Nature-based Solutions Evaluation

EVALUATION REPORT

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ALINEA INTERNATIONAL

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Front Cover Image: Aerial view of Pacific Islands – Alinea International

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Alinea International acknowledges that our Australian head office is on the land of the Wurundjeri people of the Kulin Nation and their sovereignty was never ceded. We pay our respects to their elders – past, present, and emerging. We acknowledge and seek to champion the continued connection of Aboriginal and Torres Strait Islander peoples to land, water, sky, and community, and we pay our respects to all First Nations people whose communities we work in around the world.

ABBREVIATIONS

AIMS	*Australian Institute of Marine Science*
CEPA	*Culture and Environment Preservation Association*
CRIP	*Coral Reef Innovation Project*
CRxN	*Climate Resilient by Nature*
CSD	*Climate Diplomacy and Development Finance Division*
CSIRO	*Commonwealth Scientific and Industrial Research Organisation*
CSOs	*Civil society organisation*
DAC	*Development Assistance Committee*
DAWE	*Department of Agriculture, Water and Environment*
DCCEEW	*Department for Climate Change, Energy, the Environment and Water*
DFAT	*Department of Foreign Affairs and Trade*
DISR	*Department of Industry, Science and Resources*
EOPOs	*End of Program Outcomes*
FGD	*Focus group discussion*
FMNR	*Farmer Managed Natural Regeneration*
FPIC	*Free, Prior, and Informed Consent*
GCF	*Green Climate Fund*
GEDSI	*Gender Equality, Disability and Social Inclusion*
GEF	*Global Environmental Fund*
GoF	*Government of Fiji*
GoTL	*Government of Timor-Leste*
IIRR	*International Institute of Rural Reconstruction*
IMRs	*Investment Monitoring Reports*
IPCC	*Intergovernmental Panel on Climate Change*
IUCN	*International Union for Conservation of Nature*

KEQs	*Key Evaluation Questions*
KII	*Key informant Interviews*
M&E	*Monitoring and Evaluation*
MAP-WEC	*Mekong Australia Partnership - Energy, Water and Climate*
MMGB	*Mai-Maasina Green Belt*
NbS	*Nature-based Solutions*
NGOs	*Non-governmental Organisation*
ODA	*Overseas Development Assistance*
OECD	*Organisation for Economic Co-operation and Development*
OTP	*Office of the Pacific*
PM&C	*Department of the Prime Minister and Cabinet of Australia*
PNG	*Papua New Guinea*
PSEAH	*Prevention of sexual exploitation, Abuse, and Harassment*
REDD+	*Reducing Emissions from Deforestation and Forest Degradation framework*
SAGE	*Science in Australia Gender Equity*
SOGIESC	*Sexual orientation, gender identity and expression, and sex characteristics*
STEM	*Science, Technology, Engineering, and Mathematics*
TRACC	*Transforming Rural Lives through Adaptation and Carbon Capture*
UNDRIP	*United Nations Declaration on the Rights of Indigenous Peoples*
VCM	*Voluntary Carbon Market*
WV	*World Vision*
WWF	*World Wide Fund for Nature*

EXECUTIVE SUMMARY

INTRODUCTION

This report presents the key findings, lessons learned, and recommendations from an independent evaluation of three of Australia's international nature-based solutions (NbS) investments. These investments were not designed to fit together as a single collection of activities, but taken together enable significant opportunities for learning and development of a strategic approach to similar thematic investments going forward. Commissioned by the Department of Foreign Affairs and Trade (DFAT), the evaluation was conducted between September 2023 and March 2024.

NbS have gained recognition as a crucial and innovative approach to addressing climate change challenges. As climate change impacts become increasingly evident worldwide, there is a growing understanding of the need for comprehensive and sustainable strategies that not only mitigate greenhouse gas emissions but also enhance ecosystem and community resilience. NbS plays a vital role in Australia's climate-resilient development efforts as they can simultaneously reduce carbon emissions, strengthen disaster resilience, promote biodiversity, and provide sustainable livelihoods.

Box 1: Defining NbS

It is important to note that DFAT is yet to officially adopt an agreed definition of NbS. However, for the purpose of this evaluation, the definition provided by the United Nations Environment Program (UNEP) and the International Union for Conservation of Nature (IUCN) has been provided below.

According to UNEP and IUCN, *'Nature-based solutions (NbS) are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.'*

While the UNEP and IUCN definition serves as a widely recognised and widely used reference, it is important to acknowledge that other organisations and stakeholders may have different interpretations or variations of the term "Nature-based Solutions." Therefore, the above definition may not directly reflect the definition that DFAT will ultimately adopt.

Australia has made significant commitments to increase international finance for nature and climate, aligning with global initiatives to support nature-positive projects. By joining the Joint Donor Statement on International Finance for Biodiversity and Nature, Australia demonstrates its dedication to integrating climate and biodiversity goals into international development and contributing to the achievement of the Sustainable Development Goals. Additionally, Australia has pledged to increase climate financing. In 2023, Australia strengthened its previous climate finance commitment of $2 billion and is now expected to deliver $3 billion towards the global goal on climate finance over 2020 to 2025, with a substantial increase in Overseas Development Assistance (ODA) for climate in 2022-23 amounting to over $571 million.[1] Future investment in NbS aligns with DFAT's current International Development Policy, aiming to enhance both climate and nature finance.[2]

Despite the growing importance of NbS, Australia currently does not have a dedicated investment strategy in this sector. Current initiatives were developed within short timeframes and without established definitions and frameworks for NbS. This has affected time available for implementation and measurable impacts and activities have been necessarily iterative and adaptive by nature.

[1] See Table 10 of: Australia's Official Development Assistance Statistical Summary 2022–23 (dfat.gov.au)
[2] See: Australia's International Development Policy

Most of Australia's ODA investments in NbS are set to conclude in 2024-25, with previous investments and partnerships chosen on an ad hoc basis. Therefore, the objective of this evaluation is to assess a selection of DFAT's current NbS initiatives, providing insight to the effectiveness of current investments, and to determine the potential value of continued investment in NbS. The findings identified through this evaluation can inform Australia's future strategy and investments in NbS, addressing the need for a more cohesive and strategic approach in this sector. Three of DFAT's NbS investments have been selected to inform this evaluation:

1. ***Climate Resilient by Nature*** (Originally $9.5 million, 2021-2023, then extended through two subsequent amendments to $14.5 million, 2021-25) – partnership with WWF-Australia to use NbS to build sustainable livelihoods in the Indo-Pacific. This includes ten projects supporting 20,000 people across 85 communities in the Pacific and Southeast Asia. A Learning, Innovation and Knowledge Hub (below referred to as the Knowledge Hub) supports learning and collaboration across project partners.

2. ***Pacific Blue Carbon Program*** ($6.3 million, 2018-2024) – partnership with the Department of Industry, Science and Resources (DISR), Conservation International, the Climate Finance Lab and CSIRO to build capacity to protect and restore blue carbon ecosystems in Fiji and PNG. This includes activities to measure, report and verify carbon in mangroves and seagrasses to incorporate this information in countries' greenhouse gas accounts, and climate and related policies. As part of this program, Conservation International is also developing blue carbon projects to demonstrate viability of carbon offsets through protection of marine ecosystems.

3. ***ReefCloud*** ($6.6 million, 2023 – 25) – partnering with the Australian Institute of Marine Science (AIMS), ReefCloud utilises artificial intelligence systems to allow local communities and Indigenous ranger groups to collect data on their reefs, upload them to cloud based systems and analyse them. Data will support governments to undertake management planning, including for high value ecosystems.

METHODOLOGY

The evaluation provides two levels of assessment. Firstly, a clustered approach to the selected investments has been used to inform an overarching strategic level assessment. The findings and recommendations of this assessment could inform a possible dedicated investment strategy for future development interventions in the NbS sector. Secondly, the evaluation provides an individual assessment of the three selected investments. This level of assessment aims to identify learnings from each of the investments that can inform future NbS opportunities and approaches.

The evaluation team undertook a mixed methods approach, combining document and literature review, semi-structured stakeholder interviews, focus group discussions for stakeholders of each investment, including Talanoa sessions,[3] and field observations. Field visits to Fiji, Solomon Islands, and Timor-Leste were undertaken, and included a minimum of one project site per investment.

Sampling

In consultation with DFAT and program managers, a purposive sampling approach was employed in the selection of project site visits. A small number of projects were selected based on their progress to date, geographical accessibility, and the availability of project stakeholders. Time and safety constraints due to the onset of cyclone season also influenced the sites selected. For example, Tropical Cyclone Mal prevented the evaluation team from visiting WWF-led projects in Fiji.

[3] Talanoa refers to `conversation in a circle' that allows for the co-production of knowledge. Its application in the evaluation is relevant given the Pacific Island context in which the investments operate in, capturing learning and stories of change from recipients of the program. See: Feetham et al. (2023).

It is worth noting that although Australia's international NbS investments are currently being implemented in Southeast Asia and the Pacific, the evaluation has a strong geographical focus on the Pacific region. While NbS play a crucial role in enhancing climate resilience in Southeast Asia, time constraints prevented site visits to projects currently underway in the Mekong region. To supplement the evaluation, interviews were conducted with independent stakeholders who had visited the Mekong project sites.

Strategic level evaluation criteria

Evaluation criteria (relevance, coherence, effectiveness, efficiency, impact, and sustainability) set out by the OECD DAC have been used to evaluate the three investments under review as a collective group. As the group of investments that informs this assessment represents only part of Australia's NbS portfolio, the findings below may not be reflective of NbS investments beyond the scope of this evaluation.

Investment evaluation criteria

Investments were assessed on progress made toward their respective End of Program Outcomes (EOPOs). Additionally, in the absence of an agreed definition for NbS across the investments, specific NbS performance criteria were developed for this evaluation. These criteria take into account the core principles and objectives of NbS, such as biodiversity conservation, improved livelihoods, and climate change mitigation and adaptation. It is important to highlight that the NbS criteria were not developed to assess investments against criteria they were not originally designed for. Rather, they can be used to assess the potential of projects delivering NbS results moving forward.

The criteria were derived from international best practices (including the IUCN Global Standards) and contextualised to align with Australia's new International Development Policy priorities. The criteria include: the three pillars of NbS (biodiversity, livelihoods and climate);[4] being a solution to community identified needs; operating at a sustainable scale; having fair governance structures; conducting regular safeguard reviews; gender equality, disability and social inclusion (GEDSI) considerations; and the inclusion and respect of Indigenous knowledge and ways of being

KEY FINDINGS (STRATEGIC LEVEL)

#	Finding
Relevance	
1	***Overall, NbS initiatives align well with Australia's international development priorities and respond to the needs and priorities of partner communities and governments, particularly in the Pacific region***.
2	***Australia's current NbS initiatives provide opportunities to advance gender equality, inclusion of vulnerable groups, and local leadership***. *Currently, GEDSI reporting is focused largely on women's inclusion. There is greater potential for the consideration of people with disabilities, youth, people with diverse SOGIESC, and other marginalised and vulnerable groups.*
3	***Long-term blended finance, including the use of carbon credits and community enterprises, is essential for supporting NbS and leveraging their contributions to biodiversity, livelihoods, and climate***. *NbS present attractive opportunities for impact investment, but further*

[4] See: IUCN (2020)

	work is needed to refine the modalities, including exploring the potential of biodiversity credits as a promising form of finance.
Coherence	
4	***NbS align well with community-level development interventions and demonstrate broad positive impacts across environmental, social, and economic dimensions**. However, the effectiveness of NbS is influenced by the availability of expertise and the contextual factors of the operating environment, highlighting the need for integrated expertise and complementary interventions.*
5	***The absence of unified guidance for NbS initiatives hinders consistent design and measurement approaches, making it challenging to compare effectiveness and extract lessons across projects**. A DFAT-level definition and guiding framework for NbS could promote standardised progress measurements and enhance internal coherence. An overarching guidance framework would harmonise reporting and reduce the loss of information at a strategic level.*
6	***External coherence poses challenges for NbS projects, particularly in addressing escalating climate change impacts and navigating regulatory frameworks and government capacities**. Integrated approaches that combine community-level activities with broader policy and research components show promising results, but there is a need to address some challenges related to external coherence at a strategic level.*
Effectiveness	
7	***The absence of clear and overarching guidance and standardised measurements for all NbS investments makes it challenging to determine the effectiveness of NbS projects**. For the purpose of this evaluation, nine evaluation criteria were used to identify lessons for a potential future portfolio of NbS investments, including the design of effective measurement methods.*
8	***The evaluation team propose nine criteria for NbS projects moving forward**. These include the three pillars of NbS (biodiversity, livelihoods and climate); being a solution to community needs; operating at a sustainable scale; having fair governance structures; conducting regular safeguard reviews; GEDSI; and the inclusion and respect of Indigenous knowledge and ways of being.*
9	***The evaluation found notable disparities in approach, size, and quality among the investments and their respective projects**. However, the successful projects have demonstrated that NbS can simultaneously deliver results on quality of life, climate, and ecosystem targets, and explore innovative governance structures for long-term sustainability. There is ample room to increase ambition for NbS investments.*
Efficiency	

10	***Research indicates that NbS are generally more efficient and cost-effective than (grey) non-nature-based alternatives**.[5] Compared to top-down green climate adaptation programs,[6] The active community engagement and long-term sustainability potential of NbS make them more likely to achieve lasting impact.*
11	***NbS investments demonstrate overall efficiency, but increased resource allocation will enhance efficiency and impact**. Adjustments such as increasing project site visits or exploring alternative funding approaches could enhance outcomes. For example, compensating community members for their restoration work could accelerate the pace of restoration, considering the urgency of climate change impacts.*
12	***Most investments and projects are experiencing delays in their implementation**. Ambitious timelines, driven by funding cycles, often underestimate the time required for thorough research, testing, and piloting. Project implementors have indicated that approximately three years are needed to initiate a new NbS project (once its effectiveness has been demonstrated). Despite time constraints, the projects reviewed have made notable progress within their available timeframe.*
Impact	
13	***Most projects reviewed are currently in the pilot phase, focused on testing their approaches and gathering data to confirm their proof of concept**. Successful projects have well-defined testing and research agendas, combined with systematic measurement and recording of data to inform future scaling.*
14	***The impact of climate change poses a substantial risk to NbS projects**. While these projects contribute to community adaptation efforts against climate change, it is important to recognise that not all NbS projects can completely mitigate the local effects of climate change. Nonetheless, even projects that cannot fully reverse these impacts still offer valuable benefits. Over the medium term, NbS projects have the potential to provide protection and co-benefits to the communities they serve.*
15	***Projects that take a holistic approach and aim to influence the operating context alongside NbS implementation show promising potential for achieving greater impact**. Biodiversity and nature-positive outcomes are often the least developed aspects of NbS activities. Few projects have clearly stated biodiversity targets, potentially due to the absence of overarching requirements or limited expertise at the implementing organisation level. A unified guidance framework facilitates the identification of expert inputs required by investments and their projects.*
Sustainability	
16	***All NbS projects reviewed have defined sustainability strategies, focusing on ongoing management functions and securing continued funding**. Efforts are concentrated on*

[5] See: Galán et al. (2023); and Bassi et al. (2021).

[6] "Green" in this document refers to the use of vegetative systems. These can be both artificial (in forms that would not appear spontaneously in an undisturbed environment) or natural. A top-down climate adaptation program is a centrally coordinated initiative (not originating from community-identified priorities) that uses green infrastructure to enhance climate change resilience. However, they often overlook prioritising co-benefits such as livelihood support and biodiversity conservation. For example, industrial tree plantations used to sequester carbon primarily focus on climate mitigation and adaptation without intentional planning for community and environmental co-benefits.

	establishing governance structures at the community level, exploring options such as cooperatives, NGOs/CSOs, and social enterprises to sustain initiatives beyond DFAT funding.
17	***NbS initiatives are actively testing potential sources of long-term funding**. Revenue generation through the sale of carbon credits is the most established option, although not all landscapes and activities qualify. Biodiversity credits and community-owned enterprises are also being explored. However, additional testing and evaluation are needed, and gap funding may be required before income from credits or enterprises begins to flow.*
18	***Some projects are exploring funding opportunities through entities such as the Green Climate Fund (GCF) or the Global Environmental Fund (GEF)**. Blended finance models, such as soft loans, for gap funding purposes have not been explored thus far.*

KEY FINDINGS (INVESTMENT LEVEL)

#	Finding
Climate Resilient by Nature	
19	***Projects with access to technical expertise have more advanced systems for projecting results and measuring progress**. Many projects under CRxN are still in the pilot phase, so it is too early to measure their impact on ecosystems or climate. Some projects have drawn on technical expertise during their pilot phase to define their biodiversity and climate targets, test their interventions, choose measurement methods, and establish a baseline. Other project stakeholders have indicated that high quality technical expertise was challenging to find, and that it would be useful to have additional support to identify this expertise.*
20	***The connection between livelihoods, ecosystem protection, and climate adaptation has already been established in some projects**. While all projects under the investment include a livelihoods component, only the more advanced projects have managed to refine the interconnections between livelihoods, ecosystems, and climate adaptation. Since testing and refining NbS takes time and expertise, it is more effective to scale and replicate approaches with a proven logic.*
21	***Projects with embedded GEDSI expertise tend to have more transformative interventions**. Some projects have implemented transformative approaches to promote equality and inclusion, while others have yet to move beyond standard participation activities. While all projects are paying attention to women's participation and collecting gender-disaggregated data, additional analysis is needed to identify transformative GEDSI activities.*
22	***Stringent carbon credit certification requirements can positively affect the quality and measurement of NbS initiatives.** Requirements include high-quality activities and monitoring plans for climate, biodiversity and livelihood outcomes. CRxN has undertaken extensive research into carbon markets in the Pacific, including the publication of several relevant resources through the CRxN Indo-Pacific Knowledge Hub. One of the investment's partner organisations has also*

	undertaken substantial trial and error approaches which have resulted in a feasible carbon market model relevant to the Pacific context.
Pacific Blue Carbon Program	
23	***The project has provided comprehensive policy recommendations to the Government of Fiji** (GoF), including reports on drivers of deforestation, carbon financing options, benefit sharing, and carbon trading policies. The inputs enable the GoF to design and commit to the rollout at national level. The contributions could have been even greater if the investment governance facilitated effective coordination between the investment partners.*
24	***An ongoing pilot project demonstrates the feasibility of certified blue carbon credits**. Extensive testing and evaluation of various aspects of the restoration process have been conducted, including involvement of youth, women, and individuals with disabilities, debris removal, and nursery establishment. Discussions with the GoF are underway, and the project is being registered with a recognised carbon credit certification body. A well-documented overview of the approach could be valuable for other NbS investments.*
25	***Significant progress has been made in managing and restoring additional mangrove areas beyond the carbon credit pilot site**. A comprehensive restoration approach has been implemented, with the establishment of nurseries to facilitate the process. Extensive consultations with communities and surveys on livelihoods have been conducted to ensure sustainable mangrove use and identify opportunities for livelihood improvement. The combination of NbS piloting with policy and science support is useful as a learning opportunity for other NbS investments.*
The Coral Reef Innovation Project	
26	***ReefCloud has achieved its objective to become an efficient coral reef monitoring tool**. Users are satisfied with the platform's technical capabilities, and the quality of the artificial intelligence tool is expected to improve as the database expands.*
27	***AIMS continues to develop the ReefCloud tool to increase effectiveness**. AIMS is addressing concerns about data ownership and usage. In addition, it is expanding the platform's scope beyond data analysis to inform national policy. Efforts are underway to integrate data from ReefCloud with contextual information to identify impactful policies and interventions for reef management.*
28	***While the ReefCloud Investment is well managed and delivering high quality outputs, it does not meet the NbS criteria proposed by the evaluation team**. Whilst it can be argued that ReefCloud combines all three of the NbS pillars (biodiversity, livelihoods and climate), it is not "a solution" (i.e., the project is not resolving a priority challenge faced by the target communities). Nevertheless, the evaluation has assessed ReefCloud against all NbS criteria for consistency and to identify lessons for future NbS projects focusing on reef restoration or conservation.*

