



Independent Evaluation of the New Zealand-Pacific Partnership on Ocean Acidification

Evaluation Report

Prepared for / MFAT New Zealand
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Acronyms and Abbreviations

ADD	Activity Design Document	NGO	Non-Governmental Organisation
CBFM	Community Based Fisheries Management	NIWA	National Institute of Water and Atmospheric Research
CI	Conservation International	NMHS	National Meteorological and Hydrological Services
COP	Conference of Parties	NOAA	National Oceanic and Atmospheric Administration
CROP	Council of Regional Organisations in the Pacific	NUS	National University of Samoa
DAC	Development Assistance Committee	OA	Ocean Acidification
DFID	Department for International Development	PCCOS	Pacific Community Centre for Ocean Science
ESRAM	Ecosystem and Socio-Economic Resilience, Analysis and Mapping	PEBACC	Pacific Ecosystem Based Adaptation to Climate Change
ESRC	Economic and Social Research Council	PI-GOOS	Pacific Islands Global Ocean Observation System
FGDs	Focus Group Discussions	PI-TOA	Pacific Islands and Territories Ocean Acidification Network
GESI	Gender Equality and Social Inclusion	PM	Project Manager
GOA-ON	Global Ocean Acidification Observing Network	PMC	Pacific Meteorological Council
GOON	Global Ocean Observation Network	PPOA	Pacific Ocean Acidification
IAEA	International Atomic Energy Agency	SEAPODYM	Spatial Ecosystem and Population Dynamics Model
KIIs	Key Informant Interviews	SIDS	Small Island Developing States
KiOSK	Korea Institute of Ocean Science and Technology	SPC	Secretariat of the Pacific Community
LMA	Locally Managed Areas	SPREP	Secretariat of the Pacific Regional Environment Programme
LMA	Locally Managed Marine Areas	UN	United Nations
MFA	New Zealand Ministry of Foreign Affairs and Trade	UNEG	United Nations Evaluation Group
MFRMD	Ministry of Fisheries and Marine Resources Development	UoN	University of Newcastle
MiC	Ministry of Climate, Oceans and Resilience	US	United States of America
MoF	Ministry of Fisheries	USP	University of the South Pacific
MPA	Marine Protected Area	VAM	Vulnerability Assessment Mapping

Executive Summary

Background

Ocean Acidification in the Pacific. Ocean Acidification (OA) and how it intersects with climate change is a growing global area of focus. Around 30% of CO₂ emissions have been absorbed by our oceans. In 2014, when discussions on the issue of OA were primarily held within the science community, there was (and still is) serious concern that the impact of increasing OA could disrupt fisheries that support livelihoods and food security, and that biodiversity will likely decline significantly in the ocean. In addition, the damage caused by OA to marine shellfish, corals, etc. reduces the benefit coral reefs offer to protecting shorelines and small island communities – including those in the Pacific.

Development of a response (the ‘activity’). The New Zealand PPOA followed on from the “International Workshop on Ocean Acidification” co-hosted by New Zealand and the United States of America, in partnership with the Secretariat of the Pacific Regional Environment Programme (SPREP), held in Apia, Samoa in 2014. The workshop brought together leading OA specialists and delegates from Small Island Developing States (SIDS) who agreed to work together to monitor and better understand OA and its impacts.

The PPOA Project. The PPOA supported communities in three Pacific Islands, Kiribati, Tokelau, and Fiji, to better adapt to the impacts of climate change-induced OA through support for research and community-based adaptation actions. The PPOA also had a wider regional focus with contributions and engagement in regional events and workshops. The Activity aimed to contribute to building the resilience of Pacific Islands Countries to OA. The PPOA project was a collaborative effort between SPREP, the University of the South Pacific (USP), and the Secretariat of the Pacific Community (SPC) to build resilience to OA in Pacific Island communities and ecosystems with financial support from MFAT.

Evaluation

Purpose and scope. The primary audience for this evaluation is MFAT. The purpose of the evaluation is to contribute to a stronger evidence base and deeper understanding of MFAT’s support for climate change activities in the Pacific, particularly those focused on adaptation actions in the oceans area. This evaluation will be used by MFAT to evaluate the strengths and weaknesses of the PPOA Activity, lessons learned and areas for future potential investment in the OA area. The evaluation will provide evidence and insight on:

- Lessons learned
- Strengths and weaknesses of approach taken
- MFAT’s management of the activity
- Areas to explore and opportunities for future engagement and funding.

The evaluation covers the period from the start of the PPOA Project in June 2015, through to its (extended) conclusion in April 2022. Its geographic focus is Fiji, Kiribati, and Tokelau and inclusive of Pacific regional work also completed under the activity.

Methodology. The evaluation had a strong **utility-focus** to ensure its use to MFAT as the primary audience as well as to project partners and local communities. Drawing on the programme plan, results framework, and programme approach (specifically with regards to

collaboration), it applied a **theory-based approach**¹ and **multiple qualitative data collection methods**. All approaches and methods have been informed and adapted to utilise Pacific approaches to evaluation and to collect and analyse primary and secondary information through a range of methods. Field visits were carried out by Pacific evaluators to explore selected evaluation questions and criteria in greater depth at field sites in Fiji and Kiribati (with remote interviews for Tokelau).

Working with Pacific evaluators who understand the different cultural contexts and have existing relationships with partners and communities supported the establishment of trust necessary to have honest and meaningful discussions. Their ongoing relationships with partners and communities also supported efforts to utilise the evaluation as a process to build relationships and peer learning across the region.

In developing the report we have become even more aware of the importance of ensuring that the input of the team members is not muted or hidden. We have spent time both in writing the report and in conversation with the team members to ensure that their voices are honestly reflected and 'heard'. An important aspect of this has been supporting the development of country specific 'case stories', written by the team members based in Fiji, Kiribati and Samoa (for Tokelau), which are included as Annex 5.

Key findings

The activity. The PPOA was instrumental in contributing to building the evidence base on OA through supporting the development of critically relevant studies that provide a foundation for Pacific countries to frame their responses to the threat of OA. Similarly, the increased support for, and development of capacity in OA monitoring through provision of equipment and support to the Global Ocean Acidification Observing Network and Pacific Islands and Territories Ocean Acidification Network monitoring networks, is an important and significant contribution.

At the same time, the challenge with these contributions is how they can be used and applied. Especially with the major bottleneck of limited capacity that is a key reality for many government departments in the Pacific. To achieve significant change and adaptation, strong collaboration and partnerships across local, regional, and international levels are required.

A core challenge for the PPOA was building awareness of OA, as a pre-cursor /building block for action and engagement at local community level. Whilst the proposed approach for the PPOA had been to develop a Framework of Action that would drive engagement and awareness building, this was rejected as unworkable by stakeholders.

Despite significant effort and the development of a simplified graphic to support explanation of OA, there was a general perception across each of the pilot sites that the concepts of OA were complex for communities to understand and relate to. The evaluation highlights some examples of good practice where meaningful understanding and knowledge of OA could be built.

The findings from the community-level pilots highlight some good progress and engagement of community members in resilience/adaptation activities. However, these are still limited in both scope and scale. In addition, challenges with, for example, replanting of seagrass and mangroves illustrate the need for resilience building activities to be based on solid participation

¹ The PPOA project did not have a defined theory of change. Taking a theory-based approach provides a structure from which to assess and analyse the implicit and explicit logic of the different project activities and outputs.

and technical support. Areas to address in future programming include the need for strong community engagement and 'buy in', making responses visible, and engaging with other stakeholders.

The findings of the project highlight the lack of a clear and coherent approach to addressing GESI issues. Whilst there is evidence of some actions at community level these are partial and for the most part not developed or followed up on, with no clearly articulated or defined approach that recognised roles traditionally taken up by women, especially with regard to farming and water management. That this critical gap was not followed up on by SPREP or any of its partners, or properly challenged by MFAT, represented a critical weakness of the project and needs to be addressed in any follow-up as well as in future work.

MFAT's Role in the PPOA. MFAT has for many years championed the issue of OA. Through the development of the PPOA project, MFAT played a key role as a catalyst for action on OA in the Pacific. Once the project was initiated MFAT took more of a 'back seat', though still aiming to provide support as a member of the PPOA Steering Committee. Whilst the PPOA project has made good progress on its objectives it has faced challenges in achieving higher-level outcomes, specifically in the area of collaboration. In this respect, there was a real need (and role) for MFAT to provide clear leadership and direction.

The challenge of capacity in Pacific island governments and ministries is well known, but the project design lacked an appropriate conceptual framework from which to build understanding and ownership of OA at community and ministry/department levels. In addition, the project did not have a clearly articulated approach to addressing the systemic capacity challenges of in-country ministries and departments to fully engage with OA and provide support to communities.

Despite some good collaboration with agencies such as the National Institute of Water and Atmospheric Research (NIWA), the emphasis on the importance of partnership, cooperation, and collaboration that had been built into the design of the project was not adequately realised in practice. Especially with regard to cooperation and collaboration between the CROP Agencies.

Two key factors impacted on this. The first was the consequence of structuring the project manager role as part time together with the Pacific Islands Global Ocean Observation System Officer role. The second factor was the lack of clear support and direction from the Steering Committee, of which MFAT was a member. Collaboration was also a challenge where CROP agencies had potentially overlapping mandates but did not have agreed roles that would enable them to collaborate effectively. In future projects of this nature it is critical that the project manager role is structured to enable the person to have a clear outcome focus from which to manage the development and achievement of contributing outputs.

The PPOA project struggled to be efficient and effective. These challenges were in part due to the management structure chosen. The unforeseen and major impact of COVID-19 further challenged an already stretched project management. The delays in completing activities impacted on the timely achievement of objectives and outputs and, more critically, negatively impacted progress towards higher-level outcomes. For MFAT, it is critical to ensure that the project management structure chosen and support mechanisms provided are sufficient to enable projects and programmes to be able to focus and deliver on their outcomes in a timely, efficient, and effective manner.

Recommendations

Continue/budget for support for OA monitoring

Provide ongoing support for monitoring of OA, especially local data collection that contributes to national and regional data (PI-TOA) and which supports building capacity in, engagement with, and ownership of OA resilience work.

Support pilot projects to build on successful initiatives, develop, replicate and expand

Provide support to current communities where sites are located to embed OA resilience, develop knowledge/skills, and adaptive capacities to address other OA stressors and share success stories with other local communities. Ensure a clear focus on women and excluded groups through meaningful engagement.

Support and develop the capacity of relevant government ministries in OA

Engage with relevant ministries to develop their capacity in addressing OA through developing and applying appropriate policies and policy frameworks on OA. Support should also be aimed at working with ministries to develop plans and processes to support (pilot) projects and to strengthen them.

MFAT has a clear leadership role to play in supporting and nurturing effective collaboration between key actors engaged in OA.

In projects such as the PPOA that operate in complex and challenging environments, the Steering Committee needs to have a clearly defined role with strategic leadership to provide clear direction. MFAT needs to be prepared to take on this catalytic role in the development of a project design as well during the project.

Engage with relevant ministries to develop a planned approach to the extension and replication of rehabilitation sites

Support the development of a programmatic approach to rehabilitation projects. Engage with relevant ministries to develop a planned approach to the extension and replication of rehabilitation sites with the objective of creating larger areas capable of achieving a critical mass.

Support the development of a local understanding of OA

Support the engagement of key actors (schools, local /international organisations) to build community understanding of the science of OA and to develop tools and materials that communicate a clear and contextually relevant message.

Consider and address challenges to efficiency in the development of OA and climate resilience projects

Ensure that challenges and threats to efficiency are considered and addressed in the development of new project proposals and also as part of the ongoing management and oversight of projects. This should ensure these challenges and threats are sufficiently addressed and do not impact on the achievement of longer term outcomes.

Introduction

Context

The Ministry of Foreign Affairs and Trade (MFAT) requested an evaluation of the New Zealand – Pacific Partnership on Ocean Acidification (PPOA) project. The evaluation will be used by MFAT to evaluate the strengths and weaknesses of the PPOA project, lessons learned, and areas for future potential investment in the ocean acidification area.

To deliver on the Terms of Reference (embedded as Annex 1), IOD PARC in association with Talanoa Consulting, have put together a high-level team with significant experience in evaluation, a strong knowledge of climate change including ocean impacts, and first-hand knowledge of working in the Pacific.

Background on Ocean Acidification in the Pacific

Ocean Acidification (OA) and how it intersects with climate change is a growing global area of focus. Around 30% of CO₂ emissions have been absorbed by our oceans. The CO₂ that is absorbed by oceans is leading to more acidic water and is recognised as a serious threat to the health of our oceans. This CO₂ combines with seawater to produce carbonic acid which acidifies seawater and depletes it of carbonate. In addition, OA is also exacerbated locally by the introduction of carbon into the water such as through excess fertilisation or wastewater run-off. The primary direct impacts of increased OA are damage to shellfish, reef-building corals, some plankton, and impacts on other marine species such as tuna.

In 2014, when discussions on the issue of OA were primarily held within the science community, there was (and still is) serious concern that the impact of increasing OA could disrupt fisheries that support livelihoods and food security, and that biodiversity will likely decline significantly in the ocean. In addition, the damage caused by OA to marine shellfish, corals, etc. reduces the benefit coral reefs offer to protecting shorelines and especially small island communities – including those in the Pacific. Whilst addressing carbon emissions is a global problem that requires a global response, reducing CO₂ and local sources of carbon and pollutants through improving local-level water quality is vitally important for ocean and reef resilience and ecosystem health.

At this time with increasing understanding of the impact of climate change globally, the development of knowledge on the major impact of OA on livelihoods in the Pacific region added to a sense by MFAT and other regional actors of being overwhelmed by another environmental (and potentially existential) threat. MFAT and SPREP felt that despite gaps in understanding on OA, and very limited resourcing at the time, it was critical to take action and engage in a project to begin to address the issues.

Development of a response ('activity') to address the threat of Ocean Acidification

The PPOA followed on from the "International Workshop on Ocean Acidification: State-of-the-Science Considerations for Small Island Developing States" (SIDS), co-hosted by New Zealand and the United States of America, in partnership with the Secretariat of the Pacific Regional Environment Programme (SPREP), held in Apia, Samoa in 2014. MFAT ensured that the issue of OA was included in the agenda. The workshop brought together leading OA specialists and delegates from SIDS regions who agreed to work together to monitor and better understand OA and its impacts. In order to highlight their concern, MFAT

and SPREP pushed for the issue of OA to be included in the UN SIDS Accelerated Modalities of Action (SAMOA) Pathway Document.²

The PPOA supported communities in three Pacific Islands, Kiribati, Tokelau, and Fiji, to better adapt to the impacts of climate change-induced OA through support for research and community-based adaptation actions.

The PPOA also had a wider regional focus with contributions and engagement in regional events and workshops. As well as providing input to the PPOA, these events also provided opportunities to identify potential/interested pilot countries (with the final pilot locations agreed as part of the programme).

The PPOA project was a collaborative effort between SPREP, the University of the South Pacific (USP), and the Secretariat of the Pacific Community (SPC) to build resilience to OA in Pacific Island communities and ecosystems with financial support from MFAT. The project successfully leveraged additional financial support from the government of the Principality of Monaco.

The Activity put the conclusions of the Workshop into action by focusing on the areas of Research and Monitoring, Capacity Building, Policy Development, and the Identification and Implementation of Adaptation Strategies. The project aimed to contribute to building the resilience of Pacific Islands Countries to OA through:

- Increasing ecosystem resilience to OA.
- Developing a knowledge base for improved policy and planning.
- Improving monitoring of OA.
- Developing a framework of action for adapting to OA at the local level through practical measures that empower women and men to take informed actions.
- Highlighting the need to also address other environmental stressors i.e., rising seawater surface temperatures, the increasing frequency and duration of bleaching events, the increasing intensity of tropical cyclones, overfishing, destructive fishing methods, and land-based sources of pollution.

² Paragraph 32 – Climate Change and 53-58 – Oceans and Seas:
<https://sustainabledevelopment.un.org/samoapathway.html>

Purpose, Objectives and Scope of the Evaluation

Evaluation purpose

The primary audience for this evaluation is MFAT, who have described the evaluation's purpose as follows in the Request for Quotation: "The evaluation will contribute to a stronger evidence base and deeper understanding of MFAT's support for climate change activities in the Pacific region, particularly those focused on adaptation actions in the oceans area. This evaluation will be used by MFAT to evaluate the strengths and weaknesses of the PPOA Activity, lessons learned and areas for future potential investment in the ocean acidification area. The evaluation will provide evidence and insight on:

- Lessons learned
- Strengths and weaknesses of approach taken
- MFAT's management of the activity
- Areas to explore opportunities for future engagement and funding".

As a result, the evaluation has aimed to be 'forward looking' and utility focussed.

Ensuring the evaluation is 'utility focused', credible, timely, and relevant

Utility Focus

The evaluation had a strong **utility-focus** to ensure its use to MFAT as the primary audience as well as to project partners and local communities. Drawing on the programme plan, results framework, and programme approach (specifically with regards to collaboration), it applied a **theory-based approach**³ and used **multiple qualitative data collection methods** to assess the PPOA in accordance with the evaluation questions and criteria. Field visits were carried out by Pacific evaluators at field sites in Fiji and Kiribati (with remote interviews for Tokelau) to explore selected evaluation questions and criteria in greater depth. Including field visits as part of the methodology aligned with taking a **realist approach** and its core questions of 'what works, for whom, in what respects, to what extent, in what contexts, and how?'. Working with Pacific evaluators, who speak local languages, understand the different cultural contexts, and have existing relationships with partners and communities supported the establishment of the trust which is necessary to have honest and meaningful discussions. Their ongoing relationships with partners and communities also supported efforts to utilise the evaluation as a process to build relationships and peer learning across the region. The combination of approaches aimed to generate robust evidence from multiple data sources that were then analysed to identify lessons and provide an evidence base from which to explore opportunities for future engagement and funding. The evaluation team has worked collaboratively with MFAT to ensure that findings and lessons are accurate and that recommendations are realistic and implementable.

