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An Impact Assessment of FRDC Investment in 2012-403: Development of the East Arnhem Fisheries Network Training Framework

Agtrans Research

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Abbreviations

ABS	Australian Bureau of Statistics
CDU	Charles Darwin University
CRRDC	Council of Research and Development Corporations
DPIF	Department of Primary Industries and Fisheries – Northern Territory
DPIR	Department of Primary Industries and Resources – Northern Territory
FRDC	Fisheries Research and Development Corporation
LOTE	Languages Other Than English
NT	Northern Territory
RD&E	Research Development and Extension
RTO	Recognised Training Organisation
VTP	Vocational Training Program

Executive Summary

What the report is about

This report presents the results of an impact assessment of the Fisheries Research and Development Corporation (FRDC) investment in a project to develop a training framework for East Arnhem Fisheries Network.

Methodology

The investment in the project was analysed qualitatively within a logical framework that included activities/outputs, outcomes, and impacts. Identified impacts were then categorised into a triple bottom line framework. Principal impacts from those identified were considered for valuation.

Results/key findings

The project development a Vocational Training Program to integrate subjects into an Indigenous context, allowing training to happen on country. The improved training framework was envisioned to help Indigenous seafood workers improve their formal knowledge. Throughout the project, Arnhem Land communities developed several project materials. No further work or extension has occurred since the development of the framework.

Investment Criteria

Funding for the project over the three years totalled $0.15 million in present value terms. The FRDC investment costs were $0.15 million in present value terms. The investment produced no quantifiable benefits.

Conclusions

There may be future impacts from the project if the Vocational Training Program (VTP) or other project materials developed are used in the future. As a result of the project, there are only minor capacity building impacts from participants involved with the production of training materials from the project.

Keywords

Impact assessment, cost-benefit analysis, East Arnhem, West Arnhem, Indigenous, aquaculture, training, training framework.

Introduction

The Fisheries Research and Development Corporation (FRDC) required a series of impact assessments to be carried out annually on a number of investments in the FRDC research, development and extension (RD&E) portfolio. The assessments were required to meet the following FRDC evaluation reporting requirements:

- Reporting against the FRDC 2015-2020 RD&E Plan and the Evaluation Framework associated with FRDC's Statutory Funding Agreement with the Commonwealth Government.
- Annual Reporting to FRDC stakeholders.
- Reporting to the Council of Rural Research and Development Corporations (CRRDC).

The first series of impact assessments, that included 20 randomly selected FRDC investments, was completed in August of 2017. The published reports for the first series of evaluations can be found at: http://frdc.com.au/Research/Benefits-of-research/2017-Portfolio-Assessment

The second series of impact assessments also included 20 randomly selected FRDC investments. The investments were worth a total of approximately $5.62 million (nominal FRDC investment) and were selected from an overall population of 96 FRDC investments worth an estimated $21.32 million (nominal FRDC investment) where a final deliverable had been submitted in the 2016/17 financial year.

The 20 investments were selected through a stratified, random sampling process such that investments chosen spanned all five FRDC Programs (Environment, Industry, Communities, People and Adoption), represented approximately 26% of the total FRDC RD&E investment in the overall population (in nominal terms) and included a selection of small, medium and large FRDC investments.

Project 2012-403*: Development of the East Arnhem Fisheries Network Training Framework* was selected as one of the 20 investments and was analysed in this report.

General Method

The impact assessments followed general evaluation guidelines that are now well entrenched within the Australian primary industry research sector including Research and Development Corporations, Cooperative Research Centres, State Departments of Agriculture, and some Universities. The approach includes both qualitative and quantitative descriptions that are in accord with the impact assessment guidelines of the CRRDC (CRRDC, 2014).

The evaluation process involved identifying and briefly describing project objectives, activities and outputs, outcomes, and impacts. The principal economic, environmental and social impacts were then summarised in a triple bottom line framework.