RECOMMENDATIONS (STRATEGIC LEVEL)

#	Recommendation	See findings #
1	*An ambitious definition for NbS should be established at the strategic level.*	1, 5, 8
2	*To operationalise the NbS definition, all NbS terminology, operational criteria, and minimum performance targets should be comprehensively defined.*	5, 8
3	*The investment ambition should be clearly defined at the proposal and stop-go stages (design, pilot, rollout etc.). The ambition should be broadly defined, requiring investments or projects to demonstrate their ability to meet the defined criteria and performance targets. Piloting NbS to prove the concept is essential before rollout.*	7, 9, 11, 19
4	*Establishment of a guidance framework at strategic level that includes baselines, trends, and targets. The framework should focus on outcomes that can be aggregated from project to investment to portfolio levels.*	7, 8, 9
5	*Collaboratively establish progress and trend measurement methods through consultations with positive outlier projects.*	5, 7
6	*Establish a facility to provide technical support to all NbS investments.*	2, 3, 4, 10
7	*Cross-cutting specialists provide their input at the design stage in collaboration with NbS experts to achieve an integrated approach. NbS presents significant opportunities for transformative impacts on cross-cutting issues such as GEDSI, localisation, and Indigenous engagement.*	2, 8
8	*Establish separate funding for expert services to incentivise their utilisation within NbS initiatives.*	7
9	*Integrate regular implementation activities with interventions aimed at improving the operating environment of NbS initiatives.*	6, 12, 15
10	*Prioritise manageable interventions that address the context of NbS initiatives attuned to country-specific political economy considerations. As NbS is a relatively new field, there are various challenges that need to be addressed, ranging from scientific issues to governance structures and regulatory frameworks. Therefore, it is important for NbS projects to allocate their resources judiciously and avoid spreading them too thin across the multitude of context-related challenges that may arise.*	6, 11, 15

RECOMMENDATIONS (INVESTMENT LEVEL)

#	Recommendation	See findings #
Climate Resilient by Nature		
11	*Prioritise investment in improving and replicating successful approaches to date. A comprehensive review of all projects, sub-projects, and early-stage pilots should be undertaken, drawing on criteria derived from an ambitious NbS definition. As a minimum, this should include assessment against the NbS criteria of biodiversity, climate change, and livelihoods. The intention of such a review is not to shift the goal posts of current projects, but to ensure that future activities are meeting the definition of a NbS.*	20, 8
12	*Proactively increase the provision of guidance and expertise. The support provided should be practical and tailored to the specific needs of each project.*	19, 2
13	*Enhance the investment's MEL function with a specific focus on project support. The MEL function should involve a comprehensive assessment of on-the-ground progress conducted by diverse experts who collaborate to establish an integrated approach, ensuring that projects meet all NbS criteria, including cross-cutting issues.*	19, 21
Pacific Blue Carbon Program		
14	*Document the different phases of implementation as a case study. The various aspects of project conceptualisation, government engagement, pilot design, assessment of the operating context, and site selection could all provide valuable lessons for other investments and projects.*	24, 25
15	*Foster collaboration with other investments and projects. Collaboration allows for the pooling of resources and the development of shared methodologies, ensuring consistency and comparability in measuring key NbS pillars.*	24, 25
16	*Revision of the investment's governance structure to enhance the integration of different components. A key aspect of this revision should involve designating a single organisation as responsible for the overall outcomes of the investment.*	23
17	*Collaborate with the Government of Fiji (GoF) to develop a preliminary plan for the nationwide rollout of NbS, particularly focusing on blue carbon initiatives.*	23
The Coral Reef Innovation Project		
18	*Establish collaborative partnerships with NbS projects that are focused on reef restoration, particularly if the investment intends to secure ongoing funding from the DFAT NbS funding envelope.*	26, 27, 28

INTRODUCTION

This report details the findings and recommendations from an independent evaluation of three of Australia's international nature-based solutions (NbS) investments. Commissioned by the Department of Foreign Affairs and Trade (DFAT), the evaluation provides a summative assessment on the performance of the investments (Climate Resilient by Nature, Pacific Blue Carbon Program, and ReefCloud) at the current stage in their lifecycle, and considers the potential for using this appraisal to develop a strategic investment approach for future NbS projects that align with Australia's international development policy priorities. The evaluation was conducted between September 2023 and March 2024.

Lessons learned through the assessment will inform and shape the next phase of Australia's support to NbS, including recommendations on how DFAT's NbS investments deliver, or could in a potential new phase be made to deliver, against Australia's:

- Climate finance commitments
- Nature finance commitments, and
- Development objectives, including gender equality, disability, and social inclusion (GEDSI) and engagement with First Nations.

Where relevant, dependent on stated end of program outcomes (EOPOs), this includes consideration of how each investment is delivering against outcomes for livelihoods, climate, and biodiversity.

Given the strategic and thematic context of the evaluation that unites the investments as a group, the assessment has identified lessons of potential broader relevance alongside targeted recommendations on the value of each investment.

NBS CONTEXT

Nature-based solutions (NbS) have emerged as a critical and innovative approach to tackling the challenges posed by climate change. As the impacts of climate change become increasingly evident across the globe, there is a growing recognition of the need for holistic and sustainable strategies that not only mitigate greenhouse gas emissions but also enhance the resilience of ecosystems and communities. They form a critical component of Australia's climate-resilient development programming because they can simultaneously mitigate carbon emissions, build disaster resilience, deliver biodiversity benefits and provide sustainable livelihoods.

Australia has recently made significant commitments to increase its international finance for nature and climate. The country has joined the Joint Donor Statement on International Finance for Biodiversity and Nature, aligning with global efforts to enhance public finance for nature-positive projects. This commitment reflects Australia's dedication to integrating climate and biodiversity goals within the international development system and supporting the achievement of the Sustainable Development Goals.

Australia has also committed to increasing its climate financing. In 2023, Australia strengthened its previous climate finance commitment of $2 billion and is now expected to deliver $3 billion towards the global goal on climate finance over 2020 to 2025. Australia's Overseas Development Assistance (ODA) for climate in 2022-23 amounts to over $571 million, representing a significant increase from the previous year. By investing more in NbS, DFAT aims to enhance both its climate and nature finance, aligning with Australia's International Development Policy priorities.

Despite the growing importance of NbS, Australia does not currently have its own investment strategy in this sector. Most of the Australian Government's ODA investments in NbS are set to end in 2024-25, with previous investments and partnerships being selected on an ad hoc basis. Therefore, an evaluation of selected DFAT's NbS investments was considered necessary to assess the effectiveness of current investments and determine the potential value of continued investment in NbS. This evaluation will inform Australia's future strategy and investments in the sector.

OVERVIEW OF SELECTED NBS PROGRAMS

To assess the effectiveness of current investments and inform the next phase of Australia's support to NbS, the evaluation has focussed on three current investments identified by DFAT's Climate Diplomacy and Development Finance Division (CSD) as investments with NbS as a relevant sector:

1. Climate Resilient by Nature (CRxN)

CRxN ($14.5 million, 2021-2025) is an Australian Government partnership with WWF-Australia. The investment aims to utilise nature-based solutions to build sustainable livelihoods in the Indo-Pacific. It has 10 projects supporting 20,000 people across 85 communities in the Pacific and Southeast Asia. A Knowledge Hub supports learning and collaboration across project partners.

The CRxN End of Project Outcomes are:

- **Outcome 1:** More Pacific and Southeast Asian communities are deploying nature-based solutions to protect and restore critical ecosystems and build community resilience.
- **Outcome 2:** Progress towards new high integrity carbon markets linked to NbS investments.
- **Outcome 3:** Communities access new and/or diversified livelihood opportunities through NbS.
- **Outcome 4:** Increased engagement of governments, CSOs and private sector with NbS.
- **Outcome 5:** Women, youth, persons with disabilities and other potentially marginalised groups are benefitting from and more involved in decision-making related to NbS.

2. Pacific Blue Carbon Program

Pacific Blue Carbon ($6.3 million, 2018-2024) is an Australian Government partnership with the Department of Industry, Science and Resources (DISR), Conservation International, the Climate Finance Lab and CSIRO to build capacity to protect and restore blue carbon ecosystems in Fiji and PNG. This includes to measure, report and verify carbon in mangroves and seagrasses to incorporate this information in countries' greenhouse gas accounts, and climate and related policies. As part of this program, Conservation International is also developing blue carbon projects to demonstrate viability of carbon offsets through protection of marine ecosystems.

The Pacific Blue Carbon End of Project Outcomes are:

- **Outcome 1:** Catalyse the participation of Pacific Island governments and stakeholders in blue carbon ecosystem management as part of their efforts to address climate change.
- **Outcome 2:** Contribute towards an enabling environment for future trading by Australia and the private sector in blue carbon credits.

- **Outcome 3:** Leverage international public and private finance for blue carbon ecosystem protection and restoration in the Pacific.

3. ReefCloud

ReefCloud ($6.6 million, 2023 – 2025) is an Australian Government partnership with the Australian Institute of Marine Science (AIMS). ReefCloud utilises artificial intelligence systems to allow local communities and Indigenous ranger groups to collect data on their reefs, upload them to cloud based systems and analyse them. The data will support governments to undertake management planning, including for high value ecosystems.

ReefCloud End of Project Outcomes are:

- **Outcome 1:** On ground action: Pacific developing nations contribute to co-develop and pilot on-ground an effective coral reef monitoring platform.
- **Outcome 2:** Empowering people: Pacific coral reef scientists and managers are empowered to use integrated monitoring systems to report on the status of coral reefs.
- **Outcome 3:** Fostering collaboration: collaboration among Pacific stakeholders is fostered towards applying and scaling the integrated coral reef monitoring platform to a regional and global context.

METHODOLOGY

The evaluation utilised a mixed methods approach, combining document and literature review, semi-structured stakeholder interviews, and Pacific Research Methodologies. Field visits to Fiji, Solomon Islands, and Timor-Leste were undertaken, and included a minimum of one project site per investment. Research was largely qualitative, utilising quantitative secondary data where available and relevant, in particular looking at results achieved and at data disaggregated by sex, age, ability and group reached. A summary of the methodology used is provided below, with a detailed methodology provided in Annex 2.

Document review

The document review included the analysis of 83 documents. The review focused on primary literature provided to the evaluation team by DFAT and the respective program managers. Documents included DFAT policy and strategy documents, program documents including the design documents of each of the three investments, data gathered under the investment's monitoring and evaluation (M&E) systems, and investment monitoring reports (IMRs). The evaluation also reviewed recent publications on NbS globally and other grey literature including reports published by government, regional, and multilateral institutions, academic literature, and documents concerning other development programs as relevant. The document review helped to identify key issues ahead of the field visits and has provided the basis for factual data presented in this report. Please see Annex 5 for a full list of the public documents reviewed.

Key informant interviews

Semi-structured interviews were undertaken with 283 individuals (112 women, 171 men). Key informants comprised 7 DFAT staff, 6 partner government representatives, 47 program managers and implementing partners, and 209 community members currently engaged with the NbS investments. A full list of interviews conducted is available in Annex 3.

Notes were taken for each Key Informant Interview (KII) or Focus Group Discussion (FGD), coded and analysed against the Key Evaluation Questions (KEQs), and are reflected in the evaluation findings. KEQs are available in Annex 1.

Field visit

In collaboration with DFAT and program managers, a purposive sampling method was employed in the selection of project site visits. The selection was based on several factors, including the progress of the projects, their accessibility in terms of location, and the availability of project stakeholders. Additionally, time and safety constraints due to the onset of cyclone season influenced the sites that were ultimately chosen.

It is important to mention that although Australia's international investments in NbS are currently being implemented in Southeast Asia and the Pacific, the evaluation has a strong geographical focus on the Pacific region. While NbS are vital for enhancing climate resilience in Southeast Asia, time constraints prevented the evaluation team from conducting site visits to projects underway in the Mekong region. To supplement the evaluation, independent interviews were conducted with stakeholders who had visited the Mekong project sites.

The Pacific field visit covered three countries and 11 project sites:

- In **Fiji**, 1 site was visited (in Ra Province). Additional sites had been planned for review; however, visits were prevented due to tropical cyclone Mal.
- In **Solomon Islands**, 6 sites were visited (4 in North Malaita and 2 in South Malaita)
- In **Timor-Leste**, 4 sites were visited (2 in Viqueque and 2 in Baucau).

A full list of projects visits is presented within Table 1 below.

Table 1: Project site visits

Country	Investment	Project	Project location
Fiji	*Pacific Blue Carbon Program*	*Blue Carbon Pilot Project in Fiji: Adaptation and Mitigation Outcomes for Resilient Island Communities*	*Community of Barotu*
Solomon Islands	*CRxN*	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Community of Sulagwahu*
Solomon Islands	*CRxN*	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Community of A'ama*
Solomon Islands	*CRxN*	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Community of Kwene*
Solomon Islands	*CRxN*	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Community of Manakwai*

Solomon Islands	*CRxN*	*Sustainable Community Climate Resilience through Nature-based Solutions in Papua New Guinea and Solomon Islands*	*Community of One Para*
Solomon Islands	*CRxN*	*Sustainable Community Climate Resilience through Nature-based Solutions in Papua New Guinea and Solomon Islands*	*Community of Aruaru-Hauhari*
Timor-Leste	*CRxN*	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Community of Bibileo*
Timor-Leste	*CRxN*	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Community of Uaguia*
Timor-Leste	*CRxN*	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Community of Bualale*
Timor-Leste	*CRxN*	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Community of Macalaco*

Informed consent

All evaluation participants provided informed consent prior to data collection. Verbal consent was also sought for taking photographs using the standard DFAT form and process. The process was verbally explained via translators. In some cases, the implementing agency requested consent to take photographs for the whole evaluation team.

Triangulation and rigour of evidence

Most findings presented in the report have been validated through triangulation. Generally, findings are based on data that has emerged from multiple sources and/or methods (i.e. document review and/or field visit discussions and/or interviews). Where possible quantitative data was used to further strengthen evidence.

Observations made by the evaluation team revealed inconsistencies between reported progress and on-the-ground reality. As a result, the team gave priority to information collected during field visits, followed by insights obtained through interviews, and considered reports that aligned with the observed conditions on the ground.

Report format

In the absence of a clear NbS performance framework at a strategic level, the evaluation team have taken a distinct structure for this report, separating the findings at a strategic level from those at the investment level.

For the strategic level assessment, the report structure is in line with the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria (relevance, coherence, effectiveness, efficiency, impact and sustainability). As part of the effectiveness criterion, the evaluation team has developed a preliminary framework that provides minimum standards for NbS interventions.

The minimum standards provided by the preliminary framework have been used to structure the investment level assessment of DFAT's selected NbS activities. The standards include: the delivery of EOPOs; is it a solution; NbS pillars; relevant scale; governance; GEDSI; Indigenous participation; and safeguards.

The section below (Key Limitations) explains why this preliminary framework for minimum NbS standards was developed. Further information on each of the specific criteria is provided in the strategic level assessment, under the heading of Effectiveness.

KEY LIMITATIONS

- Due to the absence of an agreed definition for NbS, the evaluation team was required to propose a NbS performance framework for this evaluation. At the strategic level, NbS lacked a clear and consistent definition, with each investment applying slightly different interpretations. Initially, the evaluation team suggested using the IUCN Global Standard for NbS as a reference framework. However, during the evaluation, it became evident that not all stakeholders adhered to the IUCN definition, and that some stakeholders considered the IUCN Global Standards less applicable in the Pacific context. Consequently, the evaluation team developed specific performance criteria for NbS projects within the scope of this evaluation, drawing from international best practices, including the IUCN Global Standards, and aligning them with the priorities of Australia's International Development Policy. These criteria were further tailored to align with the definitions used by the investments included in this evaluation. While the resulting NbS criteria are suitable for this evaluation, broader discussions within DFAT and its partners are necessary to develop performance criteria that can be applied across a future NbS portfolio; that align more closely with global NbS standards and that are contextualised to meet the ambitions of Australia's International Development Policy.

- The investment projects included in the evaluation are implemented across Southeast Asia and the Pacific. Due to logistic and time constraints, it was not feasible to visit all projects. However, the evaluation team visited at least one project from each of the three investments, identifying locations where multiple investment partners were active, offering diverse projects that could provide insights into various approaches to NbS. Based on logistical feasibility and consultations with the implementing partners and the Evaluation Manager, the evaluation team travelled to Timor-Leste, Fiji, and Solomon Islands over a 19-day period.

- Due to the impact of Tropical Cyclone Mal, the evaluation team were not able to conduct all intended site visits while in Fiji. As a result, some KIIs could not be undertaken, resulting in a more limited sample of stakeholder perspectives.

Nature-based beekeeping

CHALLENGE

The remote communities of One Para and Aruaru-Hauhari in the Solomon Islands are aiming to improve their resilience to climate change. Priority areas include food security, better nutrition and health outcomes, and improved education. Illegal logging threatens their community owned forests, reducing the availability of natural resources including food. Livelihood options are limited due to the high costs of transporting goods and difficulty in accessing markets.

Image credit: Alinea International, Guy Janssen

Image credit: DFAT, Alice Hawkins

BENEFITS

Immediate and long-term livelihood options are established through beekeeping. Protection from logging also opens pathways for future participation in carbon markets.

APPROACH

Through the CRxN investment, and with the support of Save the Children, Mai-Maasina Green Belt (MMGB) is exploring various income-generating opportunities. One promising option is beekeeping. Honey prices are high per volume, which helps to cover transportation costs. Opportunities for women's participation are created through technical training, and the fact that hives can form part of existing gardens means that there are minimal demands on time and existing family commitments.

Many of the communities manage large areas of communal forests (more than 500 ha per community). Most of these forests are degraded by illegal logging, or at least under threat of illegal logging. The resulting soil run-off affects reefs, mangroves, and seagrass meadows which are the main source of protein rich foods. The forests are part of their heritage too, so communities see the long-term benefits of protecting and restoring the forests.