Evaluation methods and approaches have been informed and adapted to utilise Pacific approaches to evaluation and to collect and analyse primary and secondary information through a range of methods, including:

³ The PPOA project did not have an explicit Theory of Change. Taking a theory-based approach provides a structure from which to assess and analyse the implicit and explicit logic of the different project activities and outputs.

- A review of documents and secondary data relevant to the design and implementation of the PPOA.
- Primary data collection through face-to-face interviews with MFAT staff who were involved in the PPOA over the life of the project, key stakeholders from SPREP as the primary implementing partner, SPC, USP, government stakeholders as well as face-to-face and/or virtual interviews with other stakeholders, including implementing partners, community leaders, and development partners.
- Focus Group Discussions (FGDs)/Talanoa with community groups. Both face-to-face and remote.
- Participatory methods such as transect walks and storytelling, combined with observation and informal conversations, were used to collect rich information on behaviour change and challenges with addressing the impacts of OA at community level.

Credibility

To ensure methodological rigor the evaluation team applied the principles of triangulation (of sources, perspectives, and evaluation tools). This included identifying whether there were groups whose voices were not being heard through formal methods and adapting approaches as necessary to capture the views of marginalised groups, particularly at the community level. Underpinning our methodological approach was the use of Pacific methods to ensure respondents, particularly at community level, were comfortable to give evidence. Credibility was built through ‘taking a Pacific approach’ as discussed in the detailed methodology. In addition, ‘Contribution Analysis’⁴ was used to rigorously analyse findings and help to address questions such as:

- Has the programme made an important contribution to observed results/changes?
- What role did the programme play?
- Is it reasonable to conclude that the programme has made a difference?
- Did the programme do the right things in the right way to achieve results?

Supporting local team members voice and development of Case Stories.

In addition, regular team meetings were held (weekly/fortnightly) and for the report a series of ‘Case Stories’ have been developed (by the national Team Members) that, as well as informing the evaluation, can also be shared back to the communities as reflections of their emerging and continuing stories on OA. Communities can own and further develop these as they see fit. The case stories are presented in Annex ‘5’ of this report.

Timeliness

To support timeliness in carrying out the evaluation, the evaluation team included consultants based in Fiji, Samoa (where the Tokelau Administration is based), and Kiribati. Having locally based consultants offered flexibility in arranging meetings with key informants to minimise the burden on informants’ workloads. It was also beneficial in carrying out field visits to communities involved in the PPOA according to a schedule that suits the involved communities and maximised the chances of community engagement and inclusive participation. There were some delays with getting permission from relevant authorities, which were resolved with useful assistance from MFAT. Addressing this effectively was seen as

⁴ Mayne, J. (2008) Contribution Analysis: An approach to exploring cause and effect, ILAC methodological brief, available at https://web.archive.org/web/20150226022328/http://www.cgiar-ilac.org/files/ILAC_Brief16_Contribution_Analysis_0.pdf

important. Regular contact with MFAT ensured that we remained timely with regards to the evaluation objectives.

Key stakeholders

The following key stakeholders were identified who could provide information on the different aspects, levels, and stages of the programme's design and implementation:

Ministry of Foreign Affairs and Trade

MFAT championed and supported this project at a critical point in the development of understanding of OA and its wider impacts. The development of the PPOA arose from a concern that action needed to be taken and, critically, that the key issues of developing understanding and knowledge of the effects of OA needed to be carried out in parallel with engaging with governments and communities. MFAT also intended for the project to retain a strong focus on building linkages between each of the project's focus areas.

Secretariat of the Pacific Regional Environment Programme

SPREP has the regional environment mandate and the responsibility to support strengthening environmental governance and ocean and island ecosystems, including ocean observations. SPREP also has experience assisting countries in developing national adaptation plans and other climate change policies, and has responsibility for coordinating the region's response on climate change.

The Secretariat of the Pacific Community

SPC is mandated to provide cross-cutting technical services to its Pacific Island members in the sectors of natural resources (including fisheries), agriculture, health, and sustainable development. Its geoscience division provides country support for oceans and maritime governance including maritime law and improved understanding of hazards caused by disasters and the growing impact of climate change. For example: its Pelagic Fisheries Team led on the completion of vulnerability assessments using the Spatial Ecosystem and Population Dynamics Model (SEAPODYM). It also hosts the Pacific Ocean Portal and the Pacific Community Centre for Ocean Science (PCCOS) which includes OA training.

The University of the South Pacific

USP is the main regional university and hosts educational courses and research initiatives within their Marine Studies and Pacific Centre for Environment and Sustainable Development programmes. It has led research aspects of the OA activities in coordination with SPREP and SPC and collaborated with international universities.

Team members have carefully examined the degree to which roles and responsibilities within this project and coordination structures were clear and effective in delivering project outcomes. This is in line with the recently launched Blue Pacific 2050 Strategy and ongoing efforts to promote a coordinated approach from Council of Regional Organisations in the Pacific (CROP) to serve member countries,

Relevant ministries

- **Ministry of Fisheries**, Fiji (Northern Division, Taveuni). They engaged with the baseline marine survey. They also provided support to engaging with communities in Taveuni. The Ministry of Rural and Maritime Development will also be informed of the evaluation through the Commissioner Northern office.

- **Ministry of Fisheries and Marine Resources Development (MFRMD)**. The MFRMD engaged with the PPOA and pilot communities to carry out the Marine Assessments
- **Tokelau Administration**, Samoa (Apia). The Tokelau Administration led on engaging with communities at pilot sites across the three atolls of Tokelau. Specifically, the National Disaster Management Unit and Oceans Programme and the Ministry of Climate, Oceans and Resilience MiCORE.

Communities

Communities in each country:

- Kiribati (Nanikai);
- Tokelau (Atafu, Nukunonu and Fakaofu);
- Fiji (Qeleni, Naselesele, Navakaoa, Bouma, Waitabu, Lavena, Korovou, Kanacea and Navakawau).

Communities have played a key role in the implementation of the activities. Whilst OA has wider impacts, coastal and island communities are most directly impacted. Fishing communities where whose livelihoods and reef ecosystem services are particularly at risk from OA. Therefore, gaining their perspective of the programme, its strengths, weaknesses, and successes, was essential in producing a useful evaluation.

Evaluation Approach

Underpinning our entire approach has been a recognition of the customary rights of indigenous people in the Pacific to land and coastal fisheries. This context was critical to understanding the way in which scientific approaches intersect with traditional and place-based knowledge and wisdom and the evaluation approaches, methodology, and team members reflect this. Cultural norms that govern information and knowledge sharing, including who in a community has the traditional authority to share information and learning, have been considered throughout to create safe spaces for different groups to share their experiences. The locally-based consultants are from the countries and thus very familiar with the setting and how to navigate in the knowledge-sharing landscape. Specific attention was paid to creating safe spaces for women and young people to share their views.

Our approach also aimed to take account of the ongoing challenges related to the impact of the COVID-19 pandemic in both the design of the evaluation as well as the process and management to ensure that data collection and quality were not compromised. The impact of COVID-19 was also considered when evaluating the activity in relation to the Development Assistance Committee (DAC) criteria and the evaluation questions set by MFAT.

Mutual Learning

We have embedded a '**mutual learning**' approach in various ways.

- **Action Reflection** - Embedding 'action reflection' into the whole process of the evaluation from development of the methodology, through data collection and analysis, to drawing out conclusions and recommendations builds the strength of the whole team to apply a culturally relevant approach to evaluation.
- **Ownership** - Through discussions and reviews with key stakeholders (especially local communities) we have aimed to support local ownership of data and findings, taking into account traditional norms that support learning and knowledge exchange.

- Broad-based reflection - Through engaging key stakeholders in the process of reviewing and triangulating data and emerging findings, we aimed to support critical action and reflection that they can apply in future activities or other programmes.
- Clear communication of concepts and language in OA - We recognise that for many communities, including those involved in the PPOA, the language and concepts used in explaining the causes and effects of OA are new. As far as possible, we have used the same terminology as those used by programme staff and partners to support maximum understanding and engagement of local communities.

Capacity Building

Building on the above points we have aimed to support the development of the capacity of our team. This has been carried out throughout the whole evaluation process.

- We worked collaboratively to develop the evaluation matrix and the supporting questions. In doing this we aimed both to jointly develop appropriate supporting questions and to support the team to fully own the questions. Our aim here was to enable the team members involved in country-level interviews and community-level meetings to be able to hold ‘talanoa discussions’ using the questions more naturally rather than getting stuck in a question - answer approach.
- Following the field work, we held a number of informal sessions where we could support the team to review and analyse the data that they collected.
- Linked to the above point we provided ongoing support to the team to critically reflect on their data as they drafted their inputs.
- In developing the report we have become even more aware of the importance of ensuring that the input of the team members is not muted or hidden. We have spent time both in writing the report and in conversation with the team members to ensure that their voices are honestly reflected and ‘heard’. An important aspect of this has been supporting the development of country specific ‘case stories’, written by the team members based in Fiji, Kiribati, and Samoa (for Tokelau).
- The Case Stories are included in Annex 5.

Gender Equality and Social Inclusion

The project document (Activity Design Document - ADD) recognised that women are more vulnerable to the effects of climate change than men and highlighted the importance of the project identifying gender-sensitive strategies to respond to the environmental and humanitarian crises caused by climate change. An important element of the project was for it to integrate strategies for gender equality and women’s empowerment into practical actions to adapt to OA, as well as to factor gender issues into planning and policymaking.

Evaluation Methodology

To address the key questions in the evaluation proposal, we utilised **multiple qualitative data collection methods** to assess the relevance, effectiveness, efficiency, coherence, sustainability, and early signs of impact of the activity using the OECD DAC criteria and the key questions provided by MFAT. An evaluation matrix was created to support the development of more focused (sub-) questions and the selection of different tools and approaches. The methodology is located in Annex 2 and the full evaluation matrix in Annex 3.

Table 1: Summary evaluation matrix

DAC Criteria	MFAT QUESTIONS	EVALUATIONS TOOLS
Effectiveness, Impact, Relevance, Sustainability	1. EFFECTIVE DEVELOPMENT – did the activity do the right things; did it achieve its outcomes?	Document KII's, Talanoa, Transect walks; Reviews, Community Transect walks
Relevance, Sustainability	2. PROJECT DESIGN – Was the project designed in a suitable way for activities it aimed to undertake?	Document KII's, Talanoa; Reviews, Community
Not directly a DAC criterion but relates to Relevance, Effectiveness, and Impact	3. INCLUSIVE DEVELOPMENT – how did the activity address exclusions and ensure benefits are shared?	KIIs, document reviews, Community and small group Talanoa, Transect walks
Sustainability, Relevance	4. RESILIENT DEVELOPMENT – how did the activity strengthen environment, economic and social resources to withstand shocks and protect future well-being in targeted communities?	KII's, Community and small group Talanoa
Sustainability	5. SUSTAINED DEVELOPMENT – how did the activity contribute to progress that is lasting and owned by partner countries.	KII's, Community and small group Talanoa
Efficiency	6. PROJECT MANAGEMENT – Was management of the project fit-for-purpose?	KII's, Community and small group Talanoa
Efficiency, Impact, Sustainability (all possible, none guaranteed – will depend on responses)	8. KEY MESSAGES – What were the key lessons learned, strength and weaknesses of the activity?	Group and sub-group Talanoa, KII's
Coherence	9. COLLABORATION – How well did the regional agencies involved in the activity work together and divide their responsibilities?	KIIs, document reviews, Community and small group Talanoa
Sustainability, Coherence	10. FUTURE PROSPECTS – Are there continued opportunities for New Zealand support in the Ocean Acidification space in the Pacific?	Group and small group Talanoa, KII's

Alignment with the DAC criteria

Table 2 provides a quick overview of which DAC criteria are the main focus of the evaluation questions identified by MFAT and for which sub-questions have then been designed. This shows that the focus is on Sustainability, Relevance, and Efficiency. However, (sub-) questions often touch on multiple aspects of Impact and Effectiveness as well, even if they are rarely the main focus of the overall evaluation question, and the evaluation team will be able to assess impact and effectiveness by looking at primary and secondary data in a holistic manner.

Table 2: Alignment of the Evaluation Questions to the DAC Criteria

DAC Criteria	Coherence	Efficiency	Sustainability	Impact	Effectiveness	Relevance
Evaluation Question	9, 10	6, 7, 8	2, 4, 5, 8, 10	1	1, 8	1, 2, 4, 7, 8

Inclusiveness is not an explicit DAC evaluation criterion but attention to this is given throughout the design of the evaluation tools and the selection of respondents both across all stakeholders.

Ethical considerations and safeguards

The evaluation was undertaken in accordance with United Nations Evaluation Group (UNEG) Norms and Standards for Evaluation⁵, as well as IOD PARC's Ethical Code of Conduct (2018) which adheres to UNEG Ethical guidelines for Evaluation (2008), UNEG Code of Conduct for Evaluation in the UN System (2007), Department for International Development (DFID) Ethical Principles for Research and Evaluation (2011) and the Economic and Social Research Council (ESRC) Framework for Research Ethics and Principles (2012).

Risks and Risk Management

In developing our approach and methodology for this evaluation we have aimed to be mindful of the challenges to data collection in terms of availability of key informants, travel, access to communities in the case of Tokelau, and other related concerns that could affect evaluation activities. Our primary mitigation strategy has been the selection of our team with core members based in Apia, Samoa; Tarawa, Kiribati; and Suva, Fiji.

5 UNEG Ethical Guidelines for Evaluation UNEG, March 2008

Findings

This section answers the evaluation questions as agreed with MFAT and previously stated in Table 1. It will cover the following questions:

- 1) Effective Development: Did the activity do the right things and achieve its outcomes, thereby contributing to effective development?
- 2) Project Design: Was the project designed in a suitable way for the activities it aimed to undertake?
- 3) Inclusive Development: How did the activity address exclusions and ensure benefits are shared?
- 4) Resilient Development: How did the activity strengthen environment, economic and social resources to withstand shocks and protect future well-being in targeted communities?
- 5) Sustained Development: How did the activity contribute to progress that is lasting and owned by partner countries.
- 6) Project Management: Was management of the project fit-for-purpose?
- 7) Collaboration: How well did the regional agencies involved in the activity work together and divide their responsibilities?
- 8) Key Messages: What were the main lessons learned? Strengths and weaknesses of the activity.
- 9) Future Prospects: Are there continued opportunities for New Zealand support in the Ocean Acidification space in the Pacific?

Effective Development:

Did the activity do the right things; did it achieve its outcomes?

This question is concerned with assessing the relevance of the activities/areas of focus of the PPOA project and from there making an assessment of progress towards/ achievement of its outcomes. As the project focused on three specific (and inter-related) areas of focus, these are addressed both individually and on their contribution and linkages to each other.

The PPOA project (termed 'Activity' by MFAT) focused on three outputs and associated actions:

- Research and monitoring of OA. Equipment was provided and monitoring of OA data of adaptation actions took place in order to inform policy development and assess the potential for upscaling of activities at other sites. Research activities focused on completing a vulnerability assessment of pelagic fisheries (including projections of OA impacts on yields of key commercial species) and development/support to OA monitoring systems.
- Capacity building and awareness raising. Through targeted capacity building initiatives, the project aimed to assist local communities, governments, and regional organisations to understand OA better and to take appropriate action.
- Practical adaptation actions. Through piloting practical adaptation actions across the pilot sites, the project aimed to demonstrate approaches that would support improved resilience to localised OA effects that could be scaled up/replicated.

Each of these outputs and their related activities were seen as linked to the others.

Two key points are made that need to be considered when addressing this question. The first is that the project was conceived in 2014/2015. At that time, knowledge and understanding of

OA was seen to be lacking with very little wider awareness of its importance. The second point is that due to the COVID-19 pandemic the project experienced (along with many others worldwide) a 'freeze' on activities for nearly two years.

Doing the right things and achieving outcomes in Research and Monitoring

The project focus on research and monitoring, building capacity at national level, and engaging with communities, reflects the concerns and priorities highlighted in key statements and documents for the Pacific. Notably:

The SAMOA Pathway 2015. Key points from the section on Climate Change are:⁶

The importance of engaging a broad range of stakeholders at the global, regional, sub-regional, national, and local levels. This includes national, sub-national, and local governments, the scientific community, private businesses, and civil society including youth and persons with disabilities, and also reaffirms that gender equality and the effective participation of women and indigenous peoples are important for effective action on all aspects of climate change.

- To build resilience to the impacts of climate change and to improve their adaptive capacity through the design and implementation of climate change adaptation measures appropriate to their respective vulnerabilities and economic, environmental, and social situations.
- To improve the baseline monitoring of island systems and the downscaling of climate model projections to enable better projections of the future impacts on small islands.
- To raise awareness and communicate climate change risks, including through public dialogue with local communities and to increase human and environmental resilience to the longer-term impacts of climate change.

Contributing to scientific knowledge

Monitoring OA. The focus of the PPOA on monitoring aimed to address the need for a greater understanding of the effects and impacts of OA through ongoing research and monitoring. Deemed especially critical for the Pacific due to the heavy reliance on fishing, the importance of coral reefs both as sources of food and in protecting low-lying islands was recognised through:

- Ecosystem monitoring at adaptation sites. Specifically supporting Ecosystem and Socio-Economic Resilience, Analysis and Mapping (ESRAM) studies in adaptation sites.
- Enabling OA monitoring by providing equipment and training to Pacific scientists from eight Pacific islands:
 - Vanuatu, Papua New Guinea, Tuvalu, Palau, and Samoa and the three pilot site countries (Fiji, Kiribati,⁷ and Tokelau). Data collected from these instruments would be reported to the UN in support of Sustainable Development Goal 14.3.1.
 - Updating the Spatial Ecosystem and Population Dynamics (SEAPODYM) model to include OA.