Some, but not all, of the impacts identified were then valued in monetary terms. Where impact valuation was exercised, the impact assessment uses Cost-Benefit Analysis as its principal tool. The decision not to value certain impacts was due either to a shortage of necessary evidence/data, a high degree of uncertainty surrounding the potential impact, or the likely low relative significance of the impact compared to those that were valued. The impacts valued are therefore deemed to represent the principal benefits delivered by the project. However, as not all impacts were valued, the investment criteria reported for individual investments potentially represent an underestimate of the performance of that investment.

Background and Rationale

Background

Fishing and aquaculture play an important role in the lives of Indigenous communities. In Arnhem Land, there have been many fishing and aquaculture businesses set up through Aboriginal Corporations for the benefit of their communities.

It was identified that there was a need for ongoing engagement with Indigenous communities around training and capacity building. Previous work highlighted the need for skill development in remote communities, with the need for training to take place on country. The National Fishing and Aquaculture RD&E plan identified that there was a two-way street between Indigenous and non-Indigenous communities to build capacity within Indigenous communities (FRDC, 2016). The need to build capacity was recognised with Goal Six of the plan: "Increase engagement of Aboriginal and Torres Strait Islander people in customary, commercial and recreational fishing and aquaculture RD&E activities".

Rationale

As there was underdevelopment of training resources for Indigenous fishers, a training program specific to Indigenous needs in East Arnhem was identified as being beneficial for the fishing community.

There was an opportunity to develop a training framework specifically for Arnhem Indigenous communities that could potentially also be used in other communities. A framework could be developed into a formal course, with the project also developing the basis for a Certificate II in Fishing, specifically for the Arnhem communities. Further, the Vocational Training Program (VTP) could potentially be designed as a stepping stone to Certificate II in Aquaculture and beyond.

The envisaged framework was aligned with the third objective of the East Arnhem Fisheries Network Program "*Develop a program of coordinated education and training in seafood and small business skills that are available to the East Arnhem community*" (Department Primary Industries and Fisheries (DPIF), 2011).

It was hoped that by developing the framework with the local communities and other stakeholders, the framework could engender a sense of ownership with the courses, not only leading to knowledge within the community, but also enabling knowledge to build over time (through learners later becoming trainers).

Project Details

Summary

Project Code: 2012-403

Title: Development of the East Arnhem Fisheries Network Training Framework

Research Organisation: Charles Darwin University (CDU)

Principal Investigator: Dr Ruth Wallace

Period of Funding: August 2012 – February 2017

FRDC Program Allocation: People (80%), Communities (20%)

Objectives

The project included three key objectives:

1. To develop a training framework for sustainable seafood-based enterprises for Indigenous people.
2. Develop an accreditation of a Vocational Training Programme for Indigenous Seafood based Enterprises at Charles Darwin University using Nationally Endorsed Units of Competence.
3. To develop training and assessment plans and materials in English and Yolngu Mathu, in paper and electronic formats.

Logical Framework

Table 1 provides a description of the project in a logical framework developed for the evaluation.

Table 1: Logical Framework for Project 2012-403

Activities and Outputs	• The project aimed to develop a training framework that would be suitable for current and future East Arnhem fishery and aquaculture businesses and employees. • Project personnel consulted widely with a number of stakeholders including Department of Primary Industries and Resources (DPIR), local Aboriginal communities and other organisations to ensure definitions and purpose of the framework were understood and interpreted correctly by everyone. • The above was achieved through a multi-step process of 'question, act and analyse, collect data, analyse the outcomes, reflect, and proceed to the next action' giving feedback loops to the further development of the framework. • Through working with DPIR, East Arnhem Fisheries and other stakeholders, it was determined what skill gaps needed to be addressed by mapping the skills to existing training packages. • The result of the consultation process was a refined training program that was then trialled. • The trial on the training framework was carried out to identify any changes that needed to be made to the program. Further consultation was sought from meetings with Northern Territory (NT) fisheries staff to assess the structure of the framework and to establish sites with which to test the project material. Experts, managers and other stakeholders visited each site where trials took place. • Visits to the Crocodile Islands Rangers and the East Arnhem community were conducted during the week of July 13th 2015, to train the community on how to