MMGB supports the communities to improve conservation and land management practices, develop maps, draw up inventories of flora and fauna, and establish management structures - with the ultimate goal of gaining legal protection for these community managed forests.

The community approach to these livelihood initiatives means that generated income can be spent on community priorities such as employing a teacher and improving access to healthcare services. The protected status of forest areas contributes to climate mitigation by storing and removing additional greenhouse gases from the atmosphere. The conservation and restoration of the communal forests has a positive impact on biodiversity far beyond the boundaries of the forest, including in the mangroves, seagrasses, and coral reefs.

FINDINGS AT THE STRATEGIC LEVEL

The following chapter presents findings with relevance to assessing Australia's current approaches to NbS at the strategic, or potential "portfolio" level, including alignment with Australia's International Development Policy priorities. Evaluation criteria (relevance, coherence, effectiveness, efficiency, impact, and sustainability) set out by the OECD DAC have been used to evaluate the three investments under review as a collective group. As the investments that inform this assessment represent only some of Australia's investments in NbS, the findings below may not be reflective of NbS investments beyond the scope of this evaluation.

RELEVANCE

The following assesses the extent to which NbS respond to priorities of partner communities, partner governments, and Australia's International Development Policy. The structure of this section follows the priorities outlined in Australia's International Development Policy, where "relevance to partner governments and communities" is included as a criterion. Overall, NbS offer an important contribution to Australia's international development commitments, aligning well with most priorities set out in the International Development Policy.

NbS respond to calls from the Indo-Pacific region, particularly those of Australia's Pacific neighbours. Investment stakeholders have voiced a strong commitment from their respective (local) governments to prioritise nature restoration and climate change adaptation. Notably, several partner governments have expressed a keen desire to leverage the findings and outcomes of the ongoing NbS projects to inform the development of national policies and implementation strategies.

At the regional level, NbS possess the potential to significantly enhance the development policies of Australia's partner nations. Notably, NbS plays a crucial role in advancing the 2050 Strategy for the Blue Pacific Continent, particularly in the domains of people-centred development, climate change adaptation and mitigation, disaster risk reduction, ocean and environment, as well as economic development.[7]

NbS are designed to address the priorities of recipient communities, providing a 'solution' to their specific concerns. Throughout field visits, the adverse impacts of climate change on communities were observed, including the disappearance of 150 meters of mangrove ecosystem; erosion of 80 meters of coastline; the loss of coral reefs; depletion of coastal fish populations; and insufficient food production from local gardens. Communities expressed the profound impact of climate change on their livelihoods, community cohesion, and overall wellbeing. These impacts are strengthening their commitment to forego short-term income in favour of undertaking efforts to restore their natural environment.

NbS provide opportunities to advance valuable and strategic contributions to GEDSI outcomes. While existing GEDSI reporting primarily focuses on women's inclusion, there is a broader potential for considering the inclusion of other marginalised and vulnerable groups, such as people with disabilities, youth, people with diverse sexual orientations, gender identities, expressions, and sex characteristics (SOGIESC), and other disadvantaged communities. These groups, including women and girls in all their diversity, are heavily reliant on their natural environments and bear a disproportionate burden from the impacts of climate change.[8] NbS initiatives should not only focus on the inclusion of these specific groups, but also serve as a pathway to address underlying issues of structural inequality and exclusion. By adopting inclusive design and management practices, NbS projects can contribute to building more equitable and inclusive societies.

[7] See: Pacific Islands Forum (2021)
[8] See: UNFCCC (2018)

Box 2: Definition of livelihoods

Livelihoods are commonly understood as a means of earning income to sustain one's life and meet basic needs.[9] However, in the context of international development and the scope of this evaluation report, the definition of livelihoods is broader and encompasses the overall wellbeing of individuals. This includes not only income but also the five asset classes: human, natural, social, physical, and financial. Additionally, it considers people's vulnerability to various stresses and shocks, as well as the influence of policies, institutions, and processes on their livelihoods.[10] The projects reviewed as part of this evaluation have not necessarily defined the term "livelihood" and those who have, have not necessarily used the same definition as the one proposed above.

NbS support local actors and local leadership. NbS require a long-term commitment from the implementing communities that can only be achieved if the initiatives embrace local knowledge and are led by local actors. This not only works to achieve the three benefits of NbS (biodiversity, livelihoods and climate), it also empowers local communities by recognising their knowledge and expertise, ensuring meaningful participation in decision-making processes. The long-term commitment of NbS also provides an entry point for locally led initiatives, recognising the typical NbS timeframe necessitates the involvement of local civil society organisations and/or hybrid business structures. Consequently, strengthening the capacities of civil society organisations and (local) governments becomes crucial for enabling this process.

NbS make significant contributions to both climate change mitigation and adaptation efforts. For instance, in terms of mitigation, numerous projects are currently undergoing registration with international certification bodies to ensure the verification of their carbon credits. As for adaptation, integrating natural infrastructure, such as mangroves and wetlands into coastal development practices is proving to effectively enhance resilience against climate-related risks like sea level rise and extreme weather events.

NbS measurably contribute to livelihoods that extend beyond income, encompassing people's overall wellbeing, including their assets, resilience to stresses and shocks, and agency. Communities bear the brunt of climate change impacts and are committed to restore their natural environment. To ensure sustained motivation for conservation efforts, NbS reviewed ensure that communities benefit through improved livelihoods that have tangible and meaningful effects on their wellbeing.

NbS inherently embrace nature positivity and hold great potential for significant contributions to biodiversity conservation. All projects assessed throughout the evaluation had a positive impact on nature restoration. Several NbS assessed during this evaluation are progressing well and are poised to have demonstrable impacts on biodiversity within a medium-term timeframe. Recognising that biodiversity requires time to recover, it is crucial to allow these projects to scale up to a landscape or seascape size,[11] ensuring their effectiveness over larger ecosystems.

NbS require long-term blended finance that encourages experimentation with innovative development finance. The use of carbon credits is a proven multiplier for the investment of development funds. Several NbS are testing community enterprises to generate resources for nature and communities. NbS contributions to biodiversity, livelihoods, and climate make them attractive for impact investment, albeit that more work is required on the exact modalities. Biodiversity credits are also a new and promising form of finance that can multiply the original investment of development funds.

[9] See: Oxford Learners Dictionary
[10] See: Goldman (2010)
[11] See: IUCN (2020)

Table 2: Key strategic level findings (Relevance)

#	Finding – Relevance
1	***Overall, NbS initiatives align well with Australia's international development priorities and respond to the needs and priorities of partner communities and governments, particularly in the Pacific region****.*
2	***Australia's current NbS initiatives provide opportunities to advance gender equality, inclusion of vulnerable groups, and local leadership****. Currently, GEDSI reporting is focused largely on women's inclusion. There is greater potential for the consideration of people with disabilities, youth, people with diverse SOGIESC, and other marginalised and vulnerable groups.*
3	***Long-term blended finance, including the use of carbon credits and community enterprises, is essential for supporting NbS and leveraging their contributions to biodiversity, livelihoods, and climate****. NbS present attractive opportunities for impact investment, but further work is needed to refine the modalities, including exploring the potential of biodiversity credits as a promising form of finance.*

COHERENCE

This section assesses the compatibility of NbS with other development interventions, in particular policy support across the sector and at partner country level. It identifies the extent to which other interventions and NbS create synergies, duplication or even work against each other. This section first addresses NbS compatibility with other initiatives and then turns to the coherence with or support from the operating environment.

NbS align with most community-level development interventions as they adhere to sound development principles, particularly emphasising community engagement in both design and implementation processes. NbS inherently encompass broad and advantageous impacts, encompassing various environmental, social, and economic dimensions. Beyond the fundamental pillars of NbS (biodiversity, livelihoods and climate), NbS have the potential to yield positive effects on various other areas such as water resources, flood prevention, erosion control, soil health, GEDSI, community resilience, health, and education.[12]

Given the multifaceted nature of competing demands, NbS necessitate the integration of expertise across all their constituent components. Additionally, contextual obstacles can potentially diminish the effectiveness of NbS, highlighting the need for increased expertise and complementary interventions to establish an enabling operational framework. In the subsequent paragraphs, the importance of expert inputs is examined initially, followed by an exploration of relevant contextual factors.

NbS with access to a high level of expertise are navigating the pilot phase more effectively. To optimise their diverse range of outcomes, NbS must utilise their resources efficiently, fine-tune activities, and capitalise on potential synergies. Designing and refining NbS activities in complex contexts necessitates expert knowledge that not all projects have been able to access. For instance, various projects are focused on the conservation or restoration of mangroves, with one project engaging Australian experts to test different approaches, including the establishment of multiple nurseries and the comparison of propagation methods. In contrast, another project relied on the expertise of the local Ministry of Environment but found

[12] For instance, avoiding imported staples and relying on subsistence farming can contribute to improved health outcomes, reducing the prevalence of non-communicable diseases such as diabetes; The utilisation of funds generated from carbon credits to cover annual school fees has the potential to yield positive educational outcomes.

that standard methodologies had limited effectiveness in addressing local challenges such as sea level rise and soil salination. A third project has decided to focus only on the protection of mangroves because the restoration is too complex, and expertise is not available. Similarly, the GEDSI elements of most projects were limited to equal representation and consultation of women and men. However, one project was able to expand their GEDSI efforts through access to a technical GEDSI advisor. With technical guidance, the project was able to design a process that utilised NbS for addressing unequal gender roles and achieving a better balance of workload between spouses. Comparable examples of leveraging expertise are available for environmental safeguards, disaster risk reduction, financing options, political economy of incentives, and governance systems specific to NbS.

The operating environment of any initiative comprises two essential aspects: internal coherence and external coherence. Internal coherence refers to the operating environment facilitated by DFAT for its investments. External coherence is the operating environment at the international, country, and community levels. The following paragraphs provide a brief overview of both dimensions in relation to DFAT's NbS investments:

Enhancing internal coherence can be achieved through the provision of additional guidance from DFAT. Throughout the evaluation process, a diverse range of NbS projects was observed, showcasing varying levels of quality. These projects adopted different interpretations of NbS, which influenced their approaches to implementation. For instance, many projects struggled to define the requirements for achieving nature positivity within DFAT funded NbS. Consequently, nature-positive components included activities ranging from tree planting to biodiversity assessments at the landscape level. In contrast, projects that were subject to external biodiversity requirements, such as those seeking carbon credit certification, demonstrated more comprehensive plans and measurements for biodiversity outcomes.

The absence of unified guidance for all NbS initiatives potentially hindered the development of consistent NbS designs and impeded the ability to draw lessons based on standardised progress measurements. A definition for all NbS investments could serve as a guiding framework, promoting a common measurement system focused on the three key pillars of NbS (biodiversity, livelihoods and climate), key criteria, and DFAT's cross-cutting priorities. Such a framework, implemented at the DFAT level and subsequently adopted at the investment and project levels, could facilitate the comparison of effectiveness among the varying projects. For instance, while most project proposals included EOPOs, few have incorporated measurements for the three key pillars of NbS. Consequently, each project reported progress based on their specific EOPOs without overarching outcome measurements. The lack of standardised outcomes and measurement approaches hampers the ability to compare the effectiveness of NbS projects and limits the extraction of lessons at the portfolio level.

External coherence poses a challenge for all investments, with the Pacific Blue Carbon project demonstrating the most consistent efforts in addressing this aspect. The project effectively incorporates community-level NbS activities with components focused on supporting national policies, international policies and guidelines, as well as scientific research. This integrated approach, which combines bottom-up work with elements that address the broader operating context, appears to contribute to higher impact even in the early stages of implementation. However, other projects visited by the evaluation team reported similar challenges related to external coherence that were either unaddressed or difficult to address.

One of the most formidable challenges faced by all projects is the escalating impacts of climate change. In certain areas, mangroves have been lost at a rate of approximately 150 meters over a decade, resulting in coastal erosion. Restoring these mangroves at the same pace they disappear requires significant interventions that go beyond the capacity of local communities. Additionally, threats such as soil runoff, changing rainfall patterns, landownership rights, and rising sea levels extend beyond the reach of NbS projects.

Another common challenge relates to the regulatory framework and the capacity of government counterparts. Regulatory arrangements at the country level exhibit variability and are largely incomplete. Various investments are currently aiding government counterparts in formulating and enhancing a regulatory framework for NbS, carbon ownership, and access to carbon markets, among other areas. Given the limited expertise of governments in these domains, technical advisory services relating to NbS regulatory frameworks should be provided to local governments, supporting them to make well-informed decisions regarding their options. Several projects rely on government expertise to assume responsibility for NbS initiatives in the medium term. While some government departments exhibit keen interest and demonstrate sufficient capacity to take over these projects, others face challenges of understaffing and limited capabilities to handle the complex implementation requirements of NbS. Some projects require administrative interventions from the government, such as approving the protected status of project locations, which can be time-consuming and resource-intensive due to the limited capacity of government counterparts to process NbS-related requests.

At the international level, certain challenges also emerge. For instance, all blue carbon projects face the issue that the Intergovernmental Panel on Climate Change (IPCC) has not issued guidance on various blue carbon ecosystems, including tidal marshes, seagrass meadows, and kelp forests. Consequently, countries lack clarity on how to apply Article 6 to internationally traded blue carbon credits.[13] Another international challenge affecting NbS is that most projects in the Pacific employ Plan Vivo certification,[14] yet Plan Vivo credits are not recognised for sale in Australia under the Climate Active Carbon Neutral Standard.[15] Consequently, no carbon credits from the Pacific under Plan Vivo have been sold in Australia.

Table 3: Key strategic level findings (Coherence)

#	Finding – Coherence
4	***NbS align well with community-level development interventions and demonstrate broad positive impacts across environmental, social, and economic dimensions**. However, the effectiveness of NbS is influenced by the availability of expertise and the contextual factors of the operating environment, highlighting the need for integrated expertise and complementary interventions.*
5	***The absence of unified guidance for NbS initiatives hinders consistent design and measurement approaches, making it challenging to compare effectiveness and extract lessons across projects**. A DFAT-level definition and guiding framework for NbS could promote standardised progress measurements and enhance internal coherence. An overarching guidance framework would harmonise reporting and reduce the loss of information at strategic level.*
6	***External coherence poses challenges for NbS projects, particularly in addressing escalating climate change impacts and navigating regulatory frameworks and government capacities**. Integrated approaches that combine community-level activities with broader policy and research components show promising results, but there is a need to address some challenges related to external coherence at a strategic level.*

[13] See: Agreement, P (2015)
[14] See: https://www.planvivo.org/
[15] See: Commonwealth of Australia (2022)

EFFECTIVENESS

In reviewing the three investments united by a common sector, this section of the evaluation aims to generate learnings that can inform a systematic and strategic approach to NbS as a discrete sector for making development interventions. By assessing the investments as a group, it becomes possible to identify common patterns, capitalise on lessons learned, and determine whether they collectively possess the potential to deliver higher-level objectives beyond their individual EOPOs. To support the strategic coherence of investments, clear NbS criteria will need to be established, including logical methodologies for monitoring progress. To this effect, the evaluation has applied nine NbS criteria to the selected investments, with the aim of identifying lessons to inform a possible strategic level approach in future. The nine NbS criteria applied by the evaluation team were derived from international best practice and contextualised to align with the ambitions of Australia's International Development Policy. Importantly, the criteria were further adapted to ensure they would not exceed the NbS definitions used by each of the investments included in the evaluation.

In assessing the NbS investments against the nine criteria below, it is important to acknowledge an emerging trend across all projects. Where implementing partners have existing high levels of expertise and extensive experience in NbS, projects are performing well against the criteria and demonstrating scalable pilot activities. However, implementing partners who possess minimal prior experience in NbS implementation appear to be struggling to achieve balance across the three NbS pillars (livelihoods, biodiversity, and climate).

Criterion 1: NbS are a "solution". The main goal of a NbS must be to provide a solution to a priority challenge faced by the communities where the NbS is implemented. This is essential to ensure that the communities are willing to commit to the NbS long term and to ensure that the NbS does not divert scarce community resources to activities that are not a community priority. All investments reviewed and most projects in each investment are a solution to a priority need of the communities. Projects are working closely with the affected communities and are responding to their challenges. As a result, these projects are getting strong buy-in from the target communities. There are a few projects where the coherence between the different components is slightly weaker, and the solution is therefore less clear. There is only one investment that was not initiated by the target community.

Criterion 2: NbS contribute to climate mitigation or adaptation. All investments and their projects have clearly defined their climate change mitigation and adaptation contribution. The projects pursuing mitigation targets, particularly those aiming to generate carbon credits, are using rigorous methods to measure their mitigation contribution. While most projects focused on adaptation have made strong progress in this area, they have rarely measured these results effectively.

Criterion 3: NbS need to be nature positive. All investments and their projects contribute to nature conservation or restoration. For example, one project prevents logging in nine (not all funded by DFAT) community owned forests of 500 to 900 ha. At this scale, biodiversity conservation and recovery are possible. Still, this criterion has been interpreted widely by the different investments and projects. At the high end of the range, projects pursuing carbon credits are forced by their carbon certification standards to measure various biodiversity indicators while at the lower end, projects understood this requirement to be met by planting a small number of trees or mangroves.

Criterion 4: NbS have increased the quality of life for the communities in which they are implemented. All investments and projects have a clear focus on livelihoods. Some projects are projecting a considerable increase in the future flow of resources to affected communities. Carbon credits create a strong interdependency between livelihoods and ecosystem restoration, i.e. income is received for carbon storage that can only be achieved through nature conservation and restoration. Biodiversity credits create similar interdependencies but are at early stages of development.

Efforts are underway to address the limitations surrounding carbon and biodiversity credits in certain areas. In these cases, various initiatives are being developed to establish community-controlled social enterprises that can generate both financial resources for conservation and income for local communities. However, it is important to note that creating alternative livelihoods presents significant challenges, even in non-NbS projects that solely focus on livelihood development without integrating nature-positive and climate change considerations. Substantial experimentation and refinement are often required to achieve meaningful progress.

In the context of NbS, the establishment of new livelihoods must be coupled with climate adaptation and nature-positive outcomes. This integration may necessitate that the livelihood component generates a surplus that can be allocated towards funding these activities. Projects that allocate a portion of the livelihood income to compensate workers, particularly women, for their efforts in executing conservation and restoration initiatives, have demonstrated greater success compared to those relying solely on voluntary community-based nature restoration interventions. This places additional demands on the financial resources generated by the NbS and necessitates governance systems capable of allocating benefits in alignment with NbS priorities.

Criterion 5: NbS is implemented at a scale that allows for sustainable outcomes across the three benefits of NbS (biodiversity, livelihoods, and climate). The minimum viable size for a project is often determined by the interconnected natural processes that occur across the broader landscape. For example, upstream logging leads to soil run-off which negatively impacts seagrass and coral reefs ecosystems found downstream. This, in turn, increases erosion and damages the mangroves that protect coastal communities. Such compounding effects can often result in lower levels of food security for affected communities. Consequently, to effectively address food security concerns, NbS projects must operate at the broader landscape level.