⁶ SIDS Accelerated Modalities of Action [S.A.M.O.A.] Pathway
<https://sustainabledevelopment.un.org/samoapathway.html>

⁷ Despite equipment being ordered for Kiribati it did not arrive/has not been commissioned.

- Research has also resulted in a peer-reviewed scientific publication.⁸

The **SEAPODYM**⁹ model, which is managed by SPC, has been updated to include OA as a follow-up action to PPOA. The key text from this is given in the box below:

Modelling the impact of climate change including ocean acidification on Pacific yellowfin tuna¹⁰

The effects on the ocean pelagic ecosystem, especially tuna resources, of ocean acidification and climate change are poorly known. SEAPODYM is a useful modelling framework to investigate the impact of climate changes on tuna populations. It integrates key relationships between fish population dynamics and the environmental conditions of their marine ecosystem in a spatially explicit representation, with a robust estimation approach of population dynamics and fisheries parameters. Elements of the yellowfin model which have been improved include, the incorporation of enhanced multi-climate model approaches to projecting climate impacts, and an approach to quantify the plausible impacts of ocean acidification on yellowfin tuna, based on laboratory experiments.

The PPOA supported the establishment of the Pacific Islands and Territories Ocean Acidification Network (PI-TOA) as the Pacific node of the Global Ocean Acidification Observing Network (GOA-ON). This led to greater visibility for Pacific Ocean Acidification science at the global level and supported strengthened awareness and knowledge of Pacific initiatives, including the PPOA, within the broader GOA-ON.¹¹ The PPOA Team Leader chaired PI-TOA between 2017 – 2019.

OA monitoring equipment was deployed in eight sites as part of the PPOA initiative. Partner organisations including USP and SPC also installed equipment through other sources of funding. Data from the site in Tokelau has been used directly as part of a PhD candidate's research, but delays in the deployment of other equipment meant that limited data from other sites has been used to directly further scientific understanding of OA at the time of this evaluation.

Contributing to Regional Awareness and Decision Making.

For the peoples living across the Pacific, fisheries and aquaculture make vital contributions to economic development, government revenue, food security, and livelihoods. Climate change, and specifically OA, are expected to have profound effects on the condition, abundance, and distribution of coastal and oceanic habitats, the fish, and invertebrates they support and, as a result, the productivity of fisheries and aquaculture in the tropical Pacific. It is critical for Pacific Island people to know whether future changes due to OA are likely to irreversibly change their marine ecosystems and reduce the economic and social benefits they receive from fisheries and aquaculture.

8 <https://onlinelibrary.wiley.com/doi/10.1111/gcb.14290> "Ocean warming has a greater effect than acidification on the early life history development and swimming performance of a large circumglobal pelagic fish"

9 **SEAPODYM** is a numerical model initially developed for investigating physical-biological interaction between tuna populations and the pelagic ecosystem of the Pacific Ocean.

¹⁰ <https://meetings.wcpfc.int/node/10233>

¹¹ http://goa-on.org/regional_hubs/pitoe/about/introduction.php

Developing the Science/contributing to the knowledge base

The **Vulnerability Assessment Mapping** (VAM) publication¹² contributed to addressing the above questions through summarising the projected changes in ocean chemistry for the Pacific island region¹³ and discussing the implications for Pacific island communities dependent on fisheries and aquaculture for food security and livelihoods. The VAM paper provided an assessment of the implications of increased OA for strategic planning, focusing on four key areas of 1) Food Security, 2) Livelihoods, 3) Reef Dependent Communities, and 4) Economic Development and Government Revenue. The paper proposed priority adaptation actions focused on maintaining the natural adaptive capacity of coral reefs, sustaining and diversifying fisheries production, improving post-harvest management (storage etc.), and supporting the protection and where required restoration of mangrove and seagrass habitats. The VAM paper underscores the critical importance of the interlinkages between the scientific assessments made with relevant changes in policies and actions at government levels together with the engagement of Pacific Island communities in adaptive actions and resilient behaviours. The fundamental challenge emerging from the VAM paper is that actions need to be taken at all levels to support adaptation at scale.

The contribution of monitoring programmes to understanding the impacts and changes in OA is also recognised as extremely important. A critical example noted is the need for ongoing support to maintain monitoring instruments that would provide baseline data to help inform adaptation and policy decisions at national and regional levels.

The completion of a **Vulnerability Assessment of Pelagic Fisheries**¹⁴ was designed to provide an assessment of the projected impacts of OA on pelagic fisheries. At the time of the development of the ADD there was a recognition of the likely impact of OA on pelagic fisheries, and therefore the need for it to be factored into longterm fisheries management strategies. The decision to carry out a Vulnerability Assessment of Pelagic Fisheries was due to the fact that up to that point in time there had been no specific detailed studies on OA impacts on pelagic fisheries. The findings from the assessment were then used to refine fisheries management guidelines in the Pacific region, support the development of policy options, pilot adaptation activities, and monitoring to support OA adaptation actions based on ESRAM studies. The projected impacts of OA on Pelagic Fisheries were incorporated into fishery management guidelines. Fisheries management guidelines were presented to the 13th Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission.

Whilst it is not clear how well or positively the paper was received at the time, a scan of later publications confirms its value and importance. For example, a paper on the 'Effects of Climate Change on Ocean Fisheries Relevant to the Pacific Islands' (Science Review 2018 pp177-188) highlighted the benefit of using the SEAPODYM on modelling the complexity of climate change on Ocean Fisheries.¹⁵

Whilst the paper clearly met a need and was an important first step in beginning to fill huge knowledge and data gaps it is important to recognise the need to further build on it and also

12 Johnson, Johanna. Bell, Johann and Gupta, Alex Sen. *Pacific islands ocean acidification vulnerability assessment*. Apia, Samoa: SPREP, 2016.

13 The area of the Pacific covered by the VAM survey was from? 130°E to 130°W and 25°N to 25°S.

14 Western and Central Pacific Fisheries Commission. Modelling the impact of climate change including ocean acidification on Pacific yellowfin tuna. 2017. SPREP.

¹⁵https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714536/11_Oceanic_Fisheries.pdf

to provide some more focus on lagoon/coral fisheries and to build the involvement and capacity of local scientists.

Raising awareness/building capacity

Raising awareness on the critical need to address the issue of OA was a key driver in the development of the PPOA by MFAT together with SPREP, with the inclusion of OA as an agenda item at the 2014 UN SIDS Conference in Apia, Samoa and its inclusion in the resulting SAMOA Pathway document. The PPOA contributing to continuing to raise awareness in a number of ways.

Developing a ‘Framework of Action’. The ADD highlighted the Pacific Regional Workshop (planned for 2015 in Auckland) as an opportunity to inform participants of the state of the science and adaptation options to form a “Steering Committee to advise and guide the project and other OA activities in the region” and to develop a “Pacific Islands Ocean Acidification Framework of Action” that would serve as a guiding document to address the four key areas identified during the International Workshop on OA prior to the 2014 SIDS Conference. At the Pacific Regional Workshop in Auckland, the participants decided (agreed) not to develop a regional OA framework¹⁶ as this would most likely overwhelm Pacific Island Countries and Territories with another major environmental issue to contend with. It was agreed that it would be more appropriate and effective for regional coordination to be addressed by Pacific Oceanscape and the CROP Agencies.

Engaging with key Regional and International bodies/groups. SPREP (as part of its PPOA activities is an active member of the Global OA Observing Network (GOA-ON). An important aspect of this was to encourage Pacific Island Countries and Territories to take part in the GOA-ON SPREP also became a member of the International Alliance to Combat OA (OA Alliance).¹⁷ Fiji and Tokelau are now members. Other actions included:

- Registering the PPOA at the UN Ocean Conference in 2016;
- Collaborating with The Ocean Foundation on capacity building/awareness raising activities by
 - holding three capacity building workshops in 2017 (SPREP working with The Ocean Foundation);
 - exchanging information on developments and current activities in relation to the marine environment;
 - collaborating and supporting awareness-raising efforts, participating as observers at relevant meetings and to co-sponsor events;

Drawing together lessons learned from the contribution of building the science

The development of monitoring systems for better understanding the impacts of OA at regional and sub-regional levels and the use of ESRAM studies clearly demonstrates a link and application of knowledge and information between the scientific information generated and its use and potential application at local levels. In this respect the VAM and Pelagic Fisheries papers are relevant as a ‘framing documents’.

Leveraging funding to support the PPOA and related activities.

Following on from the commitment of the The Principality of Monaco to support the PPOA project, funding commitments were also secured from the International Atomic Energy Agency

¹⁶ Pacific Regional Workshop 2015. Breakout 3.

¹⁷ <https://www.oaalliance.org/about>

(IAEA) and the Korea Institute of Ocean Science and Technology (KIOST) to support OA monitoring and data management training.

Achieving outcomes through identification and implementation of practical adaptation actions.

The project proposal stated that a minimum of two sites (in different countries) would be identified to carry out adaptation actions. Sites initially proposed included the Cook Islands, Fiji, Kiribati and/or Samoa. During the project, the possibility of working in Vanuatu was explored but did not come to fruition.¹⁸ The final sites were selected at the Regional Workshop in Auckland in 2015 and focused on engagement in three participating countries/territories. These were:

- Fiji. Taveuni Island.
- Kiribati. South Tarawa, Nanikai village
- Tokelau. Atafu, Fakaofu and Nukunonu

The starting point for agreeing and designing practical adaptation actions was for background ESRAM studies¹⁹ to be carried out. The purpose of ESRAM studies was to identify, describe, and map the current conditions of each location, especially with regard to evaluating ecosystem functioning and context with community livelihoods.²⁰ ESRAM studies were carried out across all three countries/locations. From these studies a number of practical adaptation actions were proposed. The table below provides an overview of the activities carried out in each location:

Table 3: Implemented Adaptation Actions

Adaptation Actions	Fiji	Kiribati	Tokelau
Mangrove re-planting	Carried out. Failed and destroyed by cyclone Yasa. Replanting with support from Ministry of Forests survived. communities now re-planting along the foreshore.	Mangrove replanting was undertaken but unsuccessful. There was no monitoring or ongoing maintenance. Resulting in rubbish getting trapped. Site was quite new and on the ocean side (sheltered) while most mangroves grow on the lagoon side. Not replanted.	Mangrove replanting proposed but not undertaken. Community wanted to focus on coral re-planting.
Coral re-planting	Coral replanting carried out in two locations but needs proper maintenance for healthy growth. Cyanobacteria infections addressed by eliminating excess cable ties.	Coral re-planting carried out. Challenges with monitoring (sites only accessible with (costly) diving gear). Also issues of cyanobacteria infections.	Coral replanting carried out. Good engagement with community through selection of easily accessible sites and involvement of community in re-planting. Problems of cyanobacteria infections addressed.

¹⁸ Whilst Vanuatu was initially very positive about being involved there was a concern on the capacity of the relevant ministry to be able to manage expectations on providing support to OA adaptation actions (from SPREP Report 4, 2017).

¹⁹ SPREP-PEBACC Taveuni ESRAM, Heider et al. 2017

²⁰ Fiji: Building Resilience to Ocean Acidification for Taveuni Island Communities, Fiji: Marine Ecosystem Mapping & Ecosystem-Based Implementation Plan. 2018.

Seagrass re-planting	Not undertaken as local partner (Conservation International) did not have skills in this area.	Seagrass restoration/replanting was carried out. Successful according to the community (no confirmation from MFMRD)	Seagrass restoration/replanting proposed but not carried out
Establish Locally Managed Marine Area	All sites have LMMA's in place with strong support from local leadership. Challenges on monitoring/protection.	A LMMA was established as part of a Community Based Fisheries project. The PPOA provided some funding support for marker posts.	Whilst LMMAs were not established, the Tokelau Administration working with local leaders and communities built a coherent approach to addressing OA.
Other	Re-establish giant clams. Surviving but need proper maintenance and care. Address local pollution. Awareness raised following trainings from PEBACC21.	Address local level pollution. Focus on dumping waste oil and cleaning fish in the LMMA.	Inclusion of awareness on OA in school curriculum. Poster competition.

The table above provides a helpful overview of the different activities carried out across the three countries. Specifically:

- The development of marine protected areas (in some locations termed 'locally managed (marine) areas: LMA's/LMMA's) were a major focus for both Fiji and Kiribati.
- Challenges and difficulties in replanting mangroves, and to a lesser extent seagrass. In both Fiji and Kiribati, the mangroves that had been planted did not survive/ grow. In Fiji the failure was put down partly to the planting technique used as well as to damage caused by cyclone Yasa. Interestingly, replanting carried out by the Ministry of Forests (Fiji) did survive. It is not clear whether this was due to the planting technique used or whether the replanting areas were better chosen.

The selection of specific adaptation actions was informed in part by the training and support given and partly by community interest in the activities that they were most interested/willing to engage in. Whilst it is reasonable to assume that specific OA considerations helped to inform the choice of adaptation actions, getting communities engaged was an essential and fundamental first step.

Interviews by the evaluation team with communities, local officials, and local government provided a more detailed understanding of how the activities were carried out and illustrates the fundamental importance of engaging with the local communities. Three 'mini case studies' are given below that help to understand how this was managed and supported.

Examples from each country of adaptation activities.

<p>Establishment of a Marine Protected Area, Nanikai. Kiribati</p> <p>Discussions on the need for an MPA emerged from the group meeting held as part of the inception workshop run by the PPOA (also attended by the MFMRD Fisheries Officer – responsible for Community Based Fisheries Management (CBFM)). The idea to set up the MPA in Nanikaai was taken forward by the MFMRD CBFM team. It was agreed that the PPOA would provide some funding</p>

21 PEBACC. Pacific Ecosystem Based Adaptation to Climate Change Project. A project that promoted and explored ecosystem-based adaptations to climate change. Managed by SPREP.

support to this initiative in order to purchase and install marker posts to indicate the boundary of the conservation area. Benefits of the MPA included:

- Visibility – the erection of the posts clearly marked the area. The visible demarcation of the area also supported increasing understanding (evidence) to the community of the benefits that resulted from the closing the area.
- Tangible outputs – increasing population of Arc Shells (*Anadara* sp.) which are an important food source that had previously become very depleted. Interviews with members of the community provided evidence of the spillover recovery from the MPA to other areas.
- Strong community engagement - the MPA was a community-driven project. People strongly engaged and felt responsible to ensure that all activities were well attended and completed according to the plans and timeframe. Community members owned the entire process and took full responsibility for managing the MPA.
- Replicability – the replication of the MPA program in other communities was seen as a possibility given the social, environmental, and economic benefit the project was bringing to the community.

Engaging communities in restoration/rehabilitation activities. Tokelau

Results from the marine ecosystem baseline assessment in Tokelau showed minimum diversity of corals (dominance of massive and encrusting corals). The assessment recommended coral replanting activities, particularly for branching corals (certain species) that were identified as having potential for resistance to declining pH. The communities developed coral nurseries with support from a Samoan consultant who constructed the frames and conducted hands-on and virtual trainings for staff from the Ministry of Climate, Ocean and Resilience (MiCORE) staff to carry out the work on the ground.

This activity involved community members and students and the corals were noted to be growing well. Across all the interviewed community members and MiCORE staff, this activity was well known, understood, and shared as a success in that it not only produced more live and diverse corals to address the challenge reported from the baseline assessment, but it also built the capacity of the MiCORE staff and communities in setting up coral nurseries, strengthened their understanding on the importance and growth of corals, and also produced physical solutions to OA.

Communities were interested in having tangible and practical activities that could be implemented and be monitored by them. The activity also included a school awareness program that was conducted virtually during COVID-19 lockdown.

Engagement in this activity led to the development of a Tokelau Coral Gardening Manual (MiCORE in collaboration with the Samoan consultant) that could be utilised by any family/household interested in setting up their own coral nursery.

Establishment of LMMAs in all 7 sites on the island of Taveuni. Fiji

There were seven sites for adaptation activities on the Taveuni island. The one common activity across all sites was the establishment of MPAs within which the adaptation activities were housed. The rationale for putting a strong focus on the development of LMMAs around the selected sites was based on the findings of the baseline assessment report (ESRAM Study) which had a common finding of over-fished reef systems with damaged and/or diseased corals for the sites assessed.

Since the establishment of LMMAs in the seven sites on Taveuni in 2019, the communities have witnessed increased fish stocks as well as the restoration of some marine species that had once disappeared or been severely depleted. Establishment of LMMAs was part of CI Fiji's commitment to strengthening governance in communities for resource owners to take ownership of natural resource management as an important tool in building resilient and sustainable livelihoods.

All relevant stakeholders including project partners, Ministry of Fisheries, and the Vanua (traditional qoliqoli owners) were present as well as the church pastor who blessed the marked area and thus declaring it tabu. With the relevant protocols performed, the likelihood of the tabu rules being respected by members of the villages (and district) is high.

There are however still challenges with protecting the LMMA's. The licensing of fishing rights in Fiji waters, or the misunderstanding of it by the communities, had become a challenge for LMMAs. In some instances, despite resource owners/managers trying to safeguard their tabu areas with support from community members, they would still struggle to stop instances when people from outside of the area fish (illegally) in their protected areas.

Analysis of the three pilot sites

Drawing together the lessons learned from the community pilot sites.

Unsurprisingly the key finding is on the critical importance of getting community engagement and buy in to working on OA activities. It is interesting to note the different drivers for community engagement across each of the pilot locations.

For Tokelau, the overall ownership of engaging with OA involved the government (Tokelau Administration), local leaders, and community members. This ownership provided a framework to address specific activities, build and respond to demands for how activities should be carried out, accessible coral replanting, for example, and also provided a base from which other activities could be developed such as schools work and a coral replanting (gardening) manual.

In **Fiji**, the active engagement of an NGO (CI) provided the impetus and traction for work to become established. Through tapping into local concerns on fishing and establishing LMA's the project was able to encourage and build local-level ownership and a framework for ongoing management and sustainability.