	produce training resources. Audio-visual footage was collected and converted to a video training resource. • In addition, ten videos were produced in conjunction with the Yagbani Aboriginal Corporation at Warruwi, West Arnhem as training examples. These videos can be viewed at https://vimeo.com/album/4304396. Videos were produced by volunteer rangers, enhancing their own skill sets. • As a result of the framework, existing aquaculture course units were adjusted to be relevant for Indigenous communities, with the framework mapping relevant courses to the existing fishing and aquaculture skills of Indigenous fishing communities. • The framework was designed to not only prepare students for both learning and teaching but also to provide a pathway for trainees to become the trainers of any future programs and courses. • The new framework is compliant with the Australian National Training Framework and can be replicated across any Recognised Training Organisation (RTO) to be used to deem students competent in aquaculture. • Recognition of prior learning was integrated into the training framework, allowing tacit knowledge to be credited. • As part of the project, a website was developed to promote and support the framework. The website contains information about the training framework such as the background of the fisheries network, example resources from the program, and links to career pathways. The website can be viewed at https://indigenousfisheriestrainingframework.wordpress.com/2015/04/27/training-framework/ • Skillset units were developed to address the training needs of students in the short term. The units were developed so that any RTO could use them and were intended to lead to further qualification by students. • VTP nits were mapped to potential Indigenous fisheries/aquaculture work to ensure relevance for the VTP. The units included o Harvest cultured or held stock, o Maintain stock culture, holding and other farm structures, o Handle stock, o Collect broodstock and seed stock, o Monitor stock and environmental conditions. • The VTP developed was called VTP226 Remote Aquaculture and Fisheries and was registered at Charles Darwin University (CDU). • Consultation throughout the project with a number of stakeholders (NT Fisheries, Customs, CDU, and FRDC Indigenous Reference group) identified that there were areas that needed to be addressed to improve the training framework. Areas identified, for example, included the lack of material for working with specific species of seafood, adaptations to licences that reflect the type of work to be undertaken, computer skills for reporting and pathways to start working while studying. • The project identified barriers to delivering effective training. These included high staff turnover for course trainers leading to a less experienced workforce, a wide variety of language skills among students, and low English literacy and numeracy due to English not being the first language. Further development of these skills plus computer literacy needed to be developed further so students can successfully upskill to higher level courses. • Training and assessment plans and materials in multiple languages (English, Maung and Yolngu Matha), and additional learning material were made available on a shared website that included project extension. • It was recognised that other modes of training were needed to integrate Indigenous knowledge, and cultural land and sea management practices as English based learning and paper workbooks were not suitable to capture this knowledge.

	• Feedback from stakeholders on the training framework such as staff from CDU, the Aboriginal Corporation facilitator, and DPIR staff on the framework was overwhelmingly positive. • The training framework developed was designed to be matched with existing and future units and qualifications, ensuring the framework was flexible to changes in aquaculture and fisheries qualification needs that may arise.
Outcomes	• The development of the program has allowed training material to be available to remote communities, delivered in Languages Other Than English (LOTE) to the benefit of the target communities. • The project has enabled Indigenous communities to develop their own specific training suited to their needs, while the training is still within the National Framework. • As a result of the collaborative nature of the training framework design, participants felt ownership of the program and have leadership over the framework, ensuring its suitability in the future. • The increased level of training and participation by Indigenous communities in aquaculture within their local communities as participants in the program has enabled members of the communities to become future trainers and leaders. • Despite the project producing several outputs such as training material and the VTP framework, there has been no evidence of these materials being developed further or used in any capacity Matt Osborne, pers. comm., 2018). • The project did not align with the needs of the Northern Territory Governments, so was not used further (Matt Osborne, pers. comm., 2018). There currently still is a need to develop useful training materials (Matt Osborne, pers. comm., 2018). There is no evidence that the training framework has been used to start or improve seafood-based businesses in Arnhem. However, the Northern Territory Government has continued to invest in training material for Aboriginal stakeholders, including in the seafood industry (Matt Osborne, pers. comm., 2018). • There may be increased confidence and training from the participants that participated in the making of the course materials.
Impacts	• Potential for increased employee income and business profits. • Potential increased capacity and knowledge within Indigenous communities. • Potential increased regional community spillovers from increased profits and productivity of personnel.

