle 7 RD&E that - Leads to Recognition of Customary Rights and Knowledge, Including Processes to Incorporate Aboriginal and Torres Strait Islander Traditional Fishing Knowledge (TFK) and Traditional Fisheries	To acknowledge and value the benefits of Traditional Fishing Knowledge and Traditional Fisheries Management in the broader fisheries management processes.	1) Formalise recognition of TFK (and Ecological) and TFM in fisheries legislation, including defining cultural rights and access 2) Assess the value of TFK and TFM, including its broader resource management contributions 3) Develop community based fishing activities and capacity building that leads to full engagement 4) Document Aboriginal and Torres Strait Islander TFK and TFM practices and identification of Intellectual Property that may arise 5) Strengthen community capacity to implement appropriate and acceptable compliance that leads to improved cultural governance 6) Use TFK and TFM to create solutions to industry issues

Management (TFM)		<ul style="list-style-type: none"> 7) Incorporate TFK and TFM with the mainstream decision making processes 8) Improve levels of environmental awareness and the understanding of the impacts of a broad range of fishing and non fishing activities on the ecosystem.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 8</p> <p>RD&E that seeks to - Improves Knowledge and Awareness of Impacts on the Environment and Traditional Harvest</p>	<p>To assess and mitigate the fishing and non fishing impacts on Aboriginal and Torres Strait Islander cultural catch and practices.</p>	<ul style="list-style-type: none"> 1) Identify, gather baseline information and quantify ecosystem impacts of non-indigenous fishing and non fishing activities, including; <ul style="list-style-type: none"> a. discharge and impacts on the environment b. on target, bycatch and totemic species , including marine mammals, such as dugong and whales, and reptiles such as turtles and crocodiles 2) Monitor the impact of non-indigenous fishing and non fishing activities 3) Maintain biocultural diversity for Aboriginal and Torres Strait Islanders 4) Identify impacts of bag, possession and size limits on Aboriginal and Torres Strait Islander culture and practice.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 9</p> <p>RD&E that seeks to - Provide management arrangements that lead to improved access, protection and incorporation of Traditional Fishing Knowledge (TFK) and Traditional Fisheries Management (TFM) input to processes</p>	<p>To allow Aboriginal and Torres Strait Islander people to have mandated access and management arrangements that aligns with, and incorporate, TFK and TFM</p>	<ul style="list-style-type: none"> 1) Acknowledge TFK and TFM and where appropriate incorporate into mainstream processes, including broader management arrangements, regional approaches, compliance, self management and protection of rights 2) Develop two way communication processes to optimise outcomes, build relationship across sectors and ensure greater involvement and engagement of Aboriginal and Torres Strait Islander people in management roles and committees 3) Better define access and rights to fish (indigenous and non indigenous) 4) Develop models to encourage and support Aboriginal and Torres Strait Islander people involvement in the broader fishing and seafood industry which allows for capacity growth 5) Identify innovative means to resource and improve engagement processes and capacity at all levels

Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 10</p> <p>RD&E that - Leads To an Increased Value for Aboriginal and Torres Strait Islanders (Economic, Social, Cultural, Trade, Health, Environmental)</p>	<p>To improve the overall wellbeing of Aboriginal and Torres Strait Islanders through involvement in the fishing and seafood industry.</p>	<ol style="list-style-type: none"> 1) Facilitate research into traditional foods and food security 2) Look at new models to ascertain the value of Aboriginal and Torres Strait Islander fishing, including; <ol style="list-style-type: none"> a. identifying social return on investment b. understanding the economic value of involvement in fishing is broader than direct return(e.g. social, cultural, health, management) c. developing mechanisms to determine agreed valuation methods d. determining the historical value of indigenous catch (lost opportunity and actual catch) 3) Identify how improved Aboriginal and Torres Strait Islander cultural practices can lead to increased community and individual wellbeing 4) Identify infrastructure required to improve Aboriginal and Torres Strait Islander participation in the fishing and seafood industry 5) Identify investment opportunities, including overseas' investment and branding 6) Consider opportunities for benefit sharing from resource use and access 7) Protect Aboriginal and Torres Strait Islander people's rights as part of resource use 8) Gain long-term employment opportunities for Aboriginal and Torres Strait Islanders - especially in regional and remote communities.
Principle	Context	RD&E outputs that will assist end-users to
<p>Principle 11</p> <p>RD&E that - Leads To Benefit Sharing</p>	<p>For Aboriginal and Torres Strait Islander people to derive benefits from the use of fish stocks and fishing rights</p>	<ol style="list-style-type: none"> 1) Identify different ways to extract benefits from resource use for Aboriginal and Torres Strait Islander people 2) Increase employment and economic opportunities for Aboriginal and Torres Strait Islander people.