Kiribati provides an interesting contrast to Tokelau and Fiji in that the impetus for change came from an initiative that was being driven by the Ministry of Fisheries through its CBFM programme. This programme was able to engage with the community and provided an opportunity for the PPOA pilot to link to it through supporting the LMA.

Learning from both Kiribati and Tokelau illustrates the need for effective engagement with government agencies to be linked to areas/issues that they can engage in.

Across each of the pilot sites the challenge of replanting mangroves, and to a lesser extent seagrass, highlighted the need for a clear plan, approach, and ongoing support. This point is particularly pertinent as replanting of mangroves and seagrass helps to reduce OA whereas replanting coral and setting up LMA's contributes to address/repair the damage that OA is causing.

In concluding this sub-section, the evidence gained from the field assessments and interviews shows that it is reasonable to state that the activities and outputs at the community pilot sites can be attributed to the PPOA and that there can be a degree of confidence of these progressing (to a greater or lesser degree) to higher level outcomes. For Kiribati the evidence is less conclusive and shows that it is reasonable to conclude that whilst the pilot work in Nanikai contributed to the outputs, any further change and movement towards outcomes is highly dependent on actions and support from the MoF CBFM programme.

Policy Development on OA

The focus of this area of work was to provide support to Pacific country governments and their ministries to be able to develop appropriate policies to address the effects and impacts of OA. Work in this area focused on two areas:

- **Discussion of options.**

The PPOA started the work on the development of policy options (building on the discussions and foundations from the earlier Regional Workshop in Auckland) to support OA adaptation actions by holding a meeting with a number of Pacific island policy makers to discuss potential options and agree a way forwards for OA policy development in the region.²² As agreed at the Auckland Workshop, the aim was not to develop a 'Regional OA Framework' but focus on more effective Regional Coordination.

- **Development of a resource**

Subsequent to the meeting the PPOA, in partnership with the International Alliance to Combat Ocean Acidification (OA Alliance), published and distributed a Handbook: Mainstreaming OA into National Policies a Handbook for Pacific Islands. This OA monitoring handbook was developed to showcase practical ways in which SPREP member countries could mainstream OA into their national policies.

Capacity building and awareness raising at Regional and Country Levels.

Capacity building and awareness raising activities were carried out at regional, country, and local levels. The focus of these activities was to raise awareness of OA and to begin to build understanding to support further action. This could be through monitoring, providing support, developing policies, or supporting community/local-level action.

At a regional level, a number of workshops were held to discuss OA.

- Regional OA workshop, Auckland held in 2015;
- Regional OA Monitoring Dialogue held in May 2021 (on-line event)²³.

These provided an opportunity for participants to coordinate their national OA monitoring activities and enable them to share lessons learned from their experiences of monitoring OA. In addition, the workshops provided an opportunity for participants to ask questions of and seek advice from international OA monitoring experts.

In addition, at the 5th meeting of the Pacific Meteorological Council (PMC-5) (Apia August 2019), the PPOA put forward Agenda Item 15.2: Defining the roles of PMC and NMHS in Responding to OA. The purpose of this agreement was to provide a framework on the role of PMC and NMHS in monitoring, researching, educating, and/or coordinating national and regional responses to OA.

Creation of a Regional-Level Ocean Acidification Network

At the regional level, the creation of Pacific Islands and Territories Ocean Acidification network (PI-TOA) as a Pacific node of the Global Ocean Acidification Observation Network (GOA-ON) enhanced the understanding of Pacific researchers of OA issues and supported connections to global researchers and mentors. The PPOA Project Manager facilitated PI-TOA and shared knowledge with the wider PI-TOA membership ahead of, and following, international meetings and conferences. PI-TOA facilitated connections to other OA programmes such as the US National Oceanic and Atmospheric Administration's (NOAA) Ocean Acidification Programme.

²² SPREP Report, 2019

²³<https://www.sprep.org/news/dialogue-strengthens-regional-coordination-for-ocean-acidification-monitoring>

Funding commitments were also secured from the International Atomic Energy Agency (IAEA) and the Korea Institute of Ocean Science and Technology (KIOST) to support OA monitoring and data management training. Whilst it is unclear how much these can be attributed to PI-TOA they are important indicators of increasing engagement by donors in funding OA mitigation/response activities.

Pacific islanders' capacity to monitor and understand OA has been strengthened and supported via PPOA's support and involvement in the GOA-ON's training. Specifically, the PPOA PM's role as facilitator of the PI-TOA's new website:²⁴

In addition the PPOA is working with the US NOAA Ocean Acidification Program to plan site visits to PI-TOA members and GOA-ON in a Box kit recipients (including PPOA pilot site countries):²⁵

Development of 'GOA-ON in a Box' training

In 2017, a "GOA-ON in a Box" inception workshop was held at the University of the South Pacific in Suva, Fiji, introducing "GOA-ON in a Box" recipients from seven Pacific island countries to techniques for monitoring OA.

In August 2018, the University of Hawai'i at Manoa hosted the Pacific Islands Advanced Ocean Acidification Monitoring Workshop to provide further hands-on training in OA monitoring techniques. This was supported by TOF, GOA-ON, and the US NOAA's Ocean Acidification Program with funding by the US Department of State and the Swedish International Development Agency. MFAT, through the PPOA and SPREP, provided support for Tokelau to receive a GOA-ON kit and participate in ongoing regional collaborations.

Capacity building at community level

A key objective of the project was to enhance Pacific Islander capacity to monitor and understand the implications of OA on the marine environment. Capacity building activities were delivered at the local government and community level by SPREP, government officials, and civil society partners. The PPOA has also supported the ongoing operation of the network as well as building capacity of its members through a number of initiatives including:

- A commitment of funding from the IAEA, hosts of the Ocean Acidification International Coordination Centre, to support the travel of 5 PI-TOA members to travel to the 5th International Symposium on the Ocean in a High-CO₂ World in Lima, Peru.

PPOA was featured at three different official side events at the COP 25 UN Framework Convention on Climate Change in Madrid, Spain. The issue of OA was highlighted during the 2017 UN Oceans Conference through side events and the provision of Factsheets and Guidelines.

Community level Training and Awareness Raising.

Training and awareness raising at the community level was conducted by SPREP, government partners and civil society organisations. In Fiji Conservation International (CI) led the community-level trainings. This approach recognised SPREP's own limited capacity and sought to foster ownership at the local level. Delays in running workshops and then moving to implementation of pilot projects prior to and during the COVID-19 Pandemic were significant challenges to building local ownership.

As an example, there was a one-year gap between two of the three workshops in Kiribati with no local partner available to provide ground support. This impacted on the community's

²⁴ http://www2.goa-on.org/regional_hubs/pitoea/about/introduction.php.

²⁵ <https://www.sprep.org/news/building-capacity-for-ocean-acidification-monitoring-in-the-pacific>

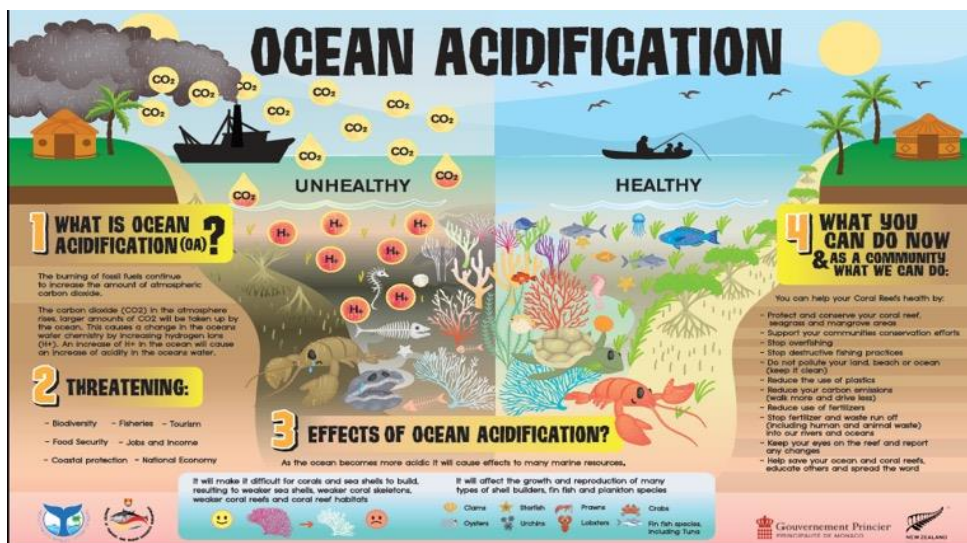
engagement and contributed to a perception of the complexity of OA. Similarly in Fiji, the NGO contracted to lead the trainings had only limited time (and budget) to fully engage on building capacity with local communities²⁶. As with Kiribati, there was not a strong understanding of OA.

The ecosystem assessments were contracted out in each country to local/regional consultancy organisations²⁷. Information from the studies was used in proposing and developing adaptation actions as well as supporting awareness raising activities and materials, including local language OA posters (see next section) through community awareness raising meetings.

The Challenge of Understanding Ocean Acidification.

For the majority of communities involved in the project, understanding OA was seen to be a challenge. Discussions with SPREP staff involved in the trainings as well as conversations with communities during the evaluation highlighted the point that OA is difficult to explain in a way that resonates with communities. The schematic/poster developed to explain what OA is, the effects it has, the threats it poses, and proposed adaptation actions was seen to be quite challenging to understand. As can be seen below, it has a lot of information packed into one visual (translated versions of this poster were also available):

Figure 1: Ocean Acidification Poster for Community Engagement²⁸



In Tokelau, the local administration held a competition in the local schools for students to design a poster on OA with the winning poster to be used across the island. It is interesting to compare the students' perceptions of OA which look to be more focused on the people's relationship with their environment than the scientific explanation used by the project.

Figure 2: Tokelau Student poster on Ocean Acidification

²⁶ The issue of adequate budget is noted in a number of SPREP Reports. This comment arose from field level interviews.

²⁷ Tokelau and Kiribati: B.K. Fellenius Consultants Inc; Fiji: Watershed Professionals Network LLC.

²⁸ Posters developed and used for the PPOA OA Project in English, iKiribati and Fijian.



In Fiji, CI's approach was to introduce OA in a more indirect way, to avoid confusing the communities with trying to explain a new concept. As communities were already familiar with the negative effects of climate change, CI used this as the starting point for introducing adaptation activities, while briefly touching on OA as one of the effects of climate change that would be addressed through the proposed activities. CI's theory was that once the communities started to witness and acknowledge benefits of these activities, follow-up awareness workshops would be effective in introducing OA. Information gained through the evaluation field visit to Taveuni has confirmed that CI's approach was appropriate and has been effective. The Fiji, Taveuni Case Story, in Annex 5 of this evaluation report, highlights this point.

Project design:

Was the project designed in a suitable way for the activities it aimed to undertake?

This question is about assessing the appropriateness or 'fit' of the design of the project in relation to the activities it aimed to undertake in the context of the Pacific region. The question focuses on assessing whether the approach of working with three CROP agencies (with one taking the lead) was appropriate in the context of the challenge of limited capacity of PICTs governments.

Background/context.

The 'ADD' proposed an integrated approach to building the evidence (research), monitoring, resilience building strategies, and practical adaptation actions through a collaborative partnership between three regional Council of Regional Organisations in the Pacific (CROP) agencies: SPREP, SPC and USP. SPREP as the project leaders were responsible for the 'project outputs' to be delivered²⁹.

SPREP were designated to lead this OA Activity in partnership with SPC and USP. The funding modality for this MFAT funded project was articulated as a "partner-led project" to be supported through a Grant Funding Arrangement with SPREP. SPREP were tasked with managing the Activity in cooperation with the other CROP agencies, SPC and USP.

The SPREP project manager for the PPOA was also responsible for contributing to the Pacific Islands Global Ocean Observation System (PI-GOOS). The role of project officer for the PPOA was therefore part time in addition to the officer's PI-GOOS responsibilities.

The project design had a strong logical approach starting from a need to build the evidence on OA through to sharing that information with key government partners getting them to engage with the issues ('building capacity' and then with and through them engaging with local communities). In effect, the project had three distinct and interlinked areas of focus.

Implicit in the project design was the assumption that SPREP as the lead organisation could provide the necessary project management time and skills to manage the project whilst also developing and supporting active partnerships and collaboration with SPC and USP to deliver the outputs as a foundation for further engagement on OA.

Analysis of the project design and its implementation.

Developing strong partnerships. Growing the body of scientific research requires strong partnerships with different institutions. The evaluation found evidence in SPREP reports and KIs of project support for the establishment of a network of researchers from around the region working on OA. By contrast, despite the inclusion of roles and budget in the PPOA ADD for USP and SPC and the proposed formation of a Steering Group, there is no evidence of a more structured approach to collaboration between the CROP agencies in this area.

On the Steering Group, there is evidence of Steering Group meetings. However, there were no minutes of meetings recorded. This appears to corroborate the perspective that collaboration between the CROP Agencies on the PPOA was functional in relation to working on specific outputs (task management approach) but lacking in dynamic collaboration.

²⁹ See MFAT Grant funding Arrangement document. June 2015. Section 2. Scope of Arrangement. Pages 3 and 4.

As the overall lead organisation, SPREP managed all activities, budgets and reporting responsibilities. The absence of clearly articulated/delegated responsibilities and strong collaboration between the CROP agencies (with associated resources/capacities), impacted on the effectiveness of engaging with government agencies as well as developing and supporting the pilot projects. The associated reliance on progress for output delivery by government departments also caused significant delays due to a lack of government capacity and pressure from other commitments. This resulted in minor delays initially, which were exacerbated following the early departure of the first project manager and the delay in appointing a replacement. A stronger collaboration with a more clearly defined approach to the partnership with SPC, USP and country partners, with clear delegation of responsibilities may have alleviated some of these delays.

Building collaboration with government departments takes time. As a regional environmental agency, SPREP's focal points are member countries' departments or ministries of Environment or Foreign Affairs. As this project aimed to work closely with each country's Ministry of Fisheries, this presented an additional challenge (primarily in terms of the time needed to develop a working relationship with Ministries that were not traditionally SPREP's core partners. Addressing this challenge through, for example, engaging with a CROP agency with a mandate and links in this area (SPC in this case) could have been more effective. However, addressing this would take time to manage and carry out.

Challenges in the design of the project manager's role. Given the complexity of the proposed governance arrangements in the ADD and the importance of SPREP leadership to promote strong partnerships across multiple agencies, the absence of a full-time dedicated project manager at SPREP may have also contributed to the lack of a structural approach to working with partners. The SPREP Project Manager was managing the PPOA alongside their other role as PI-GOOS Officer.

Achieving project outputs was time-consuming as progress towards them was less under the control of SPREP as the lead agency. This was especially the case with interactions with governments who had their own capacity challenges. Evidence of delays was seen early on in the project. Whilst these were minor at first, they became more severe as the project progressed and actions were needed across several outputs requiring interactions with a range of different stakeholders.

A critical weakness was seen in the lack of alternative strategies developed to address delays. For example, the ADD mentioned the potential use of USP students to support work at the pilot sites. This could have supported more effective/sustained engagement instead of relying on short-term missions. Also, when faced with delays due to limited government capacity, the project did not have any alternative options available. As mentioned above, other options could have been explored, for example with partner CROP agencies. This was due to the very linear focus of the project, though other contributing explanations also include limited capacity of project staff.

The result of delays in engaging effectively with governments then fed through to delays in working with communities and the need to save time (and resources) by taking a shortened approach. An example of this was noted in the approach to community training for the Fiji pilots. The training model used a 'Train the Trainer' approach, mentioned in SPREP Reports. However, due to a limited time frame, it was more of a 'small group (cascade style) information sharing', where the core trainers became the key trainers (message bearers) for engaging with communities.

In conclusion, the findings from the evaluation for the project design question highlight two interlinked weaknesses.

- The lack of effective collaboration, specifically between CROP partners, USP, and SPC made it harder for the project to develop and build opportunities.
- Linking the project manager role to also include the responsibilities as the PI-GOOS Officer (effectively making the role part time), severely limited the ability of the project manager to develop the linkages and collaborations necessary.

Critically, and most probably, in response to these challenges and the structure of the project manager role, the project took a very output-based (task delivery) approach to achieving its deliverables. This contrasted with the vision and strong sense of purpose in the drivers for its rationale.

Inclusive Development:

How did the activity address exclusions and ensure benefits are shared?

This question is focused on assessing how the project aimed to address inclusion and the effectiveness of its approaches. Whilst the main focus is on gender the relevance and effectiveness of the project in addressing other forms of exclusion are also covered.

What the project did and how it was reported.

The ADD emphasised the role of women's empowerment as a key element in building resilience and adaptation activities and encouraged active participation of women. At the outset of the project SPREP did not have a Gender Policy (this was developed in 2017).³⁰ The PPOA did not develop or apply a specific Gender Equality and Social Inclusion (GESI) strategy or conduct gender analysis by country or project site.

Whilst recognising gendered norms across the three countries with regard to community decision making and resource use, the project was tasked with ensuring that gender assessments would be built into all adaptation strategies including resilience actions³¹ and the inclusion of all members of communities in defining their priorities. Assessment of the ESRAM Reports for each country did not provide any evidence of this apart from a sentence in the Taveuni assessment which stated that "[This] workshop is designed to be inclusive across genders and ages to provide non-technical views of ecological connections of coastal to reef environments, and to identify causes of degradation".

Reports³² from SPREP on project progress provided some basic information on the percentage of women attending trainings and stakeholder consultations:

'at least 30% participation of women in stakeholder consultation groups established during project'

'more than 30% of people attending inception and planning meetings were women'.