Project Investment

Nominal Investment

Table 2 shows the annual investment made in Project 2012-403 by FRDC.

Table 2: Annual Investment in Project 2012-403 (nominal $)

Year ended 30 June	FRDC ($)	TOTAL ($)
2013	22,619	22,619
2014	0	0
2015	38,748	38,748
2016	51,729	51,729
Totals	**113,096**	**113,096**

Program Management Costs

For the FRDC investment, the cost of managing the FRDC funding was added to the FRDC contribution for the project via a management cost multiplier (1.122). This multiplier was estimated based on the share of 'employee benefits' and 'supplier' expenses in total FRDC expenditure reported in the FRDC's Cash Flow Statement (FRDC, 2013-2017). This multiplier then was applied to the nominal investment by FRDC shown in Table 2.

Real Investment and Extension Costs

For purposes of the investment analysis, the investment costs of all parties were expressed in 2017/18 dollar terms using the Implicit Price Deflator for Gross Domestic Product (ABS, 2018). No additional costs of extension were included as there has been no follow up to the project outputs to date.

Impacts

Table 3 provides a summary of the principal types of impacts expanded from those listed in Table 1 and categorised into economic, environmental and social impacts.

Table 3: Triple Bottom Line Categories of Principal Impacts from Project 2012-403

Economic	• Potential for increased employee income and business profits.
Environmental	• Nil
Social	• Potential increased regional community spillovers from increased profits and productivity of personnel. • Potential increased capacity and knowledge within Indigenous communities.

Public versus Private Impacts

There are both private and public impacts from the project. The majority of impacts are private but there are public impacts from the spillover of knowledge and capacity, and increased profits to regional communities in Arnhem Land.

Distribution of Private Impacts

The private impacts captured from the project will be by participants in the courses and programs developed from the framework and any businesses that are involved.

Impacts on other Australian Industries

It is assumed that there will not be any impacts on other Australian industries.

Impacts Overseas

There are no expected overseas impacts related to this project.

Match with National Priorities

The Australian Government's Science and Research Priorities and Rural RD&E priorities are reproduced in Table 4. If potential impacts had been delivered n impacts would have contributed to Rural RD&E Priorities 3 and 4, and to Science and Research Priorities 2, 5, and 7.

Table 4: Australian Government Research Priorities

Australian Government	
Rural RD&E Priorities (est. 2015)	**Science and Research Priorities (est. 2015)**
1. Advanced technology 2. Biosecurity 3. Soil, water and managing natural resources 4. Adoption of R&D	1. Food 2. Soil and Water 3. Transport 4. Cybersecurity 5. Energy and Resources 6. Manufacturing 7. Environmental Change 8. Health

Sources: DAWR (2015) and OCS (2016)

Valuation of Impacts

Impacts Valued

The project did not produce any quantifiable impacts, so no quantitative evaluation processes were applied to estimate benefits.

Impacts not Valued

The impacts identified in Table 3 were not valued for the following reasons (Table 5):

Table 5: Reasons for Not Valuing Impacts

Impact/Potential Impact	**Reason why Potential Impact Not Valued**
Potential for increased employee income and business profits	Based on feedback, there is no evidence that this impact has occurred.
Potentially increased regional community spillovers from increased profits and productivity of personnel	
Potentially increased capacity and knowledge within Indigenous communities	The impact is relatively minor due to the increased capacity only occurring during the development of the project materials, with no ongoing training post- project.

Results

All past costs were discounted to 2017/18 using a discount rate of 5%. All analyses ran for the length of the project investment period plus 30 years from the last year of investment in Project 2012-403 (2015/16).

Investment Criteria

Tables 6 and 7 show the investment criteria estimated for different periods of benefits and costs for the total investment and FRDC investment respectively. Note that, as no impacts were valued, the investment criteria reporting is restricted to the Present Value of Costs.