Scale is not only geographic. For livelihoods, it might be necessary to explore market access and consumer demand. For climate, it might be necessary to work at a certain intensity or speed for nature to deliver its climate adaptation impacts. Most projects are still in the pilot phase: they are testing which approaches are working and how they can be scaled. The successful projects are thinking and planning at the scale required to achieve impact on all three components. For example, one project is combining a very small pilot with a nation-wide assessment of replication sites. The pilot is too small to be viable, but its size allows for information to be generated quickly so it can inform the rollout of the project at scale.

Criterion 6: NbS operate through permanent governance structures with fair representation of all stakeholders. All NbS projects are bringing together a wide range of stakeholders and rightsholders who each need to be consulted and who should benefit from NbS over the long term. The most successful projects have governance structures that continue to operate when the DFAT funding has ended. Several NbS have developed innovative governance structures that have fair representation of the different stakeholders. For example, one project has copied the traditional community structures for joint use of fishing areas into a registered cooperative in charge of conservation. Most of these governance structures need medium term capacity enhancement including capability to monitor safeguards, implement grievance mechanisms and systems to negotiate trade-offs between stakeholders.

Criterion 7: NbS regularly review activities against environmental, social, and climate safeguards. Most investments and projects have standard safeguards in place (e.g. Child Protection). The high-performing projects have ample experience with NbS and have effective environmental, social and climate safeguards in place.

Still the results of safeguard assessments are not always systematically recorded and made available for review. For example, several organisations reviewed the potential effects of introducing non-indigenous flora or fauna on the ecosystem. The result of the review was not recorded under the safeguards of the project. Safeguards are particularly important during the pilot phase when changes can still be made to mitigate risks.

Criterion 8: NbS make a positive contribution to all aspects of GEDSI. All projects have GEDSI interventions and indicators to ensure representative samples during consultations and to facilitate participation of women and vulnerable groups. Some projects have proven that it is possible to go beyond the minimum requirements and introduce GEDSI activities that are transformative. Involving GEDSI experts at the design and implementation stage of the project seems to be the determining factor.

Criterion 9: NbS ensure meaningful inclusion of Indigenous communities, build upon Traditional Knowledge, and are respectful of Indigenous ways of being. All NbS projects are closely working with their target communities. NbS projects can only succeed with proper Indigenous engagement and co-design processes. All projects have involved Indigenous communities at the early stages of the project, ensuring meaningful decision-making processes and providing communities with a platform to voice their perspectives, concerns, and aspirations throughout all phases of the project lifecycle. Some projects have used Traditional Knowledge and practices, for example the inclusion of traditional mangrove propagation methods in a trial of various methods resulted in evidence that the traditional method was more effective.

Table 4: Key strategic findings (Effectiveness)

#	Finding - Effectiveness
7	***The absence of clear and overarching guidance and standardised measurements for all NbS investments makes it challenging to determine the effectiveness of NbS projects**. For the purpose of this evaluation, nine evaluation criteria were used to identify lessons for a potential future portfolio of NbS investments, including the design of effective measurement methods.*
8	***The evaluation team propose nine criteria for NbS projects moving forward**, including being a solution to community needs; contributing to climate mitigation or adaptation; being nature-positive; improving the quality of life for communities; operating at a sustainable scale; having fair governance structures; conducting regular safeguard reviews; integration of GEDSI into NbS programs; and the inclusion and respect of Indigenous knowledge and ways of being.*
9	***The evaluation found notable disparities in approach, size, and quality among the investments and their respective projects**. However, the successful projects have demonstrated that NbS can simultaneously deliver results on quality of life, climate, and ecosystem targets, and explore innovative governance structures for long-term sustainability. There is ample room to increase ambition for NbS investments as higher requirements contribute to higher quality.*

Nature-positive enterprises

CHALLENGE

The imminent threat of rising sea levels and resulting erosion are placing the communities of Fiji's Macuata district under threat. Climate change has led to the decline of reefs and mangroves that have traditionally acted as natural barriers, shielding these communities from the encroaching sea. Recognising the importance of these ecosystems, the affected communities are aiming to preserve the ecosystem services provided by reefs and mangroves for as long as possible. While communities lack the resources to halt sea level rise or construct artificial infrastructure, their only viable option is to invest in the long-term restoration of mangroves. This requires dedicated workers who can restore the mangroves at a pace that aligns with the rapid destruction caused by climate change.

APPROACH

Through the CRxN investment, WWF Pacific and Matanataki are supporting communities in the Macuata district to establish a nature positive sea cucumber enterprise. Sea cucumbers require pristine mangrove ecosystems to thrive, and require careful and sustainable management as a high value product. Through the identification and testing of business models, the project aims to leverage traditional community governance structures while incorporating effective business management practices as incentives for mangrove restoration. This involves assessing market demand for sea cucumbers, testing productivity, evaluating environmental and social impacts, and establishing robust business management strategies. The investment is also providing technical training in sea cucumber husbandry, and facilitating the development of Mangrove Management Plans. By combining these elements, the project strives to create a viable and sustainable framework that fosters both ecological restoration and economic prosperity.

BENEFITS

Through a commitment to continuous improvement, an equitable and environmentally sustainable business model is being developed. This model aims to generate resources that can be used by communities to effectively maintain the critical mangroves that serve as a protective barrier against coastal erosion.

The implementation of the proposed business model holds significant promise for the preservation of biodiversity and the protection of natural ecosystems. The sustained protection and restoration of the mangroves will also provide a conducive environment for various species to thrive, ensuring the long-term viability of numerous plant and animal species. The mangrove ecosystems will also contribute to climate mitigation through the provision of carbon sequestration services.

EFFICIENCY

Within this section, the initial evaluation centres on appraising the efficiency of NbS when contrasted with alternative approaches that do not encompass the three NbS pillars of livelihoods, biodiversity, and climate. Subsequently, the assessment examines the degree to which DFAT's NbS investments demonstrate economic viability and timely implementation.

Research indicates that NbS are more efficient than grey[16] or non-nature-based alternatives. The evaluation conducted does not encompass a comprehensive analysis of the efficiency of NbS for climate compared to non-nature-based alternatives. However, it is worth highlighting that within the climate domain, NbS are generally regarded as more efficient than mechanical carbon capture methods[17] and demonstrate greater efficiency than conventional grey infrastructure solutions.[18]

There is no conclusive evidence on the efficiency of NbS versus a streamlined approach of top-down green climate adaptation programs.[19] However, the inherent nature of NbS, which focuses on addressing community-identified priorities, offers distinct advantages. By adopting a bottom-up approach that starts at the community level, NbS facilitates a broader range of options and increases the likelihood of an investment's long-term sustainability.[20] This approach also fosters an enhanced understanding of climate change impacts on the ground, further strengthening trust between implementing partners and communities. Ultimately, NbS empowers communities to actively participate in climate change adaptation and ensures that solutions align closely with their unique circumstances and needs.[21]

Most DFAT funded NbS initiatives demonstrate efficiency, but there might be a potential under-allocation of resources. For instance, in one project, the team conducts monthly visits to the project sites. However, it would be worthwhile to explore if more frequent visits or even having a permanent project team on-site could yield greater outcomes. Testing such adjustments could shed light on the possibility of achieving more significant results. In another project, the communities are asked to engage in communal conservation and restoration efforts for their forests and mangroves without financial compensation. The project believes that this approach promotes positive community dynamics by encouraging members to volunteer for restoration work. While this approach may work in some instances, it is important to note that the practical application of volunteered time may be limited. Consequently, the progress of restoration work is slow. Given the rapid impact of climate change on these communities, generating resources to compensate workers could accelerate the speed of restoration. Exploring alternative approaches to secure funding and increase the pace of restoration could be a valuable avenue for investigation.

Most investments and projects are experiencing delays in their implementation. The ambitious timelines set for the initiatives were due to limited implementation windows linked with DFAT funding cycles. Project stakeholders note that accurately predicting the duration of a pilot phase is challenging, given the various issues that require thorough research and testing. Once a project has demonstrated its effectiveness, implementers suggest that approximately three years are necessary to initiate a new NbS. Therefore, despite time constraints, the NbS projects reviewed have made noteworthy progress within the available timeframe.

[16] Grey infrastructure refers to human-made structures such as roads and buildings, whereas NbS use natural systems like wetlands and forests to provide similar benefits; for example, constructing a concrete seawall (grey infrastructure) versus restoring a coastal mangrove forest (NbS) for coastal protection against erosion and storm surges.
[17] See: IPCC (2015); Galán et al (2023); and Sekera J, et al. (2023)
[18] See: Bassi (2021), Vineyard (2015); and Sutton-Grier (2015)
[19] "Green" in this document refers to the use of vegetative systems. These can be both artificial (in forms that would not appear spontaneously in an undisturbed environment) or natural. A top-down green climate adaptation program is a centrally coordinated initiative (not originating from community-identified priorities) that uses natural infrastructure to enhance climate change resilience. However, they often overlook prioritising co-benefits such as livelihood support and biodiversity conservation. For example, industrial tree plantations used to sequester carbon primarily focus on climate mitigation and adaptation without intentional planning for community and environmental co-benefits.
[20] See: Simon et al (2020)
[21] UNFCCC (2019) p42

Table 5: Key strategic level findings (Efficiency)

#	Finding - Efficiency
10	***Research indicates that NbS are generally more efficient and cost-effective than (grey) non-nature-based alternatives****. Compared to top-down green climate adaptation programs, the active community engagement and long-term sustainability potential of NbS make them more likely to achieve lasting impact.*
11	***NbS investments demonstrate overall efficiency, but increased resource allocation will enhance efficiency and impact****. Adjustments such as increasing project site visits or exploring alternative funding approaches could enhance outcomes. For example, compensating community members for their restoration work could accelerate the pace of restoration, considering the urgency of climate change impacts.*
12	***Most investments and projects are experiencing delays in their implementation****. Ambitious timelines, driven by funding cycles, often underestimate the time required for thorough research, testing, and piloting. Despite time constraints, the projects reviewed have made notable progress within their available timeframe.*

IMPACT

Ideally, this section would evaluate how the impacts of international NbS interventions have aligned with relevant ambitions set forth by the Australian Government. However, as at the time of this evaluation, the Australian Government is yet to explicitly state their ambition in this sector, and it is also important to note that the impacts of NbS initiatives are anticipated to materialise over the medium term. Therefore, it is premature to conduct a comprehensive assessment of the impacts achieved thus far. However, it is possible to offer preliminary insights into projects that have the potential to yield greater impact in the future.

Most projects are currently in the pilot phase trying to test whether their approach is working. The most successful projects have a clearly defined testing and research agenda combined with intensified measuring and recording at this stage to collect the data to confirm their proof of concept. For example, one restoration project is keeping track of the number of workers and the hours they work on each hectare of land, to calculate and plan the resources needed when the project is scaling up beyond the pilot.

The biggest threat to impact is climate change itself. Several successful projects are indicating that their conservation and restoration efforts might not be able to reverse the impacts of climate change. For example, a project working on coastal erosion indicated that its conservation efforts were important to buy time but that eventually the protective mangroves would die off and the coastal villages would be washed away.

The least developed component of most NbS activities is biodiversity or nature-positive outcomes and impacts. As indicated above, some projects are more advanced because there are external requirements to measure or report on biodiversity, e.g. from carbon credits certification bodies. Still, the biodiversity targets of the NbS are rarely stated.

It is worth assessing whether projects that try to influence their operating context in parallel with the implementation of the NbS achieve more impact. The initial observation is that the projects who take a more holistic approach seem to be more successful. This might be because these organisations have better capacity or systems, but it would be fair to hypothesise that lobbying for changes in the operating context (for example, legislative environment or other) will result in increased and faster results for the project proponent, as well as for organisations working in parallel to implement NbS in their country context.

Table 6: Key strategic level findings (Impact)

#	Finding - Impact
13	***Most projects reviewed are currently in the pilot phase, focused on testing their approaches and gathering data to confirm their proof of concept**. Successful projects have well-defined testing and research agendas, combined with systematic measurement and recording of data to inform future scaling.*
14	***The impact of climate change poses a substantial risk to NbS projects**. While these projects contribute to community adaptation efforts against climate change, it is important to recognise that not all NbS projects can completely mitigate the local effects of climate change. Nonetheless, even projects that cannot fully reverse these impacts still offer valuable benefits. Over the medium term, NbS projects have the potential to provide protection and co-benefits to the communities they serve.*
15	***Projects that take a holistic approach and aim to influence the operating context alongside NbS implementation show promising potential for achieving greater impact**. Biodiversity and nature-positive outcomes are often the least developed aspects of NbS activities. Few projects have clearly stated biodiversity targets, potentially due to the absence of overarching requirements or limited expertise at the implementing organisation level. A unified guidance framework facilitates the identification of expert inputs required by investments and their projects.*

SUSTAINABILITY

This section assesses the extent to which NbS activities and their benefits are likely to persist beyond the conclusion of current DFAT funding.

All projects have defined a sustainability strategy. Most strategies have proposed approaches to ensure ongoing management functions and to secure continued funding.

The continuation of management functions primarily involves transitioning from implementing partners to a more permanent entity. Currently, efforts are focused on establishing governance structures at the community level to effectively distribute benefits and carry out conservation and restoration work. Various structures such as cooperatives, NGO/CSOs, and innovative experiments involving social enterprises, are being explored to sustain the initiatives beyond the conclusion of DFAT funding. In some instances, a handover is not necessary as the DFAT-funded organisations have committed to long-term presence on the ground, and in one case, with the sole objective of implementing NbS projects.

The NbS initiatives are actively testing potential sources of long-term funding. Among these, the most established option is generating revenue through the sale of carbon credits. However, it is important to note that not all landscapes and activities qualify for carbon credits, necessitating the identification of alternative income sources for some projects. Biodiversity credits show promise as a complementary avenue for NbS. However, such credits remain in the early stages of development and require further testing. Establishing community-owned enterprises is another encouraging approach to generate sustainable funds for NbS; however, these approaches also require additional testing and evaluation.

The above funding options may still require gap funding, as payments need to commence before income from credits or enterprises begin to flow. Some projects equipped with administrative capabilities are exploring funding opportunities through entities such as the Green Climate Fund (GCF) or the Global Environmental Fund (GEF). However, to date, no projects have explored blended finance models, such as soft loans, for gap funding purposes.

Table 7: Key strategic level findings (Sustainability)

#	Finding - Sustainability
16	***All NbS projects reviewed have defined sustainability strategies, focusing on ongoing management functions and securing continued funding**. Efforts are concentrated on establishing governance structures at the community level, exploring options such as cooperatives, NGOs/CSOs, and social enterprises to sustain initiatives beyond DFAT funding.*
17	***NbS initiatives are actively testing potential sources of long-term funding**. Revenue generation through the sale of carbon credits is the most established option, although not all landscapes and activities qualify. Biodiversity credits and community-owned enterprises are also being explored. However, additional testing and evaluation are needed, and gap funding may be required before income from credits or enterprises begins to flow.*
18	***Some projects are exploring funding opportunities through entities such as the Green Climate Fund (GCF) or the Global Environmental Fund (GEF)**. Blended finance models, such as soft loans, for gap funding purposes have not been explored thus far.*

Mangrove restoration for climate resilience

CHALLENGE

Rural communities in Fiji are grappling with the adverse effects of climate change, including sea level rise and storm surges that lead to the loss of coastal ecosystems, and intensify food security challenges. Mangroves, crucial for protein sources such as shells, clams, and crustaceans, are disappearing, affecting coastal fish species and rapidly depleting fish stocks. Additionally, changed rainfall patterns have significantly reduced yam and sweet potato yields from subsistence farming.

Image credit: Alinea International, Guy Janssen

Image credit: DFAT, Alice Hawkins

APPROACH

Under the Pacific Regional Blue Carbon Initiative, Conservation International have designed a pilot project to test whether mangroves in the community of Barotu could be restored through human interventions. The pilot is testing every aspect of the project. Technical expertise was brought in from Australia to identify mangrove species and approaches that could offer a solution, and a detailed restoration plan was developed. To maximise the survival rate of mangrove seedlings various propagation methods have been tested, including the approaches of Traditional Knowledge keepers. Nurseries have been set up using local soils to grow the seedlings until they are large enough to be planted. Local community members are trained to plant the seedlings, and work hours and inputs for planting are recorded to inform the resource needs of future expansions. A baseline for biodiversity has been established, the carbon sequestration of both plants and soil are scientifically measured, and a detailed livelihoods assessment has been implemented.

BENEFITS

Mangrove restoration holds significant potential for supporting the livelihoods and food security of local communities. Mangrove habitats serve as vital breeding grounds, sources of food, and provide shelter for countless marine species. In turn, these species provide a primary source of food security, nutrition, and income generation for local communities.

Mangrove restoration also contributes to both climate adaptation and mitigation. Adaptation benefits result from better coastline stability, and from protecting coastal settlements from tropical storm surges. Mitigation is achieved through carbon sequestration (mangroves can sequester up to four times the amount of carbon compared to rainforests area of similar size*). The project is exploring whether revenue from carbon credits can finance the rollout of this approach at a national level.

Image credit: Alinea International, Guy Janssen

* See: IUCN (2021); and Donato et al. (2011)

FINDINGS AT THE INVESTMENT LEVEL

CLIMATE RESILIENT BY NATURE

OVERVIEW

Climate Resilient by Nature (CRxN) is an AUD14.5 million Australian Government initiative, in partnership with WWF-Australia. Launched in 2021 at COP26, CRxN is supporting 10 projects and a Knowledge Hub (see Table 1 below) across the Indo-Pacific region, working with communities utilising NbS to restore and protect critical ecosystems, build sustainable livelihoods, and increase resilience to climate shocks.

CRxN is funded by DFAT, with some funding provided under the Mekong Australia Partnership - Water, Energy and Climate Change (MAP-WEC).

CRxN was originally designed as a 2-year investment, which provided individual projects with implementation periods of between 12 and 18 months. Since 2021, the program has been extended twice. As part of this, projects were offered no-cost extensions, and then in 2023, a selection of projects were awarded costed extensions. While these extensions have been welcomed by WWF-Australia and its implementing partners, it is important to understand that CRxN was not designed as a four-year program.

At the core of CRxN's design is an acknowledgment that the scale of climate change and biodiversity loss is too great for any one organisation or sector to tackle alone, and that regional collaboration is essential for the sustainable restoration and protection of critical ecosystems. As a result, CRxN has partnered with 23 Australian based NGOs and their local partners working in the Indo-Pacific (see Table 1 below).

In the Mekong, CRxN is supporting the integration and implementation of country-level projects under a broader, regional programmatic umbrella. The CRxN Mekong Expansion, funded by MAP-WEC, supports WWF Viet Nam, Laos, and Cambodia to implement multi-sector NbS projects that include landscape management, freshwater ecosystem restoration and flood-based / aquaculture livelihood activities with the goal of sustainably restoring and protecting Mekong riverine and floodplain ecosystems.