In addition, the report for 2019³³ reported that activities worked closely with local authorities; incorporated traditional knowledge as part of their work; worked in harmony with local traditional practices; included strategies for gender equality and women's empowerment; and included capacity building and knowledge/tech transfer that ensures the sustainability of outcomes. Later progress reports gave evidence for equality and women's empowerment based primarily on percentages and numbers of women in certain positions:

³⁰ https://www.sprep.org/attachments/Publications/Corporate_Documents/SPREP-GenderPolicy-14Nov16.pdf

³¹ ADD page 12

³² SPREP Report 3. 2016

³³ SPREP Report 8. 2019

- During meetings, trainings, and workshops, >40% of the participants were women.
- OA Monitoring Dialogue: Female attendance –50.6%.
- Wainikeli and Vuna Women’s Groups were nominated by their community to lead the mangrove nursery for Taveuni’s mangrove restoration work.
- Tokelau’s PPOA MiCORE two lead counterparts are women.
- 11/26 PI-TOA members are Pacific women scientists.
- The PPOA-UoN PhD scholarship recipient is a woman scientist from Papua New Guinea.³⁴

Interviews and discussions with community members by the evaluation team provided a more detailed assessment of how participation was managed and the challenges for women of being able to participate and to have a ‘voice’:

Kiribati

Interviews with community members and representatives confirmed that there had been a gender-balanced call for participation in the project activities (inception workshop in Nanikai village). However, the number of participants that the project could accommodate was limited (especially when participants were given an attendance allowance). Attendance at a meeting or training was mainly for the purpose of engaging communities in the deployment of field activities. It did not mean that women, youth, and people with disabilities would be able to make decisions to influence the implementation of activities on the ground.

Tokelau

Based on the interviews conducted with community members, very few women were included in a number of the OA project trainings and workshops due to the limited number of participants required for these activities, remoteness of delivery (online events), and having one centralised venue or location for workshops and only certain people being invited.

Several interviews suggested that there was a diversity of people at the workshop Chiefs, untitled men, and limited numbers of women and youth. Most people that attended did not share the information obtained from these trainings and workshops to others.

Fiji

The implementing NGO (CI) who were involved in taking the project to communities, from trainings and workshops to the actual implementation of adaptation activities, recognised that women were an important part of the process and endeavoured to ensure women were present before they proceeded. A wide consultation was carried out before engaging the communities which was key to community engagement and how they got actively involved in the activities. Whilst community sites were pre-selected by SPREP, the specific locations for interventions within MPAs for activities were selected in consultation with community elders.

Despite the project design having strategies to encourage gender equality and strengthen women empowerment, like women being in community-based adaptation committees, Vuna and Naselesele did not have women on their Yaubula committees, which are the committees responsible for projects like the PPOA³⁵.

³⁴ SPREP Report 11. 2021

³⁵ See Fiji Case Story. Annex 5.

Embedding gender across and into the whole project

The evaluation found that the implementation of the project appears to have restricted its focus on gender equality to community level activities. Developing a specific gender action plan early in the project would have provided a framework for the development of a more comprehensive understanding of the approaches needed to support inclusion in a holistic way.

The evaluation findings present quite a mixed picture of the involvement and participation of women, with even less on other excluded or disadvantaged groups. Whilst there is evidence of some participation and involvement, the lack of documentation and clear examples would suggest that it has not been clearly and effectively addressed. Any opportunities for benefits to increasingly engage with women and disadvantaged groups ('trickle down') appear to be extremely limited unless there is a further engagement with a clear mandate and plan to engage with women and other excluded groups. This represents a lost opportunity for the project as a number of interviews with women highlighted their concerns on the impact of OA on their families and communities and their interest and willingness to take action. The Case Story from Taveuni, Fiji provides a more detailed perspective on this point.

Resilient Development:

How did the activity strengthen environment, economic and social resources to withstand shocks and protect future well-being in targeted communities?

This question is focused on assessing the effectiveness of strengthening resilience at community levels. As this is an evaluation and not an impact assessment, resilience is looked at from the perspective of activities showing evidence of longer-term sustainability and benefit.

Strengthening Social Resources

Where adaptation actions were connecting OA impacts to existing efforts to strengthen community management of marine ecosystems, this supported a reinforcing loop of learning and action. In a number of the communities the evaluation found evidence of strong support from communities, especially where they claimed to have seen positive impacts from the project interventions.

For example, in **Fiji**, LMMAs established as part of the adaptation activities for the project has been the highlight for all sites. Following the establishment of LMMAs, community members have reported that some fish and marine species that had disappeared have now been seen in the fishing grounds again. This finding was also reported in the pilot site in Nanikai, Kiribati.

In the two communities of Vuna and Qeleni, the upkeep of the tabu areas as well as the general upkeep of the environment has sparked a closer collaboration between existing village committees who have now been working closely together since. LMMAs implemented within the project sites have inspired other villages on the island to do the same as word of the benefits has spread. Declaring an MPA for every village has since become an agenda in the Bose vanua, which is the highest traditional council under the administration of the provincial council.

Key informants from community meetings confirmed that the trainings and workshops conducted by the project through PEBBAC, SPREP, and CI have triggered and encouraged further actions like replanting of more trees, more responsible use of chemicals on farms, conservative clearing of lands for agriculture, and more responsible fishing by the communities.

In **Tokelau**, the active involvement of the Tokelau Administration, together with community leaders and community members, has provided a broad base for activities to be promoted, carried out, and maintained/developed. For example, the coral nurseries in Atafu and Fakaofu have been growing well (based on interviews). There is an expectation that this will help to repopulate and to some extent restore the reefs around Tokelau that supply the main source of livelihood to Tokelauans of invertebrates, seaweed, fish, and shellfish.

It is encouraging to note that through the project various actions and activities were initiated that addressed/focused on other environmental stressors. Overfishing being a prime example that was highlighted in both Taveuni, Fiji and Nanikai, Kiribati.

Whilst the above examples are encouraging, and these are pilot projects, it remains a challenge for them to become established, expand, and to have a wider more coherent (sub region/atoll/ island) impact.

The mixed experiences of involvement and engagement of communities across the three pilot sites also raises a broader question as to the role of regional organisations working directly with communities. Assessment of the PPOA highlights that whilst regional organisations have a role to play at a regional level and with governments and that effective development interventions require strong local partnerships and support, both at the inception and implementation phases and with ongoing support. Working with communities requires strong engagement mechanisms to drive local ownership. Where projects cannot resource this effectively, efforts to build awareness and resilience are likely to have mixed results and may do more harm than good by taking community partners away from other initiatives. Given the broad scope and limited resources available, the contribution of the project to resilient communities is limited and potentially fragile.

Sustained Development:

How did the activity contribute to progress that is lasting and owned by partner countries.

This question is similar to the previous one but is focused more on evidence of the project contributing sustained development at country and regional levels.

Resources and data

At the regional scientific level, the network established through the project (PI-TOA) that connects to the global network (GOA-ON) is still active. Individuals and organisations can join/link to it either through the GOA-ON website and the Regional Hubs link³⁶ or go directly to the PI-TOA website.³⁷ PI-TOA's purpose is to sustain and communicate OA findings in the region. GOA-ON supports PI-TOA to catalyse OA research and combat barriers to establishing monitoring efforts.

Scientists involved in work on OA continue to collaborate and share information. In 2021, SPC and USP launched a hub on OA in partnership with NIWA and the University of Otago. This hub is a news stream provided by the Ocean Acidification International Coordination Center. Content on the site includes scientific papers, reports, chapters on OA, as well as announcements, events, media coverage, stories, blog posts, factsheets, videos, podcasts, toolkits, and more.³⁸

36 http://goa-on.org/regional_hubs/index.php

37 http://goa-on.org/regional_hubs/pittoa/about/introduction.php

38 <https://news-oceanacidification-icc.org>

Strengthened ownership of Government Departments

Following on initial involvement of the Tokelau administration, ownership and further actions have taken place with strengthened relationships internally in Tokelau Government departments such as MiCORE and the Department of Education who are now using the OA resources and materials to incorporate them into Tokelau's school curriculum. At the same time some of the OA project activities such as monitoring, and data collection have been incorporated into MiCORE's local budget in order for them to continue the work set up by the project.

Expansion of activities from pilot sites

Marine Protected Areas. Taveuni in Fiji did not have any MPAs prior to the project. As part of the adaptation activities, MPAs were established at the sites, and now four years later, the Bose Vanua is advocating that every village/district should have tabu areas.

In Fijian tradition, a tabu is the temporary closure of a section of a community's fishing ground for 100 days after a chief's death, before a memorial feast is held.

The idea of the modern 'tabu' is to extend that closure indefinitely.

A few villages have since established theirs, while the others are working on getting this done as well.

Mangrove planting has continued in three communities in Taveuni after the project left. Youths of Navakaoa have taken up raising native trees in the nursery on top of their continuing mangrove nursery. Qeleni has their youth actively engaged in mangrove replanting and shore clean ups as well as replanting of trees inland. They have also established a new MPA which has been in effect for 2 years now.

There had been a watershed officer appointed that has been actively engaging with the community in environmental awareness and general watershed management. This appointment has greatly helped community leads in establishing MPAs or other environmental initiatives in the communities.

In Kiribati, community effort in progressing regulations that will safeguard the MPA from any form of external vandalism is a demonstration of community commitment towards achieving full ownership of managing the MPA.

Rehabilitation/replanting of Mangroves. Mangrove and seagrass re-planting were unsuccessful across most sites where it was tried. However, at the project sites in Taveuni, the project had triggered the interest in communities which had seen replanting of mangroves in other locations where they were thriving. A replanting initiative was carried out and led by the Ministry of Forestry that was strongly community driven and owned. Following on from that, other village communities have started planting mangroves themselves.

Rehabilitation/reseeding corals. In Tokelau, the coral nursery activity in the communities has prompted more interest among the youth and students to be involved in marine research and activities as well as the development of the Tokelau Coral Nursery guide targeting household coral gardening.

Project Management:

Was management of the project fit-for-purpose?

This question is focused on assessing the relevance of the activities/areas of focus of the PPOA project and from there assessing progress towards/ achievement of its outcomes. As the project focused on three specific (and inter-related) areas, these are addressed individually as well as with regards to their contribution and linkages to each other.

Structure approach of project management

Management of the project was led by SPREP with the PI-GOOS Officer as the project manager. SPC's Principal Fisheries Scientist acted as the main coordination point at SPC, and the Director of Pacific Centre for Environment and Sustainable Development was the main contact point at USP.

The first project manager was in post at SPREP as the PI-GOOS officer and contributed to the development of the project proposal. He took on the management and leadership of the PPOA project on behalf of SPREP in addition to his own PI-GOOS responsibilities. He was instrumental in getting the project off the ground. Following the departure of the first project manager, there was a substantial gap before a replacement was found. As with his predecessor, the new project manager held responsibilities as a PI-GOOS Officer as well as for managing the PPOA.

To try and address the delays in project implementation, a number of different approaches were used to accelerate delivery of project activities following the second Project Manager's appointment. SPREP recruited technical officers in Samoa and Kiribati to support project delivery in those countries. In Fiji, a partnership was developed with another SPREP project, the PEBACC project. This in its turn resulted in a partnership with an CI, who were working in Fiji and were able to deliver community activities in Taveuni.

Interviews with key informants highlighted how the partnerships developed for Fiji were opportunistic and more focused on task delivery. This seems to have been a sensible response to COVID-19 restrictions ensuring that existing relationships with another SPREP project could support programme activities. The downside of this approach was the limited involvement of CI on OA activities as they were brought in to run the training programmes but had no input in community site selection or activity design, limiting their sense of ownership of the results.

Impact of COVID-19

Delays in the project initially resulted in a one-year extension to 2019/20. However, the impact of the COVID-19 pandemic and the resulting restrictions on activities and travel, with the closure of international borders effectively severely limited activities for nearly two years. The impacts of COVID-19 on the project were highlighted by the project manager at a meeting of the regional Pacific Hub (PI-TOA) of the GOA-ON.³⁹

In Tokelau, coral restoration work that started in 2019 was delayed. MiCORE community staff went to Apia (Samoa) and worked with a local consultant in setting up coral nursery frames and training. They later returned to Tokelau and conducted the restoration work with communities with remote support from the Samoan consultant.

39 Meeting recording. See 1.02 - 1.06 <https://www.youtube.com/watch?v=nWMhiHpxBx0>

In Kiribati, it was fortunate that most of the work happened before travel restrictions. However, there was a gap of one year between the first and second inception/training workshops, despite support from a local SPREP officer. The delay and the limited opportunities for engagement by the SPREP team with the local community during COVID-19 did impact on communities' ownership of project activities. This did not become a problem because the MoF Community Based Fisheries Management Officer was working with the community at the same time to develop the MPA. This initiative (with some input and impact from the PPOA) acted as the catalyst for community action.

Despite the major impact of COVID-19, the approach of having the project management for the PPOA as part of another role had major implications on the project. The main ones, highlighted by the examples above, were related to the amount of time and effort that the SPREP project manager could put into managing and leading the project. As the project covered different locations and three distinct and interlinked areas, there were substantial demands on the project manager to be both 'hands on' – ensuring delivery of the project outputs, as well as driving the project forward and putting adequate focus onto the contribution of the project to its higher-level outcomes. As a result, project managers focused their limited time on aspects of the project they felt closest to, for example by working on the research aspect of the project.

Collaboration:

How well did the regional agencies involved in the activity work together and divide their responsibilities?

The Proposed Approach to Collaboration

The 'ADD' for the PPOA proposed an integrated approach to monitoring, resilience building strategies, and practical adaptation actions through a collaborative partnership between three regional CROP agencies:

- SPREP has direct access to each CROP agency, national government, and relevant government agencies, plus formal partnerships with the major environmental NGOs in the Pacific. It is thus well positioned to facilitate and coordinate project activities between international research organisations and these entities.
- SPREP has the agreed responsibility for the "overall coordination and monitoring of climate change activities in the region"⁴⁰ⁱ. SPC would lead on scientific research on the effects of OA on pelagic fisheries and contribute to the identification of policy that can be adapted to include OA through its leadership in broad regional initiatives of improved food security, disaster risk reduction, prevention of non-communicable diseases and economic development.
- SPC would contribute to capacity building in OA through partnering with its national partners to participate in the vulnerability assessment and to provide laboratory and research training opportunities with USP.
- USP has well-developed marine studies and sustainable development programmes and has significant practical experience in climate change adaptation planning and implementation. There is the potential to work with USP students to undertake research and monitoring activities, and to spread awareness in coastal communities.

⁴⁰ ActivityDesign Document (ADD): NEW ZEALAND PARTNERSHIP ON OCEAN ACIDIFICATION (OA). Executive Summary, p3.

Evidence of different types of collaboration through the PPOA

The PPOA specified a number of specific 'deliverables/outputs' where the CROP agencies would collaborate. Specifically, developing the science of OA.

For this work SPC took the lead for carrying out scientific research on the effects of OA on pelagic fisheries.

The PPOA also encouraged wider/regional collaborations. One of the most important was the development of a regional network for OA Monitoring: **PI-TOA**.

The PPOA did result in a relatively active network of practitioners (between 2017-2019) as part of the PI-TOA regional hub of the GOA-ON. The website describes PI-TOA as a platform for increased collaboration and communication amongst the various PICTs, a need that has been identified as capacity for OA monitoring increases in the region⁴¹.

In addition to the above there were a number of collaborations between SPREP and other agencies/organisations on OA:

- An increase in partners working on ocean acidification and Pacific Island scientists publishing on the topic.
- Various monitoring projects and research initiatives have occurred across the region supported by the PPOA, USP, and The Ocean Foundation
- The Ocean Foundation supported projects in Fiji (USP), Vanuatu (USP) and Samoa (National University of Samoa), and supported the deployment of monitoring equipment (GOA-ON in a box)

Challenges to collaboration

Whilst the PPOA had a strong mandate to collaborate with key stakeholders, primarily other CROP agencies, the evaluation found that the approach to collaboration became more of a task management approach, focused on achieving specific outputs. A negative effect of the lack of collaboration was seen in initiatives where it would be expected to see involvement of all three CROP agencies for example:

- A new Pacific Islands Ocean Acidification Centre was established in 2022 by USP and SPC, with other key partners including The Ocean Foundation, NIWA, and the University of Otago. It is unclear why SPREP are not a part of this initiative, especially with their role via the PPOA in supporting regional cooperation on OA by coordinating the Pacific islands hub of the GOA-ON.
- SPC conducted an OA training (separate from this OA project) in collaboration with GOON and invited SPREP. USP received recognition on its own as the centre for OA monitoring in the Pacific, evidence that partners were implementing their own OA projects but not really collaborating.

The development of initiatives where SPREP were not involved or did not participate highlight the lack of focus and energy on seeing collaboration as a critical tool to addressing OA. Especially with regard to developing activities or initiatives that would support the wider effectiveness and contribution of wider collaboration on OA.

⁴¹ http://goa-on.org/regional_hubs/pitoe/about/introduction.php

Whilst acknowledging the areas of collaboration that have taken place, it is important to note that there are significant areas of work on OA where there was a lack of collaboration. In this regard a potential mitigating factor for SPREP would be the challenge of having the PPOA Project Manager role shared with that of the PI-GOOS officer. This obviously limited the amount of time that could be put into developing and sustaining relationships and building collaboration. In order to address this it is important for there to be sufficient staff capacity.

Key Messages

What were the main lessons learned?

Strengths of the PPOA Project

The focus of the activity was relevant and timely.

The rationale for the project in 2014/15 was the need to 'do something' with regard to OA. Despite the major impact of COVID-19, it is encouraging to see that the project has contributed to an increased understanding of the importance of addressing the impacts of OA, especially in the participating countries and communities. Seeing the increase in awareness of OA, with developments in monitoring and encouraging examples of community engagement from the pilot sites, is testament of the contribution of the PPOA.

The project successfully raised the issue of OA and the profile of the PPOA approach, especially of working with communities, at major regional and global events.

The PPOA project successfully capitalised on opportunities to raise the issue of OA and the approaches taken by the project of focusing on three areas: Research and Monitoring; Capacity Building and Awareness Raising; and Practical Adaptation Actions.

The PPOA successfully leveraged funding to extend the reach of the PPOA.

Through leveraging funding from donors such as the Principality of Monaco, the International Atomic Energy Agency (IAEA), and the Korea Institute of Ocean Science and Technology, the project supported a broader range of activities and engaged with a range of donor agencies on the importance of supporting action on OA.