In the interests of consistency with other project analyses and reporting, the Present Value of Costs was reported for the length of the investment period plus for different periods up to 30 years from the last year of investment (2015/16). It should be noted that as FRDC provided all funding, the costs in Tables 6 and 7 are the same,

Table 6: Investment Criteria for Total Investment in Project 2012-403

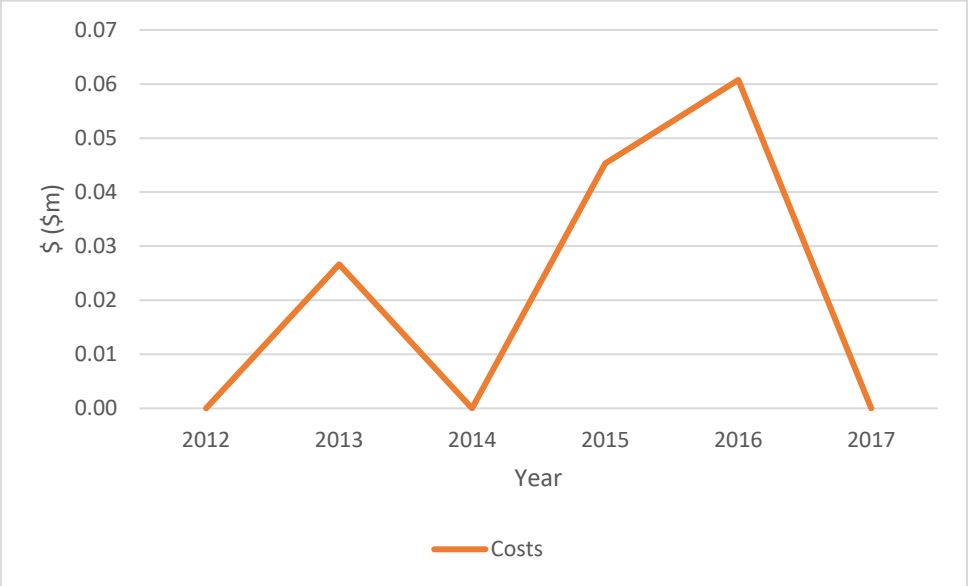
Investment criteria	**Number of years from year of last investment**						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present value of costs ($m)	0.15	0.15	0.15	0.15	0.15	0.15	0.15

Table 7: Investment Criteria for FRDC Investment in Project 2012-403

Investment criteria	**Number of years from year of last investment**						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present value of costs ($m)	0.15	0.15	0.15	0.15	0.15	0.15	0.15

The annual undiscounted cost cash flow for the total investment for the duration of the investment period is shown in Figure 1.

Figure 1: Annual Cash Flow of Undiscounted Total Costs



Conclusions

Total funding for the investment over the five years totalled $0.15 million in present value terms. The FRDC investment costs the same at $0.15 million in present value terms. There might be future impacts from the project if the VTP or other project materials developed are used in the future. There may be minor capacity building impacts from participants involved with the production of training materials from the project.

Glossary of Economic Terms

Cost-benefit analysis:	A conceptual framework for the economic evaluation of projects and programs in the public sector. It differs from a financial appraisal or evaluation in that it considers all gains (benefits) and losses (costs), regardless of to whom they accrue.
Benefit-cost ratio:	The ratio of the present value of investment benefits to the present value of investment costs.
Discounting:	The process of relating the costs and benefits of an investment to a base year using a stated discount rate.
Internal rate of return:	The discount rate at which an investment has a net present value of zero, i.e. where present value of benefits = present value of costs.
Investment criteria:	Measures of the economic worth of an investment such as Net Present Value, Benefit-Cost Ratio, and Internal Rate of Return.
Modified internal rate of return:	The internal rate of return of an investment that is modified so that the cash inflows from an investment are re-invested at the rate of the cost of capital (the re-investment rate).
Net present value:	The discounted value of the benefits of an investment less the discounted value of the costs, i.e. present value of benefits - present value of costs.
Present value of benefits:	The discounted value of benefits.
Present value of costs:	The discounted value of investment costs.

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