The CRxN investment has three key components:

Expanding nature-based solutions in the Pacific: The expansion component of CRxN provides funding and support to expand and scale-up existing NbS projects by partnering with environmental NGOs already operating in the region.

Australia-Pacific Nature-Based Solutions Challenge: The challenge round of CRxN facilitated competitive, open funding rounds to support Australian international development NGOs and their local partners to pilot and expand nature-based approaches in their climate change related programming.

Learning, Innovation and Knowledge Hub: CRxN's Indo-Pacific Knowledge Hub captures project impacts and lessons, commissions and communicates relevant, practical research, and fosters a cross-sector community of practice to inform new partnerships and approaches that ensure local communities are at the heart of NbS.

Table 8: CRxN projects

Project name	Location(s)	Implementing partner	Key focal area
Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests	*Solomon Islands*	*WV Australia* *WV Solomon Islands*	*Implementing Farmer Managed Natural Regeneration (FMNR) with eight communities to regenerate, restore and protect mangrove forests, agricultural land, and tropical forests. FMNR is being implemented alongside climate-smart agricultural and fisheries practices in targeted agricultural and coastal communities.*
Community based participation in nature-based climate solutions	*Solomon Islands* *Papua New Guinea*	*Save the Children* *Natural Carbon The Nature Conservancy* *Mai-Maasina Green Belt*	*Supporting communities in PNG and Solomon Islands to be more resilient to the unavoidable impacts of climate change through better natural resource management, ecosystem-based adaptation action, deployment of livelihoods diversification strategies and capitalising on carbon market opportunities.*
Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project	*Timor-Leste*	*Caritas Australia* *Catholic Relief Services* *Aboriginal Carbon Foundation*	*Engaging communities that are negatively impacted by degrading ecosystem services due to intensive deforestation for the creation of agricultural land, and loss of soil due to heavy rains. Repopulating home gardens and farm plots with various tree sapling species that support food security, shelter, and soil integrity.* *Development of tara bandu – community rules that govern sustainable management of community forest areas.* *Exploring incentives of carbon markets.*
Nature-Positive Business for Climate Critical Ecosystems	*Fiji* *Solomon Islands*	*WWF Pacific* *Matanataki*	*Identifying and testing business models for supporting NbS to climate change in social, ecological, or financial contexts in which participation in carbon markets may not be viable.* *In Solomon Islands: sustainable management of sea-grapes to improve livelihoods and environmental restoration.* *In Fiji: piloting a nature-positive enterprise that supports coastal mangrove management and restoration activities.*

Community-led coral reef restoration: Community, Corals and Chickens	*Fiji* *PNG* *Samoa*	*Kyeema Foundation* *Corals 4 Conservation*	*Supporting young Indigenous scientists and community leaders to promote locally led adaptation of coral reefs to climate change as a NbS.* *Supporting communities to diversify their livelihoods away from reliance on marine resources by establishing village chicken farms.*
Ni-Vanuatu Women Leading Solutions to Climate Change	*Vanuatu*	*Action Aid Australia* *Action Aid Vanuatu* *National Women's Network (Women I Tok Tok Tugeta)*	*Empowering women to lead agroecology activities that improve soil integrity on upland farms and coconut/banana plantations in low-lying coastal areas.* *Training women and local government partners on ecologically resilient cropping practices, mixing native and crop seedlings, planting activities across vulnerable plot sites, and training for local and national land management bodies on climate resilience, sustainable land management, and disaster readiness.*
Nature-based Solutions for Forests and People	*PNG* *Vanuatu* *(expanding to Fiji in 2023)*	*Live and Learn Nakau*	*Addressing gaps to enhance the potential of the voluntary carbon market (VCM) to finance NbS in the Pacific, including:* *Establishing examples that demonstrate the potential of VCM as a replacement economy for currently unsustainable activities.* *Design and testing of fit-for-purpose approaches to carbon financed NbS in the Pacific.* *Building the capacity of governments, Civil Society Organisations, and private sector actors to participate in the sector.*
CRxN Mekong Expansion	*Vietnam*	*WWF Vietnam* *Can Tho University*	*Support improved freshwater agricultural practices. The project will implement adaptive flood-based livelihood strategies by re-connecting floodplains to the Mekong River, restoring the natural flooding cycle. Along with the climate and biodiversity benefits of the activities, this model also supports productive rice and fish farming.*
CRxN Mekong Expansion	*Cambodia*	*WWF* *Cambodia CEPA IIRR*	*Support alternative livelihood options and sustainable financing mechanisms that will reduce human pressure on natural resources and ecosystems. Activities include training communities on how to identify and stop illegal fishing, preventing riparian habitats from being converted to agricultural uses, and incentivising*

			ecosystem protection through tourism livelihood development.
CRxN Mekong Expansion	*Laos*	*WWF Laos*	*Working with six climate-vulnerable communities in the south of Laos on the promotion of sustainable fisheries and the creation of co-managed Fish Conservation Zones and the surrounding forest habitat. Promoting ecosystem-based adaptation to climate change for sustainable livelihoods.*
Learning, Innovation and Knowledge Hub	*Regional*	*Regional WWF-Australia*	*Focuses on generating evidence and implementation insights through MEL, as well as through the CRxN learning agenda. CRxN learning activities are channelled through the 'CRxN Indo Pacific Knowledge Hub' and program outputs are published on the CRxN website.*

PERFORMANCE AGAINST INTENDED OUTCOMES

CRxN End of Program Outcomes

- **EOPO 1:** More Pacific and Southeast Asian communities are deploying NbS to protect and restore critical ecosystems and build community resilience.
- **EOPO 2:** Progress towards new high integrity carbon markets linked to NbS investments.
- **EOPO 3:** Communities access new and/or diversified livelihood opportunities through NbS.
- **EOPO 4:** Increased engagement of governments, CSOs and private sector with NbS.
- **EOPO 5:** Women, youth, persons with disabilities and other potentially marginalised groups are benefitting from and more involved in decision-making related to NbS.

Assessment of performance

All projects have a component focusing on protecting or restoring ecosystems. The investment has managed to initiate 10 projects across the Pacific Region and Southeast Asia. It is important to acknowledge the diversity of projects and the difficulty of drawing conclusions that speak to every project in every context. As a result of the evaluation's strong geographical focus on the Pacific, evidence is skewed towards this region. Given the Mekong region's unique political, economic, and environmental context, evidence could be balanced with further investigation of these projects. Additionally, the impact of these activities is currently challenging to assess due to the relatively short duration of the project implementation periods. Many projects are still in their pilot phase, and the true effect on ecosystems will only become evident over the medium term. Nevertheless, even in these early stages, good ecosystem protection or restoration components can be discerned by including a plan for each project's contribution to nature (or biodiversity) and the establishment of a robust baseline measurement methodology. Given the pressing need for communities to adapt to the already severe consequences of climate change, careful assessment of the effectiveness and future impact projections of all projects' protection and restoration activities is warranted.

Projecting and measuring the effect of ecosystem protection and restoration activities requires technical expertise. As a result, projects with access to experts have more advanced systems for projecting results, for planning their rollout, and for measuring their progress.

Opinions about the contribution to a NbS should make to nature or biodiversity, differ considerably. The exact minimum level of contribution required can best be defined at the strategic level, but field observations indicate that good projects:

- Go beyond planting vegetation (classified as "green" interventions) to restoring the "natural" eco-system. Planting trees on steep slopes or riverbanks, for example, can be a green climate-adaptation but only amount to nature restoration when the variety of trees planted restores the ecosystem that used to grow in that area. In addition, effective environmental safeguards are essential to ensure positive effects for ecosystems are not undone by other project interventions.

- Plan their restoration of nature and do not assume the result be a potential by-product. For example, climate-smart agriculture focuses on climate; planting fruit trees or introducing fishing exclusion zones focus on food-security, not biodiversity. Positive effects on biodiversity cannot be assumed. Achievement of measurable targets has to be planned and measured to be considered a contribution to nature. Similarly, the chain of effects must be explicit. For example, it is not sufficient to state that annual flooding of fields on riverbanks will automatically result in more aquatic biodiversity or the return of bird species. It is important to map the effects of interventions to their result through proven approaches and a plan to measure progress along the expected path of change.

- Plan the scale of their protection, maintenance, or restoration of ecosystems against ecosystem requirements and external impacts like climate change. For example, only mangroves of a particular size are sustainable and can provide ecosystem services. Where mangroves are under pressure from climate change (salination, erosion) the restoration should at least be at the speed of the degradation to keep the required ecosystem size. Similarly, the restoration of reefs is a slow process that needs to be introduced at a speed which will result in a sustainable ecosystem. It also must be proven that the introduction of new coral species does not have negative effects on the existing ecosystem.

Some CRxN projects, including their sub-projects, are actively exploring access to high-integrity carbon markets. However, it is important to note that as of the time of this evaluation, there are no active carbon market projects under the CRxN investment. The stringent requirements of carbon credit certification bodies have potential to positively affect the quality and measurement of NbS initiatives, requiring projects to deliver high quality activities and monitoring plans for climate, biodiversity and livelihood outcomes.[22] CRxN has undertaken extensive research into carbon markets in the Pacific, including the publication of several relevant resources through the CRxN Indo-Pacific Knowledge Hub. One of the investment's partner organisations (Nakau) has undertaken substantial trial and error approaches which have resulted in a feasible carbon market model that is relevant to the Pacific context. The model has been substantiated by internationally recognised Offset Project Standards and is now able to be implemented across the region.

Accessing carbon markets presents a notable challenge, particularly in the Pacific context. While Pacific communities are custodians of a "higher ratio of carbon sequestration potential per capita than any region of comparable size",[23] research conducted through the CRxN Knowledge Hub found that there are only 12 registered voluntary carbon credit projects across the Pacific. Voluntary carbon markets have been slow to take off in the Pacific due to a range of challenges. Variable and largely undeveloped regulatory arrangements at the country level pose significant hurdles. The prevalence of customary land tenure further complicates the establishment of carbon property rights and meeting the "permanency requirements" set by

[22] See: Mackenzie & Allen (2023). Developing high integrity carbon projects in the Pacific.
[23] See: Mackenzie & Allen (2023). The state of voluntary carbon markets in the Pacific.

carbon credit certification bodies. Carbon projects can create distinct pressures on Indigenous communities, introducing external expectations, values, and constructs that can potentially conflict with local governance systems, cultural norms, and priorities. Carbon trading projects tend to incur high upfront costs, and it can take significant time until income is derived from the sale of carbon credits, often necessitating a reliance on donor funding to cover initial project development costs. Furthermore, demonstrating additionality, which involves proving that the project interventions have resulted in a greater amount of carbon storage compared to a scenario without project investment or effort, remains a challenge.

The quality of technical knowledge and advisory services can vary greatly in relation to carbon markets, often resulting in widely variable outcomes for local governments and communities. Carbon credits are part of complex national and global systems, of which few specialists possess a comprehensive understanding. Notably, one of the investment partners provided questionable information to a national government in the region. As a result, that government is now considering regulatory options that may prevent them from capitalising on the carbon credits produced in their jurisdiction.

Acknowledging that carbon credits may not always present a feasible option, particularly when criteria such as additionality or permanence cannot be met, several projects are exploring alternative financing mechanisms and income sources for NbS activities through market-based approaches. These alternatives aim to determine whether the income generated through improved livelihoods can effectively contribute to enhanced ecosystem protection or restoration, thereby facilitating climate adaptation. Innovative and promising experiments involving community-owned businesses are being conducted to explore these avenues. Further testing and evaluation will determine whether such enterprises can generate a surplus and provide incentives for the preservation or restoration of ecosystems. For instance, the cultivation of sea grapes, which thrive in healthy mangrove ecosystems, can serve as a viable income source. Consequently, communities benefiting from sea grapes gain a strong incentive to safeguard the mangroves. However, it is important to note that not all projects within this investment exhibit a robust logic that effectively connects livelihoods with ecosystem protection or restoration, and ultimately, with community resilience and climate adaptation.

All projects supported by this investment incorporate livelihoods components; some projects need to refine the intricate interdependencies between livelihoods, ecosystems, and climate adaptation. For instance, one project focuses on enhancing livelihoods through the distribution of fruit trees, but further work is required to establish a stronger link between these efforts and ecosystem protection as well as climate adaptation. Similarly, another project concentrates on the restoration of mangroves or reefs, yet the improvement of livelihoods is not yet integrated into these activities.

Development projects that focus on livelihood enhancements, even without the specific NbS requirements related to ecosystems and climate, are inherently complex. They necessitate a profound understanding of social and economic circumstances, viable income opportunities, supply chains, and markets. NbS projects impose additional demands on the livelihood component as the income generated must demonstrate logical connections to both ecosystem protection or restoration and climate adaptation. Considering the short implementation period, it is understandable that some projects are still experimenting to improve the overall logic of their approach. Balancing the demands of a NbS project requires a level of expertise and experience that few organisations have in-house which confirms the need for expertise at investment or strategic level.

All projects have achieved increased engagement among governments, CSOs and the private sector with regards to NbS. This heightened collaboration holds the potential for future replication or scaling of NbS initiatives. Most projects and sub-projects in the CRxN investment have engaged national or local governments. In some projects, government officials are providing training or operational support, with plans to hand over the project to the government at the end of the contract period.

Further engagement with governments is essential to enhance their capacity to handle the complex implementation requirements of NbS; to attract additional competent staff; to build community capacity to support NbS implementation; and to create a conducive regulatory environment for NbS. The work with CSOs and private sector differs between projects. Some projects are working on promising governance structures that aim to organise communities through CSOs or enterprises, with the hope of fostering long-term viability of the NbS. These approaches need more time to be tested and optimised before their performance can be adequately evaluated.

The decision to work with development NGOs to foster the uptake of NbS has posed challenges to achieving high quality NbS. The investment design focused on providing funding through partnerships with relevant NGOs and working with private sector actors and philanthropic foundations. Short funding cycles was one of the reasons to work with ANCP-accredited partners as it would avoid a long due-diligence process. As NbS initiatives are relatively new within Australia's development programming, the number of ANCP-accredited partners with experience in NbS is limited. DFAT's assumption that it is possible to develop the NbS expertise of traditional development NGOs through a very short project was ambitious. The design did not provide sufficient resources to deliver the necessary training, support systems and monitoring activities.

Some projects have identified transformative approaches to equality and inclusion while other projects are struggling to move beyond standard activities to involve women, youth, persons with disabilities and other potentially marginalised groups. One project is creating a network of women to address equality and include women with disabilities through NbS. Another project is addressing the division of labour within the household to rebalance the workload between wife and husband. All projects are paying attention to ensure women are heard during consultations and that data is collected in a gender disaggregated manner, but additional analysis could identify transformative GEDSI approaches. The projects that have utilised GEDSI specialists have established more transformative interventions.

IS IT A SOLUTION?

The main goal of a NbS must be to provide a solution to a priority challenge faced by the target communities. This is essential to ensure that the communities are willing to commit to the NbS long term and to ensure that the NbS does not divert scarce community resources to activities that are not a community priority.

In stakeholder interviews, WWF's view was that all projects are "solutions" for communities because the selection process for projects ensures that "there is a service provided by an ecosystem that solves a climate problem and the actions to protect, restore, or sustainably manage that ecosystem is generating co-benefits for people and nature. The advantage of having that sort of framework is that it very quickly eliminates any sort of maladaptive solutions."

It was commonly observed that communities tend to prioritise their livelihoods, and this remains a fundamental component across all CRxN projects. Moreover, the impacts of climate change on livelihoods are so severe that most communities now regard climate change adaptation as a priority.

NBS PILLARS

Biodiversity

The anticipated impact on biodiversity lacks sufficient definition at both the strategic and investment levels, leading to a lack of specificity at the project level.

As a result, **the approach to biodiversity differs widely between CRxN projects**. The projects aiming to generate carbon credits perform best as they are required by the carbon credit certification body to measure and improve biodiversity in their target areas. Conversely, most other projects lack well-defined targets or interventions for biodiversity improvement. During stakeholder interviews, ecosystem restoration was frequently equated with improvements in biodiversity. However, as previously mentioned, some projects may have insufficient ecosystem protection and restoration measures to sustain the targeted ecosystems, let alone restore them. With additional guidance at the strategic and investment level, projects can clarify their contribution to biodiversity and credibly project their expected impact. A clear definition of the biodiversity component will also facilitate the selection of appropriate methods to measure progress.

Climate change

All projects in this investment have articulated objectives related to mitigation or adaptation. However, it is difficult to monitor whether sufficient progress is being made.

Measuring progress on adaptation could clarify whether NbS can be effective in the target areas. Most projects aim to contribute to climate adaptation by using ecosystems to safeguard communities against the adverse impacts of climate change. It is worth noting that climate change has already drastically transformed community livelihoods, social cohesion and even health. For instance, coastal waters are depleted of fish, persistent rain or drought periods have reduce yields from gardens, and alternative staple foods (such as rice) have led to an increase in non-communicable diseases.

Addressing these impacts necessitates comprehensive, coordinated NbS interventions on a large scale. In some circumstances, NbS interventions may only delay certain climate change impacts. Ultimately, successful adaptation may necessitate more radical measures such as relocation or transitioning to entirely different sources of income. For example, one project acknowledged that its investment in mangrove conservation could postpone coastal erosion, but in the medium term, only costly grey infrastructure could protect only some of the affected coastal communities. These realities are challenging, and managing expectations requires communities to comprehend the specific contributions that NbS projects can provide.

Estimating future climate change impacts and the effect of NbS interventions requires advanced expertise and tested methodologies. Few projects have a stated methodology to measure community vulnerability to climate change. Similarly, few projects have projected the expected impacts of climate change and the power of NbS to mitigate these impacts. Ideally, a standard approach to measuring community vulnerability to climate change would have been defined at strategic or investment level. Nonetheless, even in the absence of a standardised approach, each project should possess a comprehensive understanding of the efficacy of its interventions.

The projects pursuing mitigation targets (as opposed to adaptation above) have projected their anticipated mitigation potential for the future and have established well defined measurement methodologies. Notably, projects focusing on generating carbon credits have exemplified a high level of rigor in their projections and methodologies. This rigor can be attributed, in part, to the existence of established measurement methods for carbon sequestration and, additionally, to the compliance criteria necessary for obtaining carbon credit certification.

Livelihoods

There is a strong focus on livelihoods in all CRxN projects. However, not all projects have achieved measurable improvements in livelihoods, highlighting the complexities involved in this endeavour.

Some projects have encountered difficulties in establishing a clear and logical connection between income generation and the incentives for ecosystem conservation or restoration. The contribution to community livelihoods understandably varies widely between projects. This variance can be attributed, in part, to the specific objectives of each project. For instance, a project that assists communities whose food security is under pressure due to climate change will naturally focus more on livelihoods than a project that assists communities to slow down erosion due to sea level rise. Beyond the project objective, the approach to livelihood interventions reflects the overall ambition and capacity of the implementing agency. Some development NGOs continue to provide their signature approach to livelihood improvement, albeit combined with ecosystem restoration activities. Other projects are systematically exploring a range of livelihood options to find the right fit for their target community and the logic of their intervention.