Engagement of communities represents an important opportunity to build resilience and to connect with higher level government and regional programmes.

Examples across the three pilot countries highlight opportunities to build and strengthen understanding of, and engagement in, OA resilience activities. Especially, with regard to grounding the 'science' of OA in community knowledge and locally owned responses.

Making the impacts of, and responses to, OA tangible to communities is critical to building ownership and resilience.

Where communities took ownership of their response to OA, for example through establishment of LMMAs and engaging in coral restoration, these provided opportunities for connecting with other communities as well as local and national government departments for scaling up and potentially scaling out of interest and engagement in OA resilience activities.

Weaknesses of the PPOA Project:

The project became task-focused with 'eyes down'.

Insufficient resources were allocated to appropriately and effectively manage the project which led to a strong output rather than outcome orientation. The appointment of project managers who were technically (science) driven was a key weakness from the perspectives of pursuing outcomes, cross-stakeholder collaboration, and community engagement. Attempts to address delays concentrated on outputs rather than focusing on the overall outcome and purpose of the project through building energy, ownership, and awareness. The impact of an output-focus was further exacerbated by collaboration challenges between CROP agencies.

The gaps in strategic and outcome-oriented collaboration, specifically between CROP agencies represented a critical opportunity missed.

The vision of the need to engage in OA required a corresponding ‘visionary’ and enlightened response from all key actors in the sector and a more involved approach by MFAT. The lack of outcome-oriented collaboration with key partners, especially between the CROP agencies and the PPOA Steering Group, represented a critical ‘lost opportunity’ for the project. The disconnect between high-level statements and policies on the need for Pacific nations and organisations to act together, and the lack of collaboration in an area of common interest, highlights the need for collaboration to be pursued at a strategic level and to ensure accountability for it. Here, MFAT could have played a key role in – through the Steering Committee – keeping other stakeholders and partners focused on the vision for PPOA and the importance of strengthening lasting collaborations and supportive processes rather than focusing too much on the delivery of outputs. Taking a ‘back seat’ approach meant this opportunity to steer the project was missed.

Gender. The lack of a clearly articulated GESI strategy with accompanying actions to support meaningful representation and engagement of women represents a critical failure to both recognise and address the major challenges that women face as a result of climate change and OA.

Whilst mitigating factors can be cited (such as SPREP’s initial lack of a Gender Policy) as reasons for the lack of progress on gender, nonetheless, this was raised at the outset (in the ADD) as a critical area to strongly focus on. This should have been strongly challenged by MFAT (through the Steering Committee), who might have been able to provide support drawing on their experiences elsewhere.

Future Prospects

Are there continued opportunities for New Zealand support in the Ocean Acidification space in the Pacific?

There are a number of opportunities for MFAT to provide further support in the OA space. These can be seen in terms of:

1. Extending OA activities through supporting the development of similar 'resilience building activities'

Whilst the MFAT PPOA focused on pilot projects in three countries, there is interest in other countries for similar projects. For example, during the PPOA there had been discussions with the MoF in Vanuatu on running a pilot project there.

2. Supporting the application of the science to ministries and communities.

Building on from the foundations laid in the VAM and Pelagic Fisheries documents and incorporation into fisheries management guidelines there are opportunities to support Pacific countries to develop processes and procedures that can be owned and applied locally. For example:

- How can work on seagrass and mangrove planting be improved and expanded and made more coherent? How can it be taken to scale?
- Similarly for coral replanting: how can this be developed? Can countries/islands/ areas have a longer-term plan that they are working towards and what can MFAT do to support this in a sustainable way?

3. Developing monitoring.

Provide support to countries/ministries to develop and embed OA monitoring into their work. This can (and should) be linked to OA monitoring at regional level. Provide further support to the OA data monitoring and data management and repository for Pacific island countries in collaboration with research institutes (NUS and USP, NIWA, NOAA) and other Universities (Universities of Otago and Newcastle)

4. Supporting voice and engagement of communities to further build on activities

Enhance voice/activity and engagement of communities to have the capacity to strengthen the activities they have been engaged in such as:

- Developing approaches/ strategies to address threats and challenges to MPA's
- Link OA initiatives to other areas e.g. Water, Sanitation, and Hygiene.
- Develop community capacity to manage MPAs. Specifically with regard to the implications (restrictions/changes needed) for local fishing and fisheries.
- Link OA work to broader community development work. For example, addressing challenges where different land tenure systems negatively affect the management and sustainability of MPAs.

5. Provide support to activities focused on building climate resilience/ reducing other environmental stressors.

Evidence from the PPOA evaluation has shown that a number of the community adaptation projects are also focused on reducing the impact of other environmental stressors. For example, addressing local-level pollution from indiscriminate disposal of waste (household and local level/small scale industrial). Illustrative is Nanikaai community

in Kiribati where the community has instigated beach cleaning and banned the dumping of waste fuel oil in their stretch of the lagoon.

These initiatives have potential to be scaled up as well as replicated and provide support to further developing more focused OA mitigation/resilience strategies. Across all these areas, it is essential that sufficient attention is paid to making OA 'relatable' and 'tangible' to actors.

Conclusions

The PPOA was developed in 2015 to address a major concern that OA was, and is, a major and potentially existential, threat to livelihoods in the PICTs. Challenges were seen in three critical areas:

- Scientific knowledge of OA, especially regarding its impacts in the Pacific region, was limited.
- Relevant government ministries had minimal capacity to engage in OA; and
- The knowledge, understanding, and action of and by communities were minimal to non-existent.

In the light of these enormous challenges, the overall objective of the PPOA to act as a catalyst and highlight the issues through engaging in the three areas of concern was relevant and strongly significant.

The conclusions are structured in two parts. The first focuses on the PPOA project as a whole. The second section is focused on MFAT's role.

Conclusions focused on the PPOA project

1.1 Developing the science on OA

The PPOA was instrumental in contributing to building the evidence base on OA through supporting the development of critically relevant studies that provided a foundation for Pacific countries to frame their response to the threat of OA. The VAM and the Assessment of projected impacts of OA on Pelagic Fisheries are providing the critical foundational information and analysis from which regional and country policies can be developed to move towards increased resilience. Similarly, the increased support for, and development of capacity in OA monitoring through the provision of equipment and support to the GOA-ON and PI-TOA monitoring networks is important and significant.

At the same time, the challenge with these contributions is how they can be used and applied in practice. Limited capacity is a key reality for many government departments in the Pacific and a major bottleneck to addressing OA. To achieve significant change and adaptation, strong collaboration and partnerships across local, regional, and international levels are required. Future support needs to focus on long-term outcomes and impacts based on the best available science and evidence, including that from the PPOA.

1.2 Building an awareness of OA to support action

A core challenge for the PPOA was building awareness of OA as a pre-cursor to/a building block for action and engagement at local community levels. Whilst the proposed approach for the PPOA had been to develop a Framework of Action that would drive engagement as a platform to build awareness, this was rejected as unworkable by stakeholders during the 2015 Auckland Workshop.

Despite significant effort and the development of a simplified graphic to support explanation of OA, there was a general perception across each of the pilot sites that the concepts of OA were complex to understand and relate to. In part this reflects the 'science driven' approach

of the project. Two examples of locally developed good practice are given to illustrate how practitioners sought to address this challenge:

- a. CI addressed the issue of OA from the perspective of current knowledge and understandings of the local communities on climate change. Through practical and experiential learning and reflection the implications of OA, its relevance across people's lives and livelihoods as well as the support and embedding of resilient actions could proceed in a dynamic manner.
- b. In Tokelau the schools taught their pupils about OA alongside an exposure to the adaptive responses carried out at community levels. This supported meaningful understanding and knowledge to be built. The posters developed by students on OA provide a helpful example of how the 'science of OA' was communicated, understood, and engaged with by communities.

1.3 Providing effective support for responses to OA to be resilient and at scale

The findings from the community level pilots highlight some good progress and engagement of community members in resilience/adaptation activities. However, these are still limited in both scope and scale. In addition, challenges in, for example, replanting of seagrass and mangroves illustrate the need for resilience building activities to be based on solid participation and technical support. The varied results across the three pilot countries and locations highlight some important common themes that are critical to be able to build and scale up activities on OA beyond this pilot.

- **Get community 'buy in'.** For communities to engage with and 'buy into' addressing OA, they need to start from a position of understanding the issue and agreeing on an action/something that is relevant to their situation that can be done. Whilst this point can be regarded as an obvious one for any community development project, it is especially relevant in the case of OA as the concept is so little understood and requires the promotion of major shifts in knowledge, attitudes, and practices in order to have a sustainable impact.
- **Make the science of OA relevant.** The project focused on building strongly from a scientific perspective. This was difficult for local communities to understand and engage with and lacked a linkage to, and understanding of, traditional knowledge. Approaches to understanding and interpreting the science of OA from the perspectives and values of Pacific island peoples is important. In this respect, the example of posters on OA developed by students in Tokelau could be investigated further.
- **Make responses visible.** Providing opportunities at community level to make the science of OA and approaches to building resilience visible were critical to successfully develop an understanding of OA. The development of MPAs and enabling communities to engage in, and easily monitor, activities such as coral replanting supported the embedding and continuation of the pilot activities.
- **Engage other stakeholders** from (international) NGOs, traditional community leaders, ministry staff, and government administrations who identified with the opportunities and engaged with them to support the development of the pilot projects. Whilst none of these linkages and opportunities were foreseen in the planning of the activities at each of the project sites, the fact of them being externally driven highlights the importance of seeking out potential opportunities for active engagement.
- **Build an enabling environment.** Critical elements include:

- Government support (from national to local levels) with policies, technical and financial support, and linkages to other sectors – Water and Sanitation, agriculture etc.
- Interventions based on a broader needs assessment. For example having a national or regional strategy and a set of policies for planting of seagrass, mangroves, and developing LMMAs.

1.4 Effective integration of GESI principles into community level work

The findings point to the lack of a clear and coherent approach to addressing GESI issues. Whilst there is evidence of some actions at community level, these are partial and for the most part not developed or followed up with no clearly articulated or defined approach that recognised any roles that women traditionally played, especially with regard to farming and water management. That this critical gap was not followed up on by SPREP or any of its partners, or properly challenged by MFAT, represented a weakness of the project and needs to be addressed in any follow-up as well as in future work.

Conclusions focused on MFAT's role

2.1 MFAT's Role in the PPOA

MFAT have for many years championed the issue of OA. Through the development of the PPOA, MFAT played a key role as a catalyst for action on OA in the Pacific. Through its clear commitment, concern on OA in the Pacific has moved from 'this is a huge issue, something needs to be done' to the development of the PPOA project. Once the project was initiated MFAT took more of a 'back seat' approach, though still aiming to provide support as a member of the PPOA Steering Committee.

Whilst the PPOA project has made good progress on its objectives it has struggled to focus on achieving outcomes, specifically in the area of collaboration. In this respect there was a real need for MFAT to provide clear leadership and, through 'supporting and challenging', to build the capacity of the Steering Committee to contribute to the development of OA work through strategic collaborations.

2.2 Addressing capacity challenges

The challenge of capacity in Pacific island governments and ministries is well known, but the project design lacked an appropriate conceptual framework with which to build understanding and ownership of OA at community and ministry/department levels. In addition, the project did not have a clearly articulated approach to addressing the systemic capacity challenges of in-country ministries and departments to fully engage with OA and provide support to communities. Whilst the example of the Tokelau administration strongly engaging in the project is a positive outcome from the project, this was primarily due to the efforts and desire to act on the part of the Tokelau Administration rather than due to project effort.

2.3 Effective collaboration and partnership are critical to success and impact

Despite some good collaboration with agencies such as NIWA, the emphasis on the importance of partnership, cooperation, and collaboration that had been built into the design of the project was not adequately realised in practice. Especially with regard to cooperation and collaboration between the CROP Agencies.

Two key factors impacted on this. The first was the consequence of structuring the project manager role as part time together with the PI-GOOS Officer role. This was a critical weakness

in the ADD which, despite the unforeseen change in Project Managers and delays incurred in the project, was not addressed. The second factor was the lack of clear support and direction from the Steering Committee, of which MFAT was a member. Collaboration was also a challenge where CROP agencies had potentially overlapping mandates but did not have agreed roles that would enable them to collaborate effectively. This was the case with regard to, for example, the practical adaptation actions in the three pilot sites. SPREP led on these but did not bring in support from USP as envisaged in the ADD.

Insufficiently effective engagement and positive and trusting partnerships led to exclusion of, or limited engagement with, potentially important partners such as, for example, the limited engagement with Conservation International in Fiji.

In future projects of this nature it is critical that the project manager role is structured to enable the person to have a clear outcome-focus from which to manage the development and achievement of outputs.

In addition, in projects such as the PPOA that operate in complex and challenging environments, the Steering Committee function needs to be clearly defined and managed with strategic leadership to provide clear direction.

2.4 Addressing efficiency is critical to support sustained effectiveness

The PPOA project struggled to be efficient and effective. These challenges were in part due to the management structure chosen. Whilst this is often a challenge facing many development projects, it is of particular concern for projects focused on the impacts of climate change and OA where timely interventions are needed to address or mitigate cumulative increases in the scale and level of the problem.

The unforeseen and major impact of COVID-19 exacerbated and further challenged an already stretched project management. Whilst this could be seen to be a 'one off event', it is appropriate to consider the impact of external challenges and events, especially given the increasing frequency and impact of climate-related events and changes.

The delays in completing activities and especially building strong alliances and connections impacted on the timely achievement of objectives and outputs and, more critically, further challenged progress towards higher-level outcomes.

For MFAT it is critical to ensure that the project management structure chosen, and support mechanisms provided, are sufficient to enable supported projects and programmes to be able to deliver on their outcomes in a timely, efficient, and effective way.

Recommendations

The primary actor to implement these recommendations in all cases is MFAT. As this summative evaluation took place after the PPOA was concluded, no recommendations for the project itself have been made. It is recommended that MFAT acts on these recommendations as soon as possible in order to avoid losing momentum built during the PPOA.

#	Priority	Recommendation	Elaboration	Link to conclusion
1	High	Continue/budget support for OA monitoring.	Provide ongoing support for monitoring of OA, especially the local collection of data that contributes to national and regional data (PI-TOA) and support the building of capacity, ownership of, and engagement in OA resilience work.	1.1, 2.1, 2.2, 2.3, 2.4
2	High	Support pilot projects to build on successful initiatives so that they can develop, replicate, and expand.	Provide support to current communities to embed their knowledge of OA. Support pilot site communities to develop knowledge/skills and adaptive capacities through increasing and broadening resilience activities and support communities to address interventions that have not worked/or worked well enough. Ensure a clear focus on women and excluded groups. Support pilot project sites to develop objectives and strategies and processes to address other OA stressors. Strengthen monitoring on adaptation actions of projects and upscale success stories to be shared with other local communities.	1.2, 1.3, 1.4, 2.1, 2.2
3	High	Support and develop the capacity of relevant government ministries in OA.	Engage with relevant Ministries to support the development of their capacity in addressing OA through developing plans and processes to support pilot projects and to strengthen them. ⁴² Support ministries in developing and applying policies and policy frameworks on OA. Provide support for government ministries and departments to engage with communities on OA. Work with ministries and local governments to identify and engage with other actors/ activities where other support has been given (e.g., trainings on policy development) ⁴³ that can be used to support capacity development and strengthening.	1.1, 1.2, 1.3, 1.4, 2.2
4	High	MFAT should continue to fulfil a leadership role in future work on OA and continue to support and nurture effective collaboration	In projects such as the PPOA that operate in complex and challenging environments, the Steering Committee needs to be clearly defined and managed with strategic leadership to provide clear direction. MFAT needs to be prepared to take on this catalytic role in the development of a project design as well during the project implementation as a key member of the Steering Committee.	1.2, 1.3, 1.4, 2.1, 2.2, 2.3

⁴² Any 'capacity development work with government departments/ministries must be based on their priorities and needs.

⁴³ Gordon Nanau. USP. Trainings in the Solomon Islands, Kiribati and Vanuatu.

<https://cscuk.fcdo.gov.uk/development-theme/strengthening-government-policies-in-the-pacific-region/>

		between key actors engaged in OA.		
5	Medium	Support the development of a local understanding of OA	Support the engagement of key actors (schools, local /international organisations, etc.) to build community understanding of the science behind OA. Support schools and communities to develop an understanding of OA and to develop tools and materials that communicate a clear and contextually relevant message.	1.1, 1.2, 1.3, 1.4,
6	Medium	Engage with relevant ministries to develop a planned approach to the extension and replication of rehabilitation sites	Support the development of a programmatic approach to rehabilitation projects. Engage with relevant ministries to develop a planned approach to the extension and replication of rehabilitation sites with the objective of creating larger areas capable of achieving a critical mass.	1.3, 1.4, 2.1, 2.2
7	Medium	Consider and address challenges to efficiency in the development of OA and climate resilience projects	Ensure that challenges and threats to efficiency are considered and addressed in the development of new project proposals and also as part of the ongoing management and oversight of projects to ensure they are sufficiently addressed and do not impact on the achievement of longer term outcomes. For example through developing and utilising Theories of Change.	1.1, 1.2, 1.3, 2.2, 2.3, 2.4

Annex 1: Original Terms of Reference



Panel RFQ -
Independent evaluatic

Annex 2: Evaluation Methodology

Detailed methodology

Taking a Pacific approach

Taking a 'Pacific' approach is centred on respect for others, authority, cultural values, and practices. When working in and with communities it is essential to follow and show respect for local practices and standards. Central to the application of the methodology and data collection will be ensuring that we request the permission of the relevant authorities at national, provincial, and community level, and introduce the purpose of our work and how we intend to carry it out. At the end of our data collection work, we will ensure that time is spent with the community and the relevant authorities in feeding back and ensuring that the process is, as far as possible, mutually beneficial.

The evaluation team has taken considerable steps to ensure the collaboration between IOD PARC and Talanoa Consulting is truly collaborative. This is particularly reflected in the design of the methodology.

Based on the overarching evaluation questions set by MFAT, all team members developed sub-questions and identified stakeholders based on their understanding of the evaluation purpose, project, and country contexts. An internal workshop was then organised to discuss the *purpose* of each evaluation question and what aspects of these questions needed to be clarified to ensure all team members will approach data collection with a shared understanding. The workshop also offered an opportunity for Pacific-based colleagues to elaborate on how questions might be understood in their country context, and which (sub-) questions they consider appropriate for the different groups of informants and settings. This helped clarify the data collection process and helped to re-order the evaluation questions in a more logical way sequentially. By extensively discussing the aim of each evaluation question, we ensured that everyone was 'primed' for the data collection, had the same understanding of what data we were looking for, and that everyone had a wide pool of (sub-questions) clearly in their mind which enabled the data collectors to respond flexibly based on the initial responses they get from the different (types of) respondents.

Community visits were an essential element of the data collection process, enabling the evaluation team to get a deep understanding of the impact of the PPOA on the communities across the three countries.⁴⁴ The community visits applied a Pacific Approach in meeting with community members and key informants. Community visits involved a mix of transect/transit walks, formal/semi formal community meetings, and semi structured key informant interviews.

Methods

Document review

The team reviewed documents provided by MFAT and collected from other stakeholders such as SPREP. Information relevant to the evaluation questions has been extracted and stored in the evaluation matrix for easy access and has been used to triangulate primary data.

⁴⁴ Whilst it was not possible to carry out a field visit to Tokelau, the team member based in Apia held a series of Zoom calls and remote meetings with one of the three communities.

Semi-structured Key Informant Interviews

Key informants were identified through the document review, conversations with MFAT, and the existing knowledge of in-country experts. They were invited to participate in semi-structured key informant interviews (KIIs) to help answer the evaluation questions. Key informants are primarily staff involved in delivering the overall activity or projects on the ground and includes individuals at community level (for example community leaders). A list of people interviewed is given in Annexe 3.

A critical part of the data analysis process was to both assess the strength of the data collected in responding to the evaluation questions and identifying potential gaps or weaknesses in data. Where necessary and possible these were addressed through follow-up interviews with key informants already interviewed or additional/supplementary interviews.

Community Meetings/ Talanoa

The team's in-country experts have extensive experience in facilitating talanoa and have used the evaluation questions and input from the internal workshop to steer the talanoa in ways that contribute to answering the evaluation questions. Talanoas have been the principal data collection method at community level to ensure voices from across the community are heard. Special attention has been given to ensure talanoas were inclusive and that (critical) voices were not excluded to maximise learning.

Transect walks

Transect walks were used for gathering data from local communities by observing people, surroundings, and resources while walking around an area or community. Having a transect walk provided an opportunity to use visual observation of project areas (mangrove replanting for example) and to ask questions of different stakeholders.

Workshops/Feedback meetings

At a community level, semi-formal 'workshops' were held as a part of each community visit. As well as opportunities for data collection and triangulation, they have also provided opportunities for each field team to provide feedback to a community on the findings and key issues and allowed community members the opportunity to provide added reflection/input.

Analysis workshops (face-to-face and remote) were also convened in Fiji and Kiribati whereby members of the evaluation team could work together to analyse data and learn from each other as part of IOD PARC's presence in the Pacific as part of its wider regional work.⁴⁵

Selection of field sites

The project was implemented in 14 locations: one in Kiribati (Nanikai), three in Tokelau (Atafu, Nukunonu and Fakaofu), and seven in Fiji (Qeleni, Naselesele, Navakocoa, Bouma, Waitabu, and Lavena in the district of Wainikeli (7 villages), Korovou, Kanacea and Navakawau in the district of Vuna).

For the project sites in Kiribati, Fiji, and Tokelau, we used the following criteria to identify the 'critical cases' that were considered most valuable for the evaluation:

- Contribution to the Evaluation Purpose- Potential sites were identified through the initial document reviews and conversations with MFAT and SPREP.

⁴⁵ These were not part of the original proposal. The Team Leader used the opportunity of unrelated travel to the region to hold meetings with Team Members to review data collected and provide direct support and capacity building to the Team. This was at no cost to MFAT.

- Different time of implementation- By purposefully sampling activities that were implemented at different moments, we aimed to capture if activities learned from each other and could provide information around effectiveness and efficiency.
- Key informants- Follow on from interviews with key informants to identify other sources who had contributions to make (positive or negative).

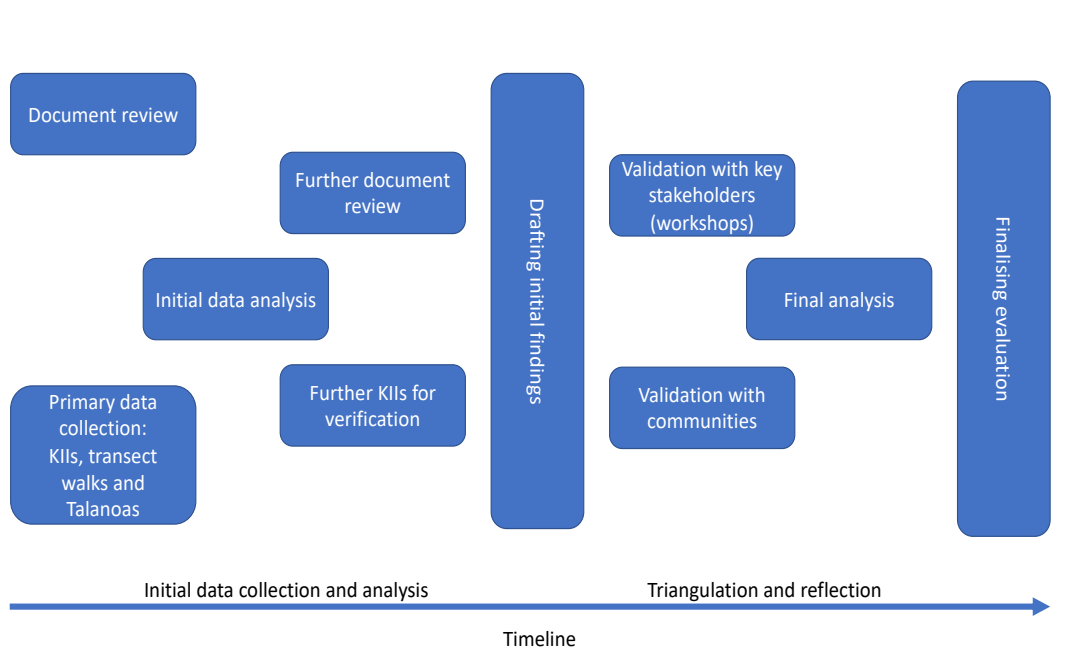
These criteria in combination with the time and resources available resulted in visits to the following sites:

Fiji: Korovou and Navakawau (Tikina of Vuna, Taveuni)
 Lavena, Qeleni, Navakacoa and Naselesele (Tikina of Wainikeli; Taveuni)
 Tokelau: Atafu, Nukunonu and Fakaofu. All sites in Tokelau were interviewed remotely.
 Kiribati: Nanikai (South Tarawa)

Data analysis

The data analysis has been driven by the evaluation questions and the DAC evaluation criteria. It involved an iterative process whereby the document review and initial conversations informed the primary data collection, which was then followed by initial analysis of primary and secondary data, once again followed by further primary data collection (and possible document review) to clarify outstanding evaluation questions. In practice the validation with key stakeholders took place through informal conversations post the main interviews and validation with communities took place at the end of community data collection processes. Figure 3 below presents a schematic overview of our approach.

Figure 3: Data collection and analysis approach



Annex 3: Full Evaluation Matrix

DAC Criteria	MFAT QUESTIONS	High-level informants	Communities	Evaluation tools
Effectiveness, Relevance, Impact	<p>1.EFFECTIVE DEVELOPMENT. Did the activity do the right things; did it achieve its outcomes?</p>	<p>1. What are the outcomes of adaptation activities in the pilot sites? Have there been any unanticipated consequences? Looking back, what have the impacts of the pilot been - both in terms of OA as well as others?</p> <p>2. What is the status of the OA data monitoring? where is the baseline data collected/housed and has it been utilized for advice policy makers?</p> <p>3. What is the frequency of the monitoring at pilot sites?</p> <p>4. Have any key messages/report on the analysis of key parameters collected (chemical and biological) been utilized by policy makers/Government plans? Is the data been housed in country or at SPREP? who has access? (Research and Monitoring).</p> <p>5. Is there evidence that the data is used and kept up to date? Any in country reporting process with Policy Makers/Government?</p> <p>6. How was the programme developed?</p> <p>7. Was the approach effective?</p>	<p>1. What is the status of the adaptation activities in the pilot sites? (Adaptation Actions) any impact on the communities/environment since implementation?</p> <p>3. Is there a good understanding of OA at the pilot sites?</p> <p>3. What has changed since people have become aware of OA? (Capacity building)</p> <p>4. Have you as a community been able to help design and shape the intervention to meet your needs and capacities?</p>	Document Reviews, KII's, Community Talanoa

<p>Relevance, Sustainability</p>	<p>2. PROJECT DESIGN. Was the project designed in a suitable way for activities it aimed to undertake?</p>	<p>1. Was the process of obtaining OA monitoring kits and maintenance efficient and effective? was there proper training conducted for pilot sites researchers? 2. Was there a platform/space for ongoing technical support with OA monitoring kit? 3. Was there a group of experts that was readily available to support in country researchers? 4. How was the OA monitoring data collected, stored, managed and shared, and is there evidence of its use? 5. How relevant was the design of the three components of the project to achieving its stated outcomes and forming a base from which to build OA? 6. How relevant was the project design and the collaboration between three core 'CROP' agencies relevant to addressing capacity gaps? 7. How relevant was the project approach to the inclusion of different groups and building 'agency' with communities to own and address the deep seated challenges to OA? 8. Is the project design still relevant? At the time it started this was the first programme on OA for MFAT to support. Is this model used in other projects?</p>	<p>1. Were the adaptation activities implemented suitable for the pilot sites? 2. How was the implementation carried out? How many local experts/partners/organizations/ministries were engaged? Was there good support from local NGOs/Government for the adaptation activities? 3. How was the capacity building and awareness raising carried out? What were the different groups who participated and engaged in the OA capacity building? 4. How relevant was the project approach to the inclusion of different groups and building 'agency' with communities to own and address the deep-seated challenges to OA?</p>	<p>Document Reviews, KII's, Community Talanoa</p>
<p>Not directly a DAC criteria but relates to Relevance, Effectiveness, and Impact</p>	<p>3. INCLUSIVE DEVELOPMENT How did the activity address exclusions and ensure benefits are shared?</p>	<p>1. What was the process for selecting community sites? 2. Were the activities implemented beneficial across the different members of the NGOs/Government? 3. What evidence is there of meaningful and sustained inclusion of different groups (NGOs/Government)?</p>	<p>1. Who was involved? 2. The project had a clear focus on women. What evidence is their of their inclusion? 3. To what extent were programme activities co-designed with communities? Which community members were involved and how? 4. Were the activities implemented</p>	<p>KIIs, Document reviews, Community and small group Talanoa</p>

			beneficial across the different members of the communities? 5. What evidence is there of meaningful and sustained inclusion of different groups (within communities)?	
Sustainability, Relevance	4. RESILIENT DEVELOPMENT How did the activity strengthen environment, economic and social resources to withstand shocks and protect future well-being in targeted communities?	1. How has this project strengthened awareness and action at Government-level to address OA? 2. Has there been any positive impact of the activities implemented in addressing OA in the pilot sites?	1. How has this project strengthened awareness and action at communities to address OA? 2. At a community level do people feel (evidence) that they have the 'agency' (capacity/resources/skills, influence) to act directly or to seek support/action and get it?	Group and subgroup Talanoa, KII's
Sustainability	5. SUSTAINED DEVELOPMENT How did the activity contribute to progress that is lasting and owned by partner countries.	1. To what extent are programme activities integrated with wider efforts to understand the science of OA and future impacts on coastal ecosystems? 2. How will activities be continued by government and community representatives? 3. Is there any evidence (are there any examples) of leveraging financing with partners? 4. Is there evidence of budgeting (new/additional) in Government Ministries/Departments to support ongoing work? 5. Have other/ independent actions/ activities been taken by communities/govt based on learning and capacity development/awareness from this project? 6. Is there evidence of an increased and increasing understanding of the importance of engaging with and addressing OA?	1. Have other/independent actions/activities been taken by communities on learning and capacity development/awareness from this project?	Group and subgroup Talanoa, KII's Secondary data analysis

Efficiency	6. PROJECT MANAGEMENT Was management of the project fit-for-purpose?	<ol style="list-style-type: none"> 1. Was there transparency and accountability in the project management? 2. Were hired experts/managers of the project suitable and deliver ToR as expected? 3. Was the engagement/monitoring/follow up/activities in country/pilot sites constant? 4. Were there any challenges faced in managing the project? 	<ol style="list-style-type: none"> 1. Was the engagement/monitoring/follow up/activities in country/pilot sites constant? 2. Were there any challenges faced in managing the project? 	Group and subgroup Talanoa, KII's
Relevance, Efficiency	7. PROJECT ADAPTATION/ FLEXIBILITY How well did the activity adapt to changing circumstances?	<ol style="list-style-type: none"> 1. How did the changes in key personnel impact activities? (SPREP Managers/MFAT) 2. How did the project cope during the covid19 pandemic? procurement processes? personnel unavailability? 		KII
Efficiency, Effectiveness, Impact, Sustainability (all possible, none guaranteed - will depend on responses)	8.KEY MESSAGES What were the key lessons learned, strength and weaknesses of the activity?	<ol style="list-style-type: none"> 1 What were the key lessons learned, strengths and weaknesses in implementing the practical adaptation actions, OA research and monitoring and capacity building? 2. Was the engagement/follow up from SPREP of activities to MFAT, partners and pilot sites constant? 	<ol style="list-style-type: none"> 1 What were the key lessons learned, strengths and weaknesses in implementing the practical adaptation actions and capacity building? 	Group and subgroup Talanoa, KII's
Coherence	9. COLLABORATION How well did the regional agencies involved in the activity work together and divide their responsibilities?	<ol style="list-style-type: none"> 1. What joint planning and MERL systems were used across agencies? 2. How often did the regional agencies meet/engage in implementing activities of the project? 3. Were the pilot sites/in country researchers/communities well aware of the regional agencies' different responsibilities within the project? did they observe/moreover was the collaboration visible in the OA activities implemented? 4. Is their evidence that collaboration between agencies contributed to greater achievement of outcomes/ more benefits 	<ol style="list-style-type: none"> 1. Were the pilot sites/in country researchers/communities well aware of the regional agencies' different responsibilities within the project? did they observe/moreover was the collaboration visible in the OA activities implemented? 	KII, Document review, Group and subgroup Talanoa

		<p>than just working individually?</p> <p>5. Is their evidence/thinking that the collaboration between the three CROP agencies has brought benefits that have changed the way in which the agencies work and will continue in the future?</p> <p>6. Is there evidence of other collaborations (intended/unintended) that have been relevant? Were there potential collaborations that were not taken forwards?</p>		
Sustainability, Coherence	<p>10.FUTURE PROSPECTS</p> <p>Are there continued opportunities for New Zealand support in Ocean Acidification in the Pacific?</p>	<p>1. What OA activities that was not addressed well/gaps in the project that NZ can further support?</p> <p>2. Has the OA research and monitoring well established in the pilot sites? has it engaged with other partners? have other Regional agencies supported this or further developed it?</p>	<p>1. What OA activities that was not addressed well/gaps in the project that NZ can further support?</p>	<p>Group and subgroup Talanoa, KII's</p>

Annex 4: List of interviewees

Name	Designation	Organisation	Location
Heo Peleni	Aumaga President	Community Member	Fakaofu, Tokelau
Monah Gasologa	Women Representative	Community Member	Fakaofu, Tokelau
Faafetai Naniseni	Student	Community Member	Atafu, Tokelau
Emalesi Sirila	Student	Community Member	Atafu, Tokelau
Poni Lepaio	Field Officer	MiCORE	Atafu, Tokelau
Lakena Gasologa	Field Officer	MiCORE	Fakaofu, Tokelau
Ollyshia Tuisano	Policy Officer	MiCORE	Apia, Samoa
Jewel Tuitama	Manager, National Disaster Management Unit and Oceans Programme	MiCORE	Apia, Samoa
Raymond Schuster	NZPPOA Project Technical Assistant	SPREP	Apia, Samoa
Herman Timmermans	Project Manager. PEBACC	SPREP	Apia, Samoa
Salesa Nihmei	Meteorology & Climatology Adviser	SPREP	Apia, Samoa
Tommy Moore	First NZPPOA Project Manager	(ex) SPREP	USA
Andrea Stewart	Senior Adviser Development People and Planet. DEVPP.	MFAT	New Zealand
Lucy Jacob	Senior Adviser, Pacific Oceans and Fisheries	Pacific Regional Division MFAT	New Zealand
Professor Beth Holland.	Director. Pacific Center for Environment and Sustainable Development	University of the South Pacific. USP	Fiji
Dr Katy Soapi	Coordinator Pacific Community Centre for Ocean Science	The Pacific Community. SPC	Fiji
Dr Rajesh Prasad	Lecturer/Fellow in Aquaculture Marine Studies.	University of the South Pacific. USP	Fiji
Semisi Meo	Senior Program Manager	Conservation International	Fiji
Isoa Naulu	Yaubula Committee	Vuna	Fiji
Temalesi (and women group)	Vuna Women	Vuna	Fiji
	Turaganikoro	Vuna	Fiji
Gade community	Youth Rep	Vuna	Fiji
Gade community	Turaganikoro	Navakacoa	Fiji
Gade community	Women's Leader	Navakacoa	Fiji
Gade community	Youth Leader	Navakacoa	Fiji
Gade community	Turaganikoro	Naselesele	Fiji
Gade community	Traditional leaders	Naselesele	Fiji
Gade community	Turaganikoro	Qeleni	Fiji