Ultimately, the size of the livelihood contribution is less important than its role to create incentives for the continuation of the nature-supported climate adaptation measures. Few projects have undertaken measurements to assess the impact of their interventions on livelihoods and community wellbeing, or the influence of livelihood improvements on the continuity of ecosystem protection or restoration efforts. Again, support for a standardised measurement methodology at the strategic or investment level could have supported activities in this area.

Improving livelihoods for subsistence communities in remote areas requires time and expertise in the best of circumstances. NbS requirements and climate change pressures only make it more demanding. The options for livelihood improvements in remote subsistence communities are limited due to low capacity, inadequate infrastructure, costly transportation of inputs, limited market access, and often obstructive operating environments (e.g., lack of government support). The inclusion of NbS introduces additional complexity to the decision-making process, as the rationale linking climate adaptation, ecosystem restoration/conservation, and tangible improvements in quality of life must guide the long-term sustainability of NbS initiatives, ensuring that livelihood interventions do not have adverse impacts on the climate or the environment. Moreover, the substantial constraints on livelihood options stem from the impacts of climate change such as sea level rise, erosion, fish depletion, changed rain patterns, and more. It is surprising that under these challenging circumstances, only few projects have done an expert analysis of options and limitations for livelihoods improvements.

The more promising projects were established as pilot initiatives with the aim of testing and refining approaches. Continuous trials and improvements are essential to maximise the impact of interventions and to align the various incentives. However, it should be noted that not all projects were set up as pilot initiatives.

RELEVANT SCALE

While all projects are currently in the pilot phase, not all projects are actively using this period to assess their viability and develop plans for a wider project rollout.

Using competitive proposal selection processes has presented challenges in providing investment-level expertise for project designs. To be selected projects do their utmost to come across as feasible and with high chances of success. They will try to minimise the remaining challenges and the investment-level expertise might overlook the support a project might need to reach its fullest potential. In turn, this has made it more challenging to identify specific components that warrant further testing and to pinpoint areas where the implementing agency lacks readily available expertise. In some cases, this may have even created

barriers for implementing agencies to seek expertise from the investment level. As a result, projects may not have sought the necessary expertise to adequately consider the scale or scope required to effectively address indicators related to biodiversity, conservation, or climate change.

The short implementation timeframes were not explicitly defined as pilot phases. While it can be effective to adopt a phased funding approach that encompasses piloting, rollout, and implementation, with each phase having specific performance criteria and stop-go processes, it is crucial for all parties involved to have a clear understanding of the purpose of each funding phase. In the context of pilot projects focused on proving an approach to NbS, the design should prioritise the testing of various alternatives on a limited scale, gradually refining the NbS concept until it is ready for wider implementation across the relevant area, such as a watershed, ridge to reef, or even at the national level. Although the ultimate impacts of the project will only be achieved when it is rolled out, it is essential that during the pilot phase, targets for the three NbS components (biodiversity, livelihoods and climate) are established, along with the methodologies and baselines for their measurement. The ad-hoc funding arrangements prevented robust longer-term planning by the partners, WWF, and DFAT, and as a result the concept of piloting was not applied by all projects in the investment. Some projects assumed that deploying NbS alone would suffice, without adequately preparing for the integration, measurement, and planning of all components, including ecological outcomes. Other projects consider the conclusion of the current short implementation period as the end of the project.

GOVERNANCE

This section will address three levels of governance relevant for this investment.

Investment governance

At the investment level, governance structures were not optimal to provide a guiding framework and technical support for the projects. The presence of oversight structures, a guiding framework, appropriate project selection, contracting modalities, technical support, and harmonised progress monitoring all play a crucial role in enhancing both the efficiency and effectiveness of operations at the investment level.

The oversight and knowledge networks proposed in the investment design were not fully implemented. The investment design had intended to establish oversight and governance arrangements that were commensurate with the scale of the investment, with knowledge networks potentially involving posts, OTP, DISR, DAWE, and PM&C. The design proposed active advocacy efforts to promote NbS concepts, foster the enabling policy frameworks that underpin their growth, and develop an outreach policy dialogue plan. These arrangements were intended to be established with the support of DFAT. However, the COVID-19 pandemic presented obstacles to establishing and operationalising these structures.

The selection of projects was informed by WWF's own definition of NbS.[24] However, further guidance is required for projects to effectively operationalise this definition. A key responsibility of the investment level governance is to provide support to projects through the provision of guidance, frameworks, and technical expertise. The definition and investment outcomes mention ecosystem conservation and/or restoration; measurable, positive climate adaptation and/or mitigation benefits; human development and biodiversity co- benefits; managing climate risks to nature that can undermine their long-term effectiveness; building community resilience; and the establishment of diversified livelihood opportunities. A detailed definition of these concepts including a measurement methodology could have provided essential guidance to the projects. Regular measurement of all projects using similar methods could generate lessons to improve effectiveness and efficiency.

[24] WWF defines Nature-based Solutions as "*Ecosystem conservation, management and/or restoration interventions intentionally planned to deliver measurable, positive climate adaptation and/or mitigation benefits that have human development and biodiversity co-benefits managing anticipated climate risks to nature that can undermine their long-term effectiveness*."

Expanding existing successful activities appears to be more effective than identifying new initiatives through a competitive mechanism such as the Challenge Fund. The governance rules for project selection allowed two channels: ongoing projects demonstrating promise in NbS, as well as new projects selected through a competitive proposal process. At this early stage it seems that improving existing projects is a more effective way of building a NbS portfolio. This investment provides a valuable opportunity to test whether competition is an effective driver of innovation in capacity scarce operating environments. Additionally, it is worthwhile to explore whether the competitive selection process has posed challenges for implementing agencies in acknowledging the need for further testing and expert input in their pilot approaches.

The focus on ANCP-accredited Australian NGOs has effectively mitigated fiduciary risks, although it may have inadvertently contributed to several layers of sub-contracting, resulting in weaker communication lines. Most accredited Australian NGOs have limited experience with NbS and therefore sought to partner with NGOs or CSOs that have a credible track record in ecosystem conservation and restoration. Consequently, lengthy chains of contracting have emerged, wherein Australian NGOs typically subcontract their affiliated sister NGO in the target country, which in turn engages a local CSO or NGO responsible for on-the-ground implementation. The presence of these multi-layered communication channels, involving actors with limited NbS expertise, has posed challenges in developing a comprehensive understanding of project progress and requirements at the investment level. Similarly, it has proven problematic in delivering appropriate responses in terms of technical expertise or diplomatic support from DFAT (desk and post).

The technical support function is essential and there is a real need for additional expert inputs. One of the criteria supporting the selection of WWF-Australia as the investment management agency was their ready access to global expertise. While some projects have drawn on this technical expertise during their pilot phase, other stakeholders have indicated that high quality technical expertise was challenging to find, and that it would be useful to have additional support to identify this expertise.

The inclusion of the Knowledge Hub in the design resulted in the sharing of experience and expertise as well as some commendable learning products. However, the knowledge generated through the Hub was not always translated back to practical actions at the project level. For example, despite the informative reports on carbon credits and markets, several projects struggled to understand whether their projects could generate income from carbon credits. The format of the new knowledge products (e.g. Blue Food Systems) may facilitate this translation to successful implementation.

Project governance

Localisation agenda is shifting the ownership and control over governance structures to local decision-makers. All projects demonstrate an understanding of the importance of shifting the focus, control, and implementation of aid programs from external entities to locally owned and led actors, communities, and institutions. Not all projects have shifted control to the same extent. Some projects are only shifting responsibility for implementation to a local iteration of the Australian NGO that was contracted under this investment. At the other end, there are organisations established and governed by the affected community itself.

Long-term NbS governance

The investment is generating some very interesting and promising trials for the long-term governance of NbS projects. In the longer term, NbS projects operate through independent governance structures with fair representation of all stakeholders that continue to operate after the donor funding has ended. The current CRxN projects are testing a range of options, all of which require additional evaluation and necessitate medium-term capacity strengthening. This includes bolstering the ability to monitor safeguards, implementing grievance mechanisms, and establishing systems to facilitate negotiations and compromises among stakeholders.

The investment is currently exploring a range of long-term governance structures that involve national government departments, private sector stakeholders, CSOs, and the possibility of maintaining existing governance structures. All of these approaches present potentially viable options for the long-term governance of NbS initiatives. Further testing and assessment of these structures can yield valuable insights that contribute to the potential scale-up and future implementation of NbS projects.

Some projects are operating in close collaboration with government departments that have expressed an interest and have the capacity to take on the rollout of the NbS approach. Conversely, it is important to note instances where the government is expected to assume responsibility for the initiative but lacks both the interest and the capacity to do so.

Community owned enterprises are also being tested as the long-term vehicle to implement NbS initiatives. Additionally, several projects are establishing CSO structures at the community level, incorporating equitable decision-making mechanisms, and establishing linkages with regional frameworks that can facilitate fund allocation and/or coordinate activities with government departments.

Some projects do not need additional governance structures, given that the current implementing agency is locally embedded, has a long-term commitment to the target communities, and will remain on the ground for the foreseeable future.

GENDER EQUALITY, DISABILITY AND SOCIAL INCLUSION

GEDSI is addressed but there is room to achieve more transformative outcomes. Most projects understand the importance of GEDSI and have ensured that women, youth, people with a disability are properly represented during consultations and decision making and have opportunities to participate in the implementation of the project.

Projects that engaged GEDSI specialists have integrated activities to address underlying issues of structural equity and exclusion. The inclusion of GEDSI expertise within NbS initiatives holds particular significance due to the heightened vulnerability of women, persons with disabilities, and marginalised groups, who are frequently more reliant on their natural surroundings and disproportionately affected by the impacts of climate change. Given the inherent complexity involved in designing and effectively implementing NbS initiatives, GEDSI inputs should be provided concurrently with expertise in biodiversity, climate adaptation, and livelihoods to ensure a fully integrated program and avoid a tokenistic GEDSI add-on.

CRxN includes some promising interventions that could be scaled up during a potential NbS rollout. For instance, some projects have tested the introduction of by-laws to protect mangroves and community forests. The same system of by-laws has also been used to establish rules to prevent violence against women and other expected behaviours that will improve GEDSI outcomes throughout NbS interventions. Other projects are addressing gendered workloads and women's participation in decision making at the household level by facilitating discussions and agreements between wife and husband. Another project is challenging social norms that do not provide equal rights to men and women (e.g. speaking rights in community meetings or the right to be elected as village leader).

INDIGENOUS PARTICIPATION

Most projects are meaningfully engaging with Indigenous Communities and are building on Traditional Knowledge. Some projects are managed by local Indigenous communities and therefore, localised Traditional Knowledge and Indigenous ways of being (including protocols and governance structures) are embedded into project activities in a culturally sensitive manner. At the very minimum, all projects are working closely with Indigenous communities as their buy-in is recognised as essential to the success of the NbS.

The investment facilitates the transfer of Indigenous Knowledge through exchanges between First Nations communities in Australia and communities and government stakeholders in Timor-Leste. Notably, two Traditional Knowledge exchange trips have taken place, involving First Nations Australians visiting Timor-Leste, as well as representatives from the Government of Timor-Leste (GoTL) and potential carbon farmers visiting Australia to explore strategies for supporting carbon market development. The project intends to facilitate future cross-cultural dialogues, allowing target communities to exchange experiences and knowledge with First Nations Australians specifically concerning carbon sequestration.

The investment's Nature-based Solutions for Forests and People project is demonstrating an exemplary commitment to Indigenous communities and customary landowners. This commitment is demonstrated through various means, including a benefit sharing approach that guarantees a minimum of 60% of carbon revenues are received by communities, with the remaining 40% covering the cost of implementation and verification of carbon credits. The project also prioritises robust Free, Prior and Informed Consent (FPIC) processes; the integration of Indigenous Knowledge and customary practices throughout project development (particularly concerning customary tabu areas in Land Use Planning and the establishment of Protected Area governance structures); and not proceeding in areas where land rights disputes have been identified as part of site screening processes.

SAFEGUARDS

Most projects have the contractual safeguards for child protection in place but additional support from the investment level is required to ensure that all projects also apply environmental, climate, GEDSI, and Indigenous safeguards. Even when these safeguards are applied, the administrative processes to properly collect and record decisions might not be in place. These safeguard mechanisms need to be passed on from the project level to the long-term governance structures that will be managing the NbS when project funding has ended.

Table 9: Key investment findings (CRxN)

#	Finding
19	***Projects with access to technical expertise have more advanced systems for projecting results and measuring progress****. Many projects under CRxN are still in the pilot phase, so it is too early to measure their impact on ecosystems or climate. Some projects have drawn on technical expertise during their pilot phase to define their biodiversity and climate targets, test their interventions, choose measurement methods, and establish a baseline. Other project stakeholders have indicated that high quality technical expertise was challenging to find, and that it would be useful to have additional support to identify this expertise.*
20	***The connection between livelihoods, ecosystem protection, and climate adaptation has already been established in some projects****. While all projects under the investment include a livelihoods component, only the more advanced projects have managed to refine the interconnections between livelihoods, ecosystems, and climate adaptation. Since testing and refining NbS takes time and expertise, it is more effective to scale and replicate approaches with a proven logic.*
21	***Projects with embedded GEDSI expertise tend to have more transformative interventions****. Some projects have implemented transformative approaches to promote equality and inclusion, while others have yet to move beyond standard participation activities. While all projects are paying attention to women's participation and collecting gender-disaggregated data, additional analysis is needed to identify transformative GEDSI activities.*
22	***Stringent carbon credit certification requirements can positively affect the quality and measurement of NbS initiatives****. Requirements include high-quality activities and monitoring plans for climate, biodiversity and livelihood outcomes. CRxN has undertaken extensive research into carbon markets in the Pacific, including the publication of several relevant resources through the CRxN Indo-Pacific Knowledge Hub. One of the investment's partner organisations has also undertaken substantial trial and error approaches which have resulted in a feasible carbon market model relevant to the Pacific context.*

PACIFIC REGIONAL BLUE CARBON INITIATIVE

OVERVIEW

The Pacific Regional Blue Carbon Initiative is an AUD6 million investment through which DFAT provides funding (2018 – 2023) to the Australian Department for Climate Change, Energy, the Environment and Water (DCCEEW), Conservation International, the Climate Finance Lab, and the Commonwealth Scientific and Industrial Research Organisation (CSIRO). It focuses on increasing links between ocean conservation and climate change through blue carbon initiatives.

The investment has two pillars:

Pillar 1 - grow the knowledge base: led by DCCEEW, Pillar 1 provides support directly to Regional Governments and through relevant international forums to promote consistency between international standards, common practices in voluntary carbon markets, and national policy frameworks and greenhouse gas accounts. It also provides high-quality scientific and technical expertise to national and regional stakeholders implementing blue carbon activities.

Pillar 2 - stimulating investment in blue carbon: led by DFAT, Pillar 2 is implemented by Conservation International and the Climate Policy Lab. It is facilitating private sector and international financing institutions to support blue carbon projects in the Pacific. This requires the demonstration of carbon offset methodologies in a pilot NbS project and its viability in recognised carbon crediting schemes.

PERFORMANCE AGAINST INTENDED OUTCOMES

Pacific Blue Carbon End of Program Outcomes

- **EOPO 1:** Catalyse the participation of Pacific Island governments and stakeholders in blue carbon ecosystem management as part of their efforts to address climate change.
- **EOPO 2:** Contribute towards an enabling environment for future trading by Australia and the private sector in blue carbon credits.
- **EOPO 3:** Leverage international public and private finance for blue carbon ecosystem protection and restoration in the Pacific.

Assessment of performance

The information made available to the evaluation team pertained mainly to the efforts undertaken by Conservation International, encompassing a diverse array of activities. The project is making progress against all EOPOs albeit with some delays.

The COVID pandemic made coordination of activities difficult, and some activities were delayed. The multi-track approach of the Pacific Regional Blue Carbon Initiative is combining the pilot NbS with activities to improve the operating environment. This combination of activities caused some coordination challenges but nevertheless received positive reactions from the Government of Fiji (GoF) as well as from the key implementing partners.

The investment's progress in Fiji has developed a relationship of trust with GoF and is aligned with and supported by GoF priorities. GoF regularly requests key Pacific Blue Carbon stakeholders for policy advice and for the testing of approaches and methodologies.

The project has provided policy recommendations to GoF, offering comprehensive support for decision-making and policy development concerning blue carbon. This support has included several key documents, including the production of a Drivers of Deforestation Report for Mangroves, an Assessment of Carbon Financing Options, Benefit Sharing Recommendation, and Carbon Trading Policy Framework advice. The reports generated by the project are establishing a strong foundation for future considerations and policy options related to blue carbon.

An ongoing blue carbon mitigation and adaptation pilot project showcases the feasibility of certified blue carbon credits. A pilot project has been set up and is being registered with Plan Vivo, a recognised carbon credit certification body. Discussions are underway with the GoF regarding the project information note, and extensive testing has been conducted on various aspects of the restoration process, including propagation methods, nurseries, planting techniques, required labour, potential involvement of youth, women, and individuals with disabilities, debris removal, seedling density, and more.

Significant enhancements have been achieved in the management and restoration of additional mangrove areas. Beyond the ongoing carbon credit test site, restoration efforts are being actively evaluated in multiple locations within the provinces of Ra and Ba. A comprehensive restoration approach has been devised, accompanied by the establishment of nurseries to facilitate the process.

Extensive consultations have been conducted across 30 communities to ensure mangrove use and management is sustainable. Additionally, a survey encompassing the livelihoods of coastal communities has been undertaken to identify potential avenues for improving livelihoods in conjunction with the implementation of management plans.

Efforts have commenced to identify financing opportunities for mangrove restoration at the national level. This process holds promise for securing the necessary resources to support the restoration initiatives effectively.

The investment is implemented in close collaboration with relevant GoF Ministries, including the identification of opportunities for expanding NbS that adhere to stringent criteria. Additionally, initiatives are underway to facilitate knowledge exchange and transfer between Indigenous communities in Australia and Fiji, fostering valuable cross-cultural learning experiences. Furthermore, dedicated research is being conducted to explore methodologies for effectively monitoring the resilience benefits derived from these NbS projects. The aim is to develop robust monitoring frameworks that can accurately assess and track the resilience-enhancing outcomes of these initiatives.

IS IT A SOLUTION?

The main goal of a NbS must be to provide a solution to a priority challenge faced by the target communities. This is essential to ensure that the communities are willing to commit to the NbS long term and to ensure that the NbS does not divert scarce community resources to activities that are not a community priority.

The NbS pilot (which is only a small component of this investment) is "a solution". This initiative directly responds to the communities' pressing need for sustainable livelihoods by undertaking the restoration of the mangrove area. Notably, a significant proportion of the community (approximately 90%) engage in subsistence fishing alongside agricultural activities. Their livelihoods are intricately linked to the mangroves, relying on its resources for sustenance and wellbeing. The NbS project, therefore, holds great potential in supporting and enhancing the livelihoods of these community members by restoring the mangrove ecosystem.