Gade community	Members of Women's Group	Qeleni	Fiji
Leni community	Youth member	Qeleni	Fiji
Sipiriano community	Watershed officer/Yaubula committee	Lavena	Fiji
Sipiriano community	Youth committee	Lavena	Fiji
Sipiriano community	Members of Women's Group	Lavena	Fiji
Liliana Lotebatu	Fisheries Officer	MFMRD	Kiribati
Aranteiti Tekiau	Fisheries Officer	MFMRD	Kiribati
Tarateiti Uriam	Fisheries Officer	MFMRD	Kiribati
Rateiti Vaimalie	Fisheries Officer	MFMRD	Kiribati
Manibua Rota	Fisheries Officer	MFMRD	Kiribati
Kimere Ueantabo	Community member	Nanikai	Kiribati
Ruti Karutakea	Community member	Nanikai	Kiribati
Tureta Teborau	Community member	Nanikai	Kiribati
Tika (Tetera) Tibaua	Community member	Nanikai	Kiribati
Tebetia Tinai	Community member	Nanikai	Kiribati
Tebwebwe Tabeti	Community member	Nanikai	Kiribati
Temaraa Katangitang	Community member	Nanikai	Kiribati
Katarina Korote	Community leader	Nanikai	Kiribati
Bautaake Tibaua	Community leader	Nanikai	Kiribati
Wariti Riitang	Community leader	Nanikai	Kiribati
Eria Taawai	Community leader	Nanikai	Kiribati
Tebuangui Biiheti	Community leader	Nanikai	Kiribati
Timeon Matatia	Community member	Najnikai	Kiribati
Maiawa Mouata	Community member	Nanikai	Kiribati
Taunikarawa Taeanibeia	Community member	Nanikai	Kiribati
Tabiterenga Keakea	Community member	Nanikai	Kiribati
Batitea Tatauea	Community member	Nanikai	Kiribati
Etita Raweaitina	Community member	Nanikai	Kiribati

Annex 5:Case Stories

Tokelau. Community Coral Gardening

Community coral gardening to adapt to the changes occurring in the sea, land and its people

Maria Sapatu-Kennar. EvaluationTeam Member. Samoa

Tokelau is made up of 3 atolls which are Atafu, Nukunonu and Fakaofu with an estimated total land area of about 10km². Tokelauans depend hugely on the marine environment for livelihood and with threats of ocean acidification. Following the NZPPOA Project awareness raising and capacity building training given in 2018. Tokelauans have decided to focus on are growing coral gardens with the objective to grow corals that are more resilient to heat stress/low ph and to grow more diverse types/varieties of corals to increase reef resilience.



Through the process of setting up and managing their coral gardens in the atoll communities, Tokelau has made substantial improvements through:

1. Tangible and Practical Adaptation Actions

Coral gardening gain traction because it was practical activity that remote communities were able to implement on their own with simple tools and easy to follow methodology. This relates to Pacific culture of having hands on activities because one way of learning daily life activities within the communities is through show and tell moreover experiential learning. The activity produced live corals (still growing) which are a tangible output that communities were keen on because it was witnessing the fruit of their labor by their own hands. This is a memorable and positive event that will attract more support and collaboration for sustainability of community coral gardens.

2. Capacity built for key actors

The Ministry for Climate Ocean and Resilience (MiCORE) staff were responsible for implementing the activities on the ground with Tokelau communities. Through the NZPPOA project they received training on relevant methodologies (Coral Point Counts and Reef Benthos Transects) to carry out marine assessments as well as setting up coral gardens. This

training and support has strengthened the capacity of local staff to deliver marine technical assessments and monitoring as well as continue providing coral gardening support. Two MiCORE staff said that “being able to deliver training in their own language for their people and to implement coral gardening in their communities gave them a great feeling of satisfaction, especially when the coral gardens were a success”. They also reported that they have both gained confidence in the work they do as well as more support from the community.

3. Awareness raised

During the Covid19 pandemic, MiCORE was able to deliver virtual awareness programs with Primary schools on the importance of corals and coral gardening as well as ocean acidification. The awareness raising work was linked with practical activities such as observation and getting students to engage with their community coral gardens. It was then followed up with a poster competition for students to draw out their understanding and perceptions of OA gained from engaging in the awareness program. The winners of the competition had their posters erected as community awareness billboard signs. This activity further raised awareness on coral gardening activities and the NZPPOA project in Tokelau as the students activities mobilized their parents, families and communities interest.



4. Strengthened collaboration

Implementation of coral gardening within the communities and awareness raising has also strengthened collaboration internally for the Tokelau Administration and with the communities. With challenges faced during Covid 19 of border closures, other Tokelau departments were able to work closely with MiCORE to implement awareness program to schools via online platforms. At the same they were able to coordinate the shipment of resources needed by the communities and MiCORE staff in implementing the activities of the NZPPOA project.

5. New initiatives and developing local ownership

Following on from the initial activities, new ideas and initiatives were developed. One key example was the development of a manual by MiCORE on community coral gardening that

was targeted at any Tokelauan household or school interested in setting up a coral garden to use as guidance. On the relevance of this initiative a MiCore staff member said” as there is more sea than land in Tokelau, farming is limited so coral farming or gardening is a good initiative”.

During the Covid 19 Pandemic, there were many challenges for the international consultant hired by the NZPPOA project to support coral gardening activities. To address these challenges, MiCORE invested in a local consultant (from Samoa where the administration is based) to deliver the coral gardening training for their staff and awareness program for schools.

The advantages shared were:

- Easy access to support as the technical person was local,
- similarities in languages that consultant was able to deliver bilingual examples and
- good understanding of the community setting.

And finally, MiCORE is currently working with the Department of Education of Tokelau to incorporate ocean acidification into the school curriculum with the support of resources from the NZPPOA project. A further demonstration of MiCore commitment is that the costs of supporting the coral gardening, monitoring and other NZPPOA project activities are covered absorbed within their local budget.

Kiribati. Developing a Marine Protected Area

Tokintekai Bakineti. Evaluation Team member. Kiribati.

Background.

In Kiribati the PPOA project was piloted in Nanikaai community on the island of South Tarawa. On South Tarawa there are quite a number of established communities. Nanikaai community is one of them but more organized and structured and isolated from the adjacent neighbouring villages by a causeway at either end of the island. At one end of the Nanikaai village, the Government of Kiribati built a landfill site, where all sorts of households and industrial waste was dumped with some being recycled. Nanikai village was selected to host the PPOA project because of its small size, compared to other communities on South Tarawa. The community is also, well structured, cohesive and passionate towards building a strong and resilient community.

Linking the PPOA project with a local government initiative

Following the selection process, staff from SPREP and local Fisheries Officers from the Ministry of Fisheries and Mineral Resources Development (MFMRD) met and consulted with selected members of the Nanikaai community. In this consultation, members of the Nanikaai community came up with the idea to establish a Marine Protected Area (MPA) to protect and to regenerate marine resources. An important focus was on the regeneration of 'arc shells' that had been an important food resource for the community.

The Community-based Fisheries Management unit of the MFMRD, took up this idea and with the support rendered through PPOA project, the establishment of the MPA project was made possible with the full commitment of the entire community in Nanikaai village.

Impact of COVID19 on the two projects

During the outbreak of this pandemic, SPREP staff who coordinated and supervised the implementation of the PPOA project activities on the ground were unable to make any visits due to the closing of the Kiribati's borders. This put the work on hold and also resulted in some miscommunications between SPREP and their partners in Kiribati. Despite these hold ups with the PPOA project, the Community based Fisheries Management unit of the MFMRD took the lead in progressing the work for the MPA project. This engagement showcased the importance of engaging local communities who are more aware of the local situation.

The benefits of collaboration between two initiatives]: PPOA and MPA projects

It is helpful to see that the concepts being reinforced and promoted through PPOA and MPA projects are complementary. Effectively 'two sides of the same coin'.

The PPOA promoted and instigated important lessons about ocean acidification and how it was impacting the entire marine eco-system while the MPA project from MFMRD contributed primarily on building strong community engagement and developing important lessons resulting from that.

The PPOA helped community members to develop understanding of the concept of ocean acidification, what OA meant and what the implications and effects were of increased levels of OA. Through increasing the peoples understanding of OA the concept it was then possible for them to see how engaging in different activities could contribute to mitigating its impacts.

Actions and changes arising from the project

Regenerating marine resources – arc shells

The challenge of open access versus controlled access.

Early in the 90s, there were abundant marine resources on the reef, especially of arc shells that was a major source of food for the entire population on South Tarawa. However, because of the lack of control measures to protect this important resource from being overharvested, arc shells became less plentiful and were very difficult to find. When sources of arc shells were found (mainly in the lagoon around Nanikaai the entire community of South Tarawa would descend on the area to harvest them. This would then decimate the resource again.

Establishing the MPA with the support of the PPOA project provided a 'managed area for the arc shells to re-generate. This demonstrated the benefit that would be gained from restricting community open access to resources. Increasing peoples knowledge about the disappearing of this arc shell really stimulated and catalysed strong community engagement in the management of the MPA project.

The benefit derived from the efforts of the Nanikaai community were prominent and visible to the other communities on South Tarawa. Arc shells started to accumulate in numbers again, as well as other kinds of shell fish, and other reef fish species. As well as improvements within the MPA area there is also evidence of some spill over adjacent to the MPA with some harvesting happening as well. which are evidenced from people harvesting the spill-over.

Changing attitudes to rubbish collection

Interviews with community members highlighted how they had changed their approach to rubbish. That their routine of keeping the beach clean makes them proud and feel more connected to their environment. They clean up the beach to get rid of all the rubbish and ensure it is properly disposed to avoid any debris leaching back to the sea. This illustrates the change in

The traditional way of dumping their rubbish in the sea has now stopped in the community and the people are more conscious of how to manage their rubbish in order to minimise its impact increases in the level of OA. The cleaning up activities on the beach also send a clear message to the general public to stop littering and dumping rubbish in the sea.

The MPA is providing a good lesson and showcase on how community-led project can be effectively managed through community cooperation and collaborative approaches. The approach taken in the management of this MPA project gave the local community members autonomy and the power to control and manage the project. It is through this approach that they developed a strong sense of ownership which has translated into further to commitment and responsibility.

Visibility

The MPA project was made visible through the construction of posts that both demarcated the area and ensured the visibility of the boundaries of the MPA.

The visibility of the posts for the MPA also attracted a lot of attention from people passing by who would want to find out what was going on and would ask local people what was happening. [The visibility of the MPA has helped to spread out the word to the entire community on South Tarawa.

Replicability

Lessons derived from the PPOA and MPA project provide examples that can be replicated in other communities or other sites on South Tarawa. They also show that the damage to the environment due to uncontrolled human activities can be reversed.

Community engagement in regulatory processes

The Nanikaai community want to further develop the project through building strong legal frameworks to support the initiative. They are actively involved in developing regulations and byelaws with the Ministry of Justice. This legal back up gives members of the community power to manage and protect the MPA and where necessary to prosecute people who carry out illegal fishing in the area.

Fiji. Opportunities and challenges developing community engagement in OA.

Elizabeta Waqa. Evaluation Team Member. Fiji.

This 'Case Story' from Elizabeta (Peta) Waqa was written by her following her field visit to Taveuni island in Fiji. In this story Peta has highlighted the importance of addressing the challenge of understanding the term OA in order to support effective community engagement. She also draws out the challenge of meaningful inclusive engagement of women and other excluded groups.

Addressing the barrier of understanding the meaning of 'Ocean Acidification'.

One thing stood out from the field visits to the Fiji sites, was that the people understood the project not as an ocean acidification one but rather as the Conservation International (CI) project that facilitated the establishment of tabu areas or locally managed marine areas in selected communities around the island. This was because CI as the implementing partner for the PPOA in Taveuni, Fiji, strategically avoided the use of the term 'ocean acidification' when they conducted all of the awareness workshops and trainings.

In Fijian tradition a tabu is the temporary closure of a section of a community's fishing ground

CI introduced a number of mitigation activities/ project interventions including the establishment of tabu areas, mangrove replanting, coral restoration, and reseeded of giant clams as climate change adaptation measures. CI did this to avoid having to discuss a topic they felt was too technical and too complex to discuss at community level. Discussing this science process at community level could even create confusion. As an example, when fisheries extension officers were asked about their understanding of the term they did not seem to understand much on the topic. Ocean acidification, however, was mentioned as one of the processes exacerbated by climate change.

When asked about the Ocean acidification project, participants looked lost, and most of them did not understand what the issue was. However, one mention of CI and the excitement erupts with people telling how the establishment of the tabu areas by the CI Project have benefitted the communities as witnessed in the waters around it. Fish species that had once disappeared are now being currently found and caught in their *i-qoliqoli* (fishing grounds).

Tabu areas were established for Vuna, Naselesele, Qeleni and Lavena communities, as part of the PPOA project. Even though CI had not been part of the initial stages of the project to contribute to the design, they became the implementing partner who were asked to provide support after the initial partner FLMMA was not able to engage. As the program and activities carried out at community levels were already prescribed by SPREP, CI did not have much say in the design as they only committed to the scope of work they were contracted to do within the time and budget given.

The challenge of social inclusion.

In terms of Inclusivity, except for one community, the women of other communities stated in the interviews that they were not part of trainings and the project activities, except, in preparing meals for the participants. This, some of them claimed, was the only part of the project where women participated for most of the projects that come into the communities.

This contradicted the SPREP Report 2019 which stated participation of women in trainings and workshops was from at least 30% across all activities. It also confirms what the Yaubula rep in Vuna

mentioned about participation in trainings being done more as a “tick the box” performance rather than one that would ensure proper maintenance of the project after the implementation team left. It was claimed that most of those selected for the trainings were not present in the village communities when the evaluation interviews were being carried out. Apparently, some did not even live in the village, but were there during the trainings and got selected to attend.

Vuna and Naselesele communities do not have women in their ‘yaubula committees’, the committee responsible for the maintenance of projects to protect and ensure the sustainable development of iTaukei resources such as the PPOA. This again reflects poorly on the design of the project in terms of inclusivity. Qeleni has women in some committees, but most activities for the project were carried out by men and youth while the women prepared their meals.

However, Navakacoa village has effectively engaged women and youths at every level of their mangrove planting and coastal restoration works. The leader of the Navakacoa community women’s association is a former schoolteacher and the wife of the Turaganikoro. While they share the Naselesele tabu area, Navakacoa has continued to replant mangroves where the project had planted without success. They have also established a mangrove nursery as well as native tree nursery which has been an outcome of the Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) and SPREP workshops on watershed management as part of the PPOA project.

These activities have women and youths actively involved and have been so successful it has become a source of income for the village as they have been suppliers to projects like that of the Ministry of Forestry. Even primary school students in the village took half a day off to help pot seedlings for the nursery. The community youth volleyball tournament was sponsored from monies raised from their participation. The Community Primary School was able to pay for their camping levy from the half day work they did for the nursery. This reflects on the will of the people to carry on the works of projects introduced to their communities.

For Navakacoa, the committee was so determined to continue replanting of mangroves after they had seen how it helped them as a control for floods and in restoring lost marine life. It also reflects on the effectiveness of design and approaches used by the implementing team, particularly in the participant selection. For Navakacoa, those selected as participants to the training workshops and project implementation activities have been the ones leading the works on the ground since. Thus, Navakacoa has been a community where implementation activities have been successful due to good governance as well as responsible project management.

Lavena has been another example of community success story. Based on the baseline report, Lavena fishing grounds was one that urgently needed some form of intervention to restore its once lush coral reefs. The community had since set up a yaubula committee that is still active now, in maintaining and monitoring PPOA established Locally Managed Marine Areas (LMMAs). Whilst they still await the cleaning and maintenance gear promised to them by the project, the committee, made up of mostly empowered youths, have continued to do what they can to maintain the giant clam cages and coral nurseries. Though the coral and giant clams are not as well maintained as it ideally should be, it is safe to say that they have survived and given proper care, they should be great start in restoring the Lavena reef to its once lush state.

Elisa Jahreis, a German marine biologist with Corals for Conservation Fiji was my field assistant in Lavena and Navakacoa. She inspected the tabu area (LMMA) in Lavena and took the following pictures with the following brief description of its current status.

“I counted and measured all clamp shells with the program: see photos below:

The condition of the reef was unfortunately very poor. Only big encrusting colonies and some Porites sp. could survive. But surrounded by those big coral heads there is just loose dead coral pieces where new colonies can not find hold to grow on. That's why it can be indeed beneficial to grow clamp shells in the cages to put them later in the reef as habitat for new corals to grow on. The rope nursery needs to be maintained. The colonies that grow on the ropes are ready for harvest to put out in the reef. Best would be to place them next to the big coral heads where current may be reduced so that the planted colonies are not being washed away too easily. Furthermore, mild bleaching as well as overgrowth with seaweed could be detected on some colonies. Also, ropes need to be replaced.”



Whilst the other sites on the island have not shown signs of community taking ownership of the adaptation activities implemented by the PPOA, Lavena and Navakacoa are promising cases that are now catalysts in the establishment of tabu areas in other communities on the island. Qeleni has, since the PPOA, established another tabu area on their own without any technical support. These have been so effective as restoration tools that the province Bose Vanua has since taken up as an agenda item the establishment of tabu areas for every district. This can be taken as a positive outcome of the PPOA in working towards achieving community resilience, sustainable living, and responsible resources management. Addressing ocean acidification is eventually achieved in the process. However, community awareness of the OA process remains a challenge.

In conclusion.

This Case Story from my visit to communities engaged in the PPOA project on Taveuni demonstrates the importance of effective local support and facilitation to support community engagement and change. It also highlights the importance of ongoing support to further develop

and embed the activities and changes that communities are engaging in to support longer term sustainability.