The wide range of activities under this investment, in addition to the NbS pilot are all relevant to the potential national rollout of the NbS approach. The NbS pilot is only a small part of the range of activities under this investment. The investment is addressing issues of scaling, national and international policy, as well as scientific gaps. This investment demonstrates that NbS are new to all stakeholders and that various challenges still need to be addressed.

The investment (by design and by adaptability) has identified challenges in the operating context. Necessary actions have been taken at the pilot stage to ensure a scalable rollout capable of delivering the intended impact of a NbS approach. While it is anticipated that other NbS initiatives may face similar challenges in their respective operating environments, this investment benefits from an exceptional range of expertise that may not be readily available in other projects.

NBS PILLARS

Biodiversity

Pacific Blue Carbon is focused on addressing biodiversity concerns by undertaking the restoration of mangroves and other marine ecosystems. It is essential to note that the desired biodiversity outcomes can only be achieved when the activities are extended to encompass the entirety of the mangrove area and implemented in conjunction with complementary initiatives.

Mangroves play a crucial role in providing habitat for a wide array of plant and animal species. These ecosystems contribute significantly to the overall biodiversity of coastal regions, supporting diverse communities of marine and terrestrial organisms. By recognising the importance of mangrove ecosystems and taking targeted actions to restore them, this investment contributes directly to the preservation and enhancement of biodiversity within these coastal areas.

Biodiversity impacts will be measured at the pilot site. The investment is submitting a project proposal to the carbon credit certification body Plan Vivo. One of the requirements for registration is an assessment of the biodiversity in the project site. Further measurements will be required for the detailed project proposal and at verification points in the future.

Biodiversity is also measured at a larger scale in preparation of a national rollout. A national wetlands assessment has been carried out to evaluate the present state of wetland use by communities in Fiji. This assessment highlights the social, economic, and ecological importance of the sites at national and international levels. The assessment also includes a preliminary biodiversity baseline.

Climate

The investment has both climate change mitigation and adaptation objectives.

Mitigation will be achieved through the restoration of mangrove areas and later possibly seagrass meadows and other marine ecosystems. To enable the latter, the science of carbon sequestration by marine ecosystems is being progressed through the investment. The viability of mitigation through restored mangroves is being assessed through the NbS pilot. The first test phase of the project is small in scale (8 hectares), but it will set the methodology for more extensive restoration efforts in this project site and elsewhere in Fiji.

The adaptation component of the investment largely focuses on reducing the vulnerability of coastal communities to the adverse impacts of climate change. The mangroves at the pilot site suffered damage during a cyclone event in 2016, yet they played a vital role in safeguarding the adjacent communities. By rehabilitating these mangroves, their protective capacity will be restored, thereby enhancing the resilience of the communities.

Beyond providing protection against natural disasters like cyclones, the mangroves also serve as a natural defence against sea level rise by facilitating sediment deposition and preventing coastal erosion. Their intricate root systems enable them to absorb water, reducing the risk of flooding. Additionally, the restoration of mangroves will contribute to the overall resilience of the communities as these ecosystems offer diverse sources of food and livelihood opportunities.

It is important to note that at the time of this evaluation, the investment has not yet quantified the climate change vulnerability of the communities surrounding the pilot site. This is due to the ongoing deliberation on determining an appropriate methodology for measurement. Nevertheless, the investment recognises the significance of assessing vulnerability and is actively working towards establishing a suitable approach for this purpose.

Livelihoods

The investment will make a considerable contribution to the livelihoods of the coastal communities once the pilot is rolled out at the national level. Mangroves serve as critical nurseries for many fish and shellfish species that are part of the regular diet of coastal communities. The health of mangrove ecosystems is essential for supporting fisheries.

A social survey was conducted across 33 communities located in three provinces. The primary objective of this survey was to evaluate the status of livelihoods within communities that are reliant on mangrove resources. These coastal communities predominantly comprise subsistence farmers and fishers whose livelihoods greatly rely on the resources offered by the mangroves. By conducting this survey, valuable insights were gained into the specific needs and challenges faced by these communities, enabling informed decision-making and facilitating targeted interventions to support livelihoods.

A detailed livelihoods baseline was established in the two communities participating in the pilot project. These communities are expected to receive several benefits from the project. Firstly, community members will have the opportunity to earn salaries through their involvement in restoration activities. Secondly, the project will lead to the clearing of trees felled by the cyclone, resulting in stockpiles of firewood that can serve as a valuable resource for the communities.

Medium-term restoration efforts will contribute to the revival of essential subsistence resources such as mud crabs, oysters, mud lobsters, prawns, shrimps, and fish. This restoration will provide significant support to the communities in terms of sustaining their subsistence needs and improving their overall livelihoods.

RELEVANT SCALE

The scale of restoration is dependent on the size of the current mangrove areas and the extent to which these areas are damaged or degraded. There is currently no information available on the location and state of Fiji's mangrove areas. The investment is conducting a comprehensive assessment of the distribution and status of mangrove forests in Navitilevu Bay and Yanuca Island. This will inform the potential of restoration activities and allow for priority site selection for future mangrove restoration based on ecological, social and economic factors.

The required scale of the project is contingent upon meeting the minimum size necessary to make a meaningful contribution to biodiversity targets. Further research and analysis are warranted to better understand the biodiversity value of the mangroves and the coastal areas surrounding them, including the interrelationships between mangroves and the broader marine and terrestrial ecosystems that influence them.

The scale of the project's impact is dependent on the number of carbon credits that can be generated at the project site. Currently, the pilot site spans only 8 hectares, which is unable to yield a significant impact on biodiversity conservation and climate change mitigation. However, the pilot site serves as a valuable platform for understanding the restoration costs involved and assessing the feasibility of covering these costs through the generation of carbon credits.

Obtaining certification for carbon credits entails rigorous processes, including on-site reviews and comprehensive evaluations of project documentation. These certification processes can be costly. However, the larger the project site, the lower the cost of certification per carbon credit. Therefore, by expanding the project site to a larger area, the cost of certification per carbon credit can be lowered. This, in turn, allows for more resources to be allocated towards the actual restoration work and community benefit sharing.

Further calculations are necessary to assess whether the current pilot site can be restored with the income generated from carbon credits. The pilot site can be expanded to include 60 hectares of mangroves and 50 hectares of degraded terrestrial forest. While this expanded area is still relatively small, it may be viable depending on the total carbon sequestration capacity of the mangroves and the overall restoration costs associated with the project.

GOVERNANCE

This section will address two levels of governance relevant for this investment.

Investment governance

The investment governance aspect encompasses the structures responsible for managing the investment as well as the implementing agencies involved.

The two pillars of the investment were not adequately integrated through an effective governance structure. Consequently, the coordination between the implementing agencies fell short, leading to insufficient collaboration and cooperation. This lack of coordination resulted in certain tasks either being left unassigned or incomplete by the responsible agency, necessitating the intervention of an alternative agency without the necessary funding allocation.

Weak coordination among the implementing agencies led to sub-optimal outcomes in certain activities. For instance, carbon measurement tests were conducted in locations that did not possess the ideal combination of environmental factors, compromising the accuracy and reliability of the results obtained. Additionally, the priorities for adjustments of national and international policies were not well aligned, resulting in competing efforts to address policy frameworks.

Restoration governance

This section of the report considers the governance structures that need to be established for the long-term management of mangrove restoration, which is anticipated to span at least 30 years.

The GoF is planning to lead the national rollout of the mangrove restoration efforts. While close collaboration with relevant ministries is underway, the specific management approach and required governance structures are yet to be determined. The close collaboration with GoF ensures that the resulting rollout has national ownership and will be fully "localised".

The design of the governance structure will, in part, be influenced by the nature of the restoration activities and the mechanisms for sharing the benefits. A benefit sharing manual is currently being developed based on the National REDD+ benefit sharing protocol. The manual will inform ongoing discussions on effective governance structures.

The pilot project is currently testing the necessary governance structures for managing restoration activities at the community level. Currently, a community-level restoration team operates within the village, responsible for implementing daily restoration tasks and measurements. However, further testing and formalisation of the current systems are required to ensure their viability and effectiveness.

GENDER EQUALITY, DISABILITY, AND SOCIAL INCLUSION

Efforts to address Gender Equality, Disability, and Social Inclusion (GEDSI) have been appropriately incorporated into the project; however, the achievement of transformative outcomes in this regard is yet to be realised.

Standard GEDSI measures are implemented across the investment. Gender and inclusion considerations are integrated into social assessments and research activities, such as the investment's study on Drivers for Deforestation of Mangroves. This integration takes place both as a thematic area, ensuring that gender and inclusion issues are adequately addressed, and as a methodology, ensuring that all groups are consulted and in a way that allows them to effectively provide input. Community engagement is facilitated through gender-disaggregated workshops, enabling the participation of women, youth, and individuals with disabilities. The division of restoration tasks is designed to align with the available capacity of these groups, and work schedules are established in a manner that accommodates existing cultural and family commitments. This inclusive engagement approach extends to various project activities, including site monitoring, risk assessments, management planning, restoration activities, and livelihoods planning.

While GEDSI activities have been implemented, there is scope for achieving greater impact. The development of a national mangrove restoration program presents an opportunity to advance transformative GEDSI targets. A gender mainstreaming plan has been developed and expanded in consultation with DFAT. However, this plan has yet to be translated into pilot activities that can inform transformative GEDSI interventions once the program is rolled out.

INDIGENOUS PARTICIPATION

Conservation International recognises the crucial role of Indigenous Peoples in the Pacific Blue Carbon Program and actively engages and consults with local communities. Indigenous communities are empowered to lead the work, and their perspectives are sought in decision-making processes. The program emphasises a co-design approach, ensuring that Indigenous voices are fully integrated and considered in establishing future governance structures. This approach aims to ensure that Indigenous participation is meaningful and respected throughout the program.

The pilot project successfully integrates Traditional Knowledge into its activities. Local community members have actively contributed their relevant Traditional Knowledge, which has been included in project activities such as the comparative testing of mangrove seedling propagation methods. This inclusive approach not only acknowledges the value of Traditional Knowledge but also prioritises its adoption as the preferred method moving forward. By incorporating Indigenous knowledge systems, the program enhances its effectiveness and sustainability.

The investment facilitates the transfer of Indigenous Knowledge through an exchange program between First Nations communities in Australia and Fijian communities. The investment aims to promote learning and collaboration among Indigenous communities, guided by the objectives and learning outcomes identified by the communities themselves and the Ministry of iTaukei Affairs' Village Development Plans. By fostering partnerships and exchanges, the investment supports the sharing and preservation of Indigenous knowledge, contributing to the long-term success of the program.

The investment adheres to the principles of free, prior, and informed consent (FPIC) as outlined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).[25] The program ensures that Indigenous Peoples and local communities with statutory or customary rights have the opportunity to negotiate the conditions of the project and participate through their own representatives. Additionally, the program recognises the importance of gender inclusion and aims to involve Indigenous women and girls at all stages, including the FPIC process, to avoid marginalisation and promote their effective and equal participation.

SAFEGUARDS

While social and environmental safeguards appear to be implemented, there is a need for further formalisation and systematisation of these measures.

Throughout the implementation of activities, several safeguards have been utilised to ensure the protection of social and environmental elements. For instance, when conducting surveys or engaging in community consultations, social safeguards are employed to secure free, prior, and informed consent, while upholding rights-based conservation principles.

Environmental safeguards appear to be in place, and project implementation demonstrates a well-established awareness of potential risks. For instance, in the exploration of beekeeping as a potential source of income, local bees have been utilised to mitigate the impacts of introduced species. Additionally, the potential risks to other pollinators have been assessed, demonstrating a proactive approach to safeguarding local ecosystems.

To enhance the effectiveness of safeguard systems, a more systematic approach is required. Currently, there is a lack of records documenting safeguard implementation, including clear policies, stakeholder information, complaint mechanisms, monitoring checklists, and documentation of processes, assessments, and actions taken. To strengthen the safeguard framework, it is crucial to establish clear policies and guidelines, provide relevant information to stakeholders, establish effective complaint mechanisms, and develop comprehensive monitoring checklists. Documentation of processes, assessments, and actions taken should also be prioritised to ensure transparency and accountability.

[25] See: United Nations (2016)

Table 10: Key investment findings (Pacific Blue Carbon)

#	Finding
23	***The project has provided comprehensive policy recommendations to the Government of Fiji*** *(GoF), including reports on drivers of deforestation, carbon financing options, benefit sharing, and carbon trading policies. The inputs enable the GoF to design and commit to the rollout at national level. The contributions could have been even greater if the investment governance would have facilitated effective coordination between the investment partners.*
24	***An ongoing pilot project demonstrates the feasibility of certified blue carbon credits****. Extensive testing and evaluation of various aspects of the restoration process have been conducted, including involvement of youth, women, and individuals with disabilities, debris removal, and nursery establishment. Discussions with the GoF are underway, and the project is being registered with a recognised carbon credit certification body. A well-documented overview of the approach could be valuable for other NbS investments.*
25	***Significant progress has been made in managing and restoring additional mangrove areas beyond the carbon credit pilot site****. A comprehensive restoration approach has been implemented, with the establishment of nurseries to facilitate the process. Extensive consultations with communities and surveys on livelihoods have been conducted to ensure sustainable mangrove use and identify opportunities for livelihood improvement. The combination of NbS piloting with policy and science support is useful as a learning opportunity for other NbS investments.*

THE CORAL REEF INNOVATION PROJECT

OVERVIEW

The Coral Reef Innovation Project (CRIP), also referred to as ReefCloud, represents a $6.6 million investment spanning three years (2023 – 2025). Its primary objective is to pilot the ReefCloud platform, an innovative and integrated coral reef monitoring tool, in two Pacific Island countries: Palau and Fiji. Developed by the Australian Institute of Marine Science (AIMS), the ReefCloud platform serves as an end-to-end solution for consolidating existing coral reef monitoring information into a centralised and integrated tool. This tool facilitates the assessment of global coral reef conditions and monitors changes over time, thereby enabling the evaluation of management effectiveness.

The overarching goal of the Coral Reef Innovation Project is to promote integrated coral reef monitoring in the Pacific region. By doing so, it aims to facilitate well-informed management decisions that not only enhance the resilience of coral reefs but also support the development of sustainable livelihoods. Through the implementation of the ReefCloud platform, the project seeks to establish a robust foundation for effective coral reef management, combining scientific data with practical decision-making tools.

PERFORMANCE AGAINST INTENDED OUTCOMES

ReefCloud End of Program Outcomes

- **EOPO 1:** On ground action: Pacific developing nations contribute to co-develop and pilot on-ground an effective coral reef monitoring platform.
- **EOPO 2:** Empowering people: Pacific coral reef scientists and managers are empowered to use integrated monitoring systems to report on the status of coral reefs.
- **EOPO 3:** Fostering collaboration: collaboration among Pacific stakeholders is fostered towards applying and scaling the integrated coral reef monitoring platform to a regional and global context.

Assessment of performance

The evaluation team only had the opportunity to interview the investment managers (from AIMS) and complete a document review. Consequently, the assessment of ReefCloud's EOPO performance relies on a restricted amount of evidence available.

Local partners in the two focal countries are actively contributing to the development and implementation of ReefCloud, and the platform has successfully achieved its technical objective of serving as an efficient coral reef monitoring tool. This innovative platform has the capability to assess photographs of reefs and provide detailed analysis, including the identification of coral species and information on reef health.

AIMS has received highly positive feedback regarding the technical capabilities of ReefCloud. Evaluation surveys indicate that platform users are satisfied with its technical functionality, as well as the responsiveness of AIMS software developers in meeting user requirements. It is worth noting that the quality of the artificial intelligence tool used by ReefCloud will continue to improve as the database expands with additional information.

The level of contribution to the platform is contingent upon contextual conditions, such as ownership and rights to use photographs for other purposes. To address these concerns, AIMS is proactively developing user-specific agreements to ensure that contributors feel comfortable sharing their data on the platform. These agreements aim to establish clear guidelines and protocols, fostering trust and confidence among users.

A significant challenge is expanding the scope of the platform beyond data entry and analysis to inform national policy. AIMS is actively working towards expanding their approach beyond status reports and towards collecting information on management practices. This shift aims to provide valuable insights into effective reef management strategies and identify areas that require improvement. This transition is still a work in progress, as it necessitates moving beyond rapid analyses of the reefs themselves and establishing links between reef health and policies addressing coastal development, climate change, land-based sediments, nutrient runoff, pollution, overfishing, and other related factors. Achieving this connection requires not only technical solutions but also the integration of data from ReefCloud, which serves as a vital ingredient in determining the reef's status. Expertise is essential in interpreting the data within its contextual framework and identifying the policies and interventions that are most likely having a significant positive impact on the reef. ReefCloud already plays a role in this process by freeing up experts' time, allowing them to focus on management analysis instead of dedicating their efforts solely to analysing images of coral reefs. This contributes to a more efficient utilisation of expert resources and enables a more comprehensive understanding of reef conditions.

The COVID-19 pandemic has hampered collaboration efforts among Pacific stakeholders. Despite these difficulties, the ReefCloud team at AIMS has successfully cultivated robust partnerships with their counterparts in Palau and Fiji. An evaluation conducted in September 2022 highlighted that the strength of these relationships "can be attributed to the strong interpersonal skills of the project team." However, the team acknowledges that further efforts are required to deepen these relationships and establish stronger connections among scientists, contributors, and managers within the respective countries and across the Pacific region.

IS IT A SOLUTION?

The main goal of a NbS must be to provide a solution to a priority challenge faced by the target communities. This is essential to ensure that the communities are willing to commit to the NbS long term and to ensure that the NbS does not divert scarce community resources to activities that are not a community priority.

The Coral Reef Innovation Project and its ReefCloud platform, developed by AIMS, are not "a solution" to a community priority. Instead, they are regarded as tools that facilitate the implementation of NbS. ReefCloud primarily focuses on facilitating the documentation of the coral reef's current state and how this information enhances informed management decisions based on evidence.

To qualify as "a solution", ReefCloud would have to work with communities that have identified reef management as their priority. ReefCloud's contribution lies in assessing the priority actions required, identifying the areas where these actions are needed, and subsequently evaluating the impact of those actions. Under the Coral Reef Innovation Project, AIMS is not directly working with communities in the Pacific to implement the proposed reef conservation actions. Therefore, while ReefCloud could be a valuable part of a NbS, the investment’s current actions are not enough to be considered a NbS.

Engaging with communities and addressing their unique requirements necessitates expertise and resources that extend beyond the primary focus and core capabilities of the Coral Reef Innovation Project. Undertaking such activities would divert valuable resources away from meeting the needs of the current users of ReefCloud and may not align with AIMS' areas of strength.

NBS PILLARS

As ReefCloud has not met the initial criteria of being a definitive 'solution,' the evaluation does not consider the investment as a NbS. However, the evaluation team has continued to assess the investment against the remaining criteria outlined in this report, aiming to maintain consistency and potentially extract valuable insights for future NbS initiatives centred on reef restoration or conservation.

It should be noted that the investment's contributions towards the three pillars of NbS are indirect. As a result, the outcomes delivered by ReefCloud represent only one step in the chain of events necessary to deliver a NbS. Therefore, the following assessment of ReefCloud has been made under the assumption that the investment's contribution to reef monitoring has a consequential effect on reef conservation, and subsequently leads to the provision of ecosystem services.

Biodiversity

The investment contributes to the conservation of coral reefs through better management. Recognised as biodiversity hotspots for oceanic life, coral reefs encompass some of the most diverse ecosystems worldwide. They serve as crucial habitats and breeding grounds for a wide array of fish, invertebrates, plants, and algae. While covering only 0.5% of the seafloor, coral reefs support more than 30% of all marine life, surpassing other marine environments in species density per unit area.[26] Each individual reef holds significance as it contributes to the genetic diversity within species. The isolated and specialised nature of certain reef ecosystems facilitates the evolution of unique genetic traits among specific populations.[27] As explained below, coral reefs are under threat and require active management to be conserved.

Climate

The Coral Reef Innovation Project carries a significant climate change adaptation objective. By conserving coral reefs through improved management practices, communities can continue to benefit from the protection these ecosystems offer. Climate change is threatening coral reefs. Management interventions are a climate change adaptation strategy to ensure coral reefs continue to play a pivotal role in supporting subsistence fishing, making them essential for the livelihoods and food security of local communities. With management adaptations, These vibrant ecosystems can continue to provide a rich and diverse habitat for a wide range of fish species, sustaining the availability of marine resources that are vital for sustenance and economic wellbeing.

Preserving coral reefs enhances the resilience of communities in the face of climate-related challenges. Healthy coral reefs serve as natural barriers, effectively mitigating the energy of incoming waves and providing vital protection to coastlines against storms and erosion. Their presence helps safeguard coastal communities, reducing the impact of extreme weather events and dissipating storm surge energy.

The impacts of climate change pose a direct and significant threat to the long-term health and sustainability of coral reefs and associated ecosystems in the Pacific region. Presently, nearly 50 percent of reefs in the Pacific are classified as threatened, with approximately 20 percent facing high or very high levels of threat.[28] On a global scale, 19 percent of the world's coral reefs have already been lost, with a further 35 percent considered seriously threatened.[29]

[26] See: Fisher et al. (2015)
[27] See: Selkoe et al. (2016)
[28] See: Burke et al. (2011)
[29] See: ICRI (2009)

Livelihoods

Preserving reefs makes a vital contribution to community livelihoods. Many coastal communities in the Indo-Pacific rely heavily on subsistence fishing as a means of livelihood. Fish stocks in coastal areas are dependent on healthy reefs. At least 7.5 million people in the Pacific islands live in coastal areas within 30 km of a coral reef, representing about 50 percent of the total population.[30] For many citizens of the Pacific, healthy coral reefs and related marine ecosystems are essential to supporting local subsistence fisheries, export fisheries and tourism. Importantly, in the Pacific it has been recognised that an estimated 70-80 percent of the catch from inshore fisheries (such as reefs) is used for subsistence purposes and is largely caught by women as an important source of food security for their families and communities.[31]

RELEVANT SCALE

The evaluation has highlighted that currently, the investment of ReefCloud is not effectively engaging with communities. However, it should be noted that the potential opportunity lies in the relevant scale, which pertains to the depth of engagement rather than the size. This involves establishing connections with communities and/or organisations involved in the implementation of reef management activities. Based on the recent additions of reefs in the Maldives and collaborations with Samoa, Vietnam, the Philippines, and Brunei, ReefCloud has proven that the investment's current approach is scalable. As the scale of ReefCloud expands, its potential impact is expected to multiply, yielding enhanced benefits throughout the duration of the investment. However, to have a direct impact on all three pillars of NbS (biodiversity, livelihoods and climate) the primary challenge lies in establishing meaningful linkages between ReefCloud and on-ground projects that engage with communities and possess the capacity to influence management decisions on a significant scale. It is through these connections that the collective efforts can lead to the establishment of healthier coral reefs which provide benefits for each of the NbS pillars. Without the collaboration with on the ground reef managers and communities, the impact of the investment remains indirect.

GOVERNANCE

AIMS is currently managing ReefCloud and intends to maintain this responsibility moving forward, thereby ensuring the platform's long-term sustainability. An independent evaluation has indicated that external users view AIMS' management of ReefCloud as "lending a sense of legitimacy and stability".

Users are not formally included in ReefCloud management structures, but AIMS is building good relationships with users by being responsive to user needs in terms of functionality of the platform as well as in terms of strategic direction. ReefCloud is working with government agencies at national and local levels, with academics, and with tourism operators, all of whom are users of the platform. The ReefCloud team is trying to ensure that demands of all these groups are considered when they develop long-term directions for ReefCloud. At this stage, there are no plans to develop governance structures that involve the users.

GENDER EQUALITY, DISABILITY, AND SOCIAL INCLUSION

GEDSI is addressed through knowledge and capacity building as well as through the collaboration component of the project. The aim is to enhance women's voices in decision making, leadership and peace building through proactively identifying women to participate in capacity-building and knowledge-sharing workshops.

[30] See: Burke et al. (2011)
[31] See: Waqairatu-Waqainabete et al. (2019)

AIMS has introduced several actions and policies to deliver on its GEDSI targets.

- The team built its internal knowledge base on GEDSI through consultations with gender and disability forums.
- The project has integrated external expertise on gender equality and social inclusion into the project management team to ensure ongoing review and advisory support in addressing GEDSI in project implementation and design. Specific information on what this resourcing has achieved was not made available to the evaluation team.
- Women's participation in the ReefCloud Summit was facilitated by engaging a professional facilitator with experience in gender and social inclusion, and an understanding of how gender and social identities can influence power dynamics in group forums.
- Internationally recognised guidelines are used to design the accessibility of the ReefCloud platform.[32]
- AIMS has joined the Science in Australia Gender Equity (SAGE) program and is developing and implementing a comprehensive diversity and equity strategy for staff.

INDIGENOUS PARTICIPATION

The investment is committed to ensuring Indigenous participation in the ReefCloud program by recognising Indigenous knowledge, respecting data privacy and sovereignty, and actively engaging and collaborating with Indigenous communities. Through these efforts, the ReefCloud team aims to create inclusive and culturally appropriate partnerships that contribute to sustainable reef management practices.

AIMS recognise the value of local Indigenous knowledge and the importance of uplifting Indigenous Peoples and First Nations. The ReefCloud program is guided by the principles outlined in the "Aha Honua: Coastal Indigenous People's Declaration," which emphasises the formal recognition of Traditional Knowledge and the mutual learning and respect for different ways of knowing.[33] AIMS acknowledges that Indigenous Peoples possess unique insights into reef management and aims to incorporate their perspectives and expertise into the program's long-term vision.

AIMS acknowledges the sensitivity of certain data and respects the concerns expressed by partners, Traditional Owners, and Indigenous communities regarding data sharing. Partners have indicated hesitation in openly sharing sensitive or confidential datasets, and Indigenous communities desire data sovereignty. Indigenous communities have expressed their desire for case-by-case decision-making regarding data sharing, highlighting the importance of respecting their autonomy and preferences.

The investment actively explores the feasibility of Indigenous engagement in coral reef monitoring in the Pacific, extending the project strategy to include Traditional Owner and Indigenous coral reef managers. The program seeks to collaborate with Indigenous communities, understand their information needs for decision-making, and incorporate their perspectives into research design. A specific role has been established to act as a bridge between AIMS scientists and Traditional Owners, seeking the consent of Traditional Owners for research on Country and encouraging the active involvement of community.

[32] For example: WCAG 2 Overview
[33] See: Aha Honua: Coastal Indigenous People's Declaration

SAFEGUARDS

Safeguards related to Child Protection are included in the risk matrix of the Investment. However, it is unclear whether other safeguards were put in place and whether the necessary management systems and reporting channels have been established.

The prevention of sexual exploitation, abuse, and harassment (PSEAH) in relation to cyber interactions was identified as a priority. Channels are now available to report any PSEAH concerns to the investment staff.

Table 11: Key investment findings (CRIP)

#	Finding
26	***ReefCloud has achieved its objective to become an efficient coral reef monitoring tool****. Users are satisfied with the platform's technical capabilities, and the quality of the artificial intelligence tool is expected to improve as the database expands.*
27	***AIMS continues to develop the ReefCloud tool to increase effectiveness****. AIMS is addressing concerns about data ownership and usage. In addition, it is expanding the platform's scope beyond data analysis to inform national policy. Efforts are underway to integrate data from ReefCloud with contextual information to identify impactful policies and interventions for reef management.*
28	***While the ReefCloud Investment is well managed and delivering high quality outputs, it does not meet the NbS criteria proposed by the evaluation team****. Whilst it can be argued that ReefCloud combines all three of the NbS pillars (biodiversity, livelihoods and climate), it is not "a solution" (i.e., the project is not resolving a priority challenge faced by the target communities). Nevertheless, the evaluation has assessed ReefCloud against all NbS criteria for consistency and to identify lessons for future NbS projects focusing on reef restoration or conservation.*

RECOMMENDATIONS

STRATEGIC LEVEL

Agree on the ambitions for NbS at the strategic level

Recommendation 1: An ambitious definition for NbS should be established to ensure that future investments result in a coherent approach to NbS. This definition can inform a discrete strategy for development interventions in the NbS sector. The definition should encompass the three core components of NbS, namely the promotion of wellbeing for affected communities, climate change adaptation and/or mitigation, and biodiversity enhancement and/or conservation. In addition to these foundational dimensions, DFAT should develop criteria for addressing community identified needs, the minimum viable scale, governance arrangements, and financing mechanisms. The criteria presented in this evaluation report should be considered as a minimum set of requirements. It is advisable to build upon existing frameworks such as the IUCN Global Standards for NbS.[34] DFAT's definition of NbS may need to be further refined and contextualised in alignment with Australia's International Development Policy and the specific priorities of the Australian Government.

Recommendation 2: To operationalise the NbS definition, all NbS terminology, operational criteria, and minimum performance targets should be comprehensively defined. Room to interpret the definition should be reduced by defining the terms in the definition, e.g. biodiversity or climate resilience. The operationalisation of the definition should include success factors like coherence (e.g. obstacles and opportunities in the operating environment) and internal project logic (e.g. better livelihoods are dependent on ecosystem restoration that also provides climate resilience.) The definition should inform operational procedures like selection criteria, progress measurement and minimum performance expectations.

Recommendation 3: The investment ambition should be clearly defined at the proposal and stop-go stages. The ambition should be broadly defined, requiring investments or projects to demonstrate their ability to meet the defined criteria and performance targets. This includes predicting measurable impacts on each of the established criteria within the definition and demonstrating a comprehensive understanding of the operating context, including climate change impacts, biodiversity threats, and regulatory frameworks. The investment ambition should provide clarity regarding long-term financial requirements and strategies, as well as long-term governance structures. It should also include credible timelines for each phase of the project, such as design, pilot, rollout, and implementation. Additionally, each phase should have a testing and learning agenda in place. Funding allocation should be conditional on successfully achieving the targets set for each phase, both at the investment and project levels. These stop-go points, and in particular the pilot phase, serve to ensure a fail-fast approach, allowing resources to be reallocated towards the scaling up and replication of approaches that have proven to be effective.

Complete performance standards for all NbS

Recommendation 4: Establishment of a portfolio level guidance framework that includes baselines, trends, and targets. While the definition of NbS includes qualification standards that outline the necessary characteristics for an initiative to be classified as NbS, the guidance framework should focus on criteria that can be aggregated from project to investment to portfolio levels. To ensure consistency and comparability, a standardised methodology should be employed for measuring performance. Progress should be assessed by comparing it against a baseline or trendline. For example, ecosystem conservation efforts can be measured relative to the trend of ecosystem loss resulting from climate change. This approach allows for a

[34] See: IUCN (2020)

comprehensive evaluation of the effectiveness of NbS initiatives and provides a means to track progress over time. Performance measurements should also take into account the project phase. The outcomes expected might change considerably between the standard implementation phases as defined in the previous recommendation, i.e. design, pilot, rollout, implementation.

Recommendation 5: Collaboratively establish progress and trend measurement methods through consultations with positive outlier projects. The ongoing pilots provide an opportunity to establish a guidance framework, drawing on the experience gained from existing projects and investments. By leveraging this experience, the guidance framework can be informed by practical insights and lessons learned. To ensure the effectiveness and practicality of the measurement methods, it is important to consider past successes and learn from what has proven to work well.

Establish a technical support facility available to all NbS investments

Recommendation 6: Establish a facility to provide technical support to all NbS investments. The most effective modality for this facility will depend on the planned investment in NbS by DFAT, as well as potential synergies with other climate or nature-positive programming initiatives. Because NbS are driven by and address community needs, they can be adapted to diverse development sectors (for instance, livelihoods, health, or education, amongst others). Noting this, the evaluation recommends that sectoral managers are provided targeted technical supports to aid them in the design, piloting, rollout, and implementation of their NbS initiatives. NbS evaluation criteria and reporting should likewise be integrated into sectoral investment monitoring approaches, overseen by sectoral managers, with the support and input of NbS experts from the facility.

Recommendation 7: Cross-cutting specialists provide their input at the design stage in collaboration with NbS experts to achieve an integrated approach. NbS presents significant opportunities for transformative impacts on cross-cutting issues such as GEDSI, localisation, and Indigenous engagement. Additionally, they require robust systems for safeguards and risk management. Investments and projects that have leveraged specific expertise on cross-cutting issues have demonstrated better performance. In addition to making expertise on cross-cutting issues available, the timing of these inputs is crucial. Given the inherent complexity and interdependencies involved, it is important to design and operationalise cross-cutting issues as integral components of the broader dimensions of NbS. Failing to do so may relegate cross-cutting issues to being mere add-ons in project design, potentially limiting their maximum effectiveness.

Recommendation 8: Establish separate funding for expert services to incentivise their utilisation within NbS initiatives. Expertise is mostly needed when challenges to NbS implementation arise. Expertise is particularly crucial when unforeseen challenges arise during NbS implementation. These unexpected expenses are often not accounted for in the budgets of investments and projects. The availability of funds can hinder the timely engagement of expertise during these critical moments. Therefore, the effective utilisation of expertise is more likely when it is funded through a dedicated budget line.

Complementary interventions to the operating context

Recommendation 9: Integrate regular implementation activities with interventions aimed at improving the operating environment of NbS initiatives. By proactively identifying challenges within the operating context, necessary actions to address or mitigate these challenges can be incorporated into project proposals and budgets.

Recommendation 10: Prioritise manageable interventions that address the context of NbS initiatives. As NbS is a relatively new field, there are various challenges that need to be addressed, ranging from scientific issues to governance structures and regulatory frameworks. Therefore, it is important for NbS projects to allocate their resources judiciously and avoid spreading them too thin across the multitude of context-related challenges that may arise. In this context, resources should not be spent on challenges that are excessively large or overly complex, as these may exceed the capacity and scope of the NbS initiative.

INVESTMENT LEVEL

CLIMATE RESILIENT BY NATURE (CRXN)

Recommendations

Recommendation 11: Prioritise investment in improving and replicating successful approaches to date. Conduct a comprehensive review of all projects and sub-projects utilising criteria derived from an ambitious NbS definition. Projects that already meet these criteria should be regarded as valuable learning opportunities and provided with support to enhance their scalability and long-term sustainability. For projects that do not currently meet the criteria but demonstrate the potential to do so, targeted support and expertise should be offered to improve their approach. This support should be accompanied by a clear test and learning agenda, implemented during an extended pilot period. Projects that are unlikely to meet the defined criteria should be phased out, ensuring that resources are efficiently allocated to initiatives with higher potential for achieving desired outcomes.

Recommendation 12: Proactively increase the provision of guidance and expertise. Conducting a project-by-project assessment, as mentioned in Recommendation 11, will help identify areas for improvement in each project. The investment should then facilitate expert inputs to assist in designing and implementing these improvements. The support provided should be practical and tailored to the specific needs of each project. If multiple projects encounter similar challenges, the investment should offer practical guidance, frameworks, or tools that can enhance the quality and effectiveness of all projects. To drive progress, the investment should establish ambitious criteria and targets for NbS as setting higher standards has demonstrated a positive correlation with improved project quality.

Recommendation 13: Enhance the investment's MEL function with a specific focus on project support. The MEL function should involve a comprehensive assessment of on-the-ground progress conducted by diverse experts who collaborate to establish an integrated approach, ensuring that projects meet all NbS criteria, including cross-cutting issues. Regular project level assessments and engagement focused on improvement, will strengthen learning and improve reporting. If a dedicated support facility is not available at a portfolio level, the investment should provide the necessary technical support to fulfill these functions.

PACIFIC BLUE CARBON PROGRAM

Recommendations

Recommendation 14: Document the different phases of implementation as a case study. The various aspects of project conceptualisation, government engagement, pilot design, assessment of the operating context, and site selection could all provide valuable lessons for other investments and projects. This experience could also be used at the portfolio level to develop guidelines and quality criteria.

Recommendation 15: Foster collaboration with other investments and projects. One of the key challenges faced by all investments and projects is the development and testing of approaches to measuring key dimensions of NbS, such as biodiversity, climate vulnerability and community resilience. Collaboration allows for the pooling of resources and the development of shared methodologies, ensuring consistency and comparability in measuring key NbS dimensions.

Recommendation 16: Revision of the investment's governance structure to enhance the integration of different components. A key aspect of this revision should involve designating a single organisation as responsible for the overall outcomes of the investment. This designated entity should possess adequate influence to ensure that all partners contribute effectively towards achieving the desired investment outcomes.

Recommendation 17: Collaborate with the Government of Fiji (GoF) to develop a preliminary plan for the nationwide rollout of NbS, particularly focusing on blue carbon initiatives. The GoF has expressed its commitment to leading the rollout efforts at the national level, making it essential for the investment to engage in joint planning with government. The development of the rollout plan should include further testing and design activities. This includes identifying the necessary scale for a sustainable blue carbon NbS in Fiji, projecting the expected outcomes for the three key NbS pillars, and estimating the required resources and inputs. It is important to work closely with the GoF to secure their commitments regarding implementation approaches, capacity building, and the establishment of governance structures to support the rollout. Exploring potential funding streams to finance the rollout should be a key aspect of the planning process to ensure the availability of the required resources.

THE CORAL REEF INNOVATION PROJECT

Recommendations

Recommendation 18: Establish collaborative partnerships with NbS projects that are focused on reef restoration, particularly if the investment intends to secure ongoing funding from the NbS funding envelop. The monitoring capacity of the investment's tools and resources can provide valuable support to communities engaged in reef conservation and restoration as part of their NbS efforts. Forming a partnership with these projects is crucial to substantiate the justification for funding from the NbS envelope. Without such a partnership, it would be difficult to justify future funding from the NbS funding envelop.

ANNEXES

ANNEX 1: KEY EVALUATION QUESTIONS

This evaluation was guided by the following key evaluation questions (KEQs):

1. **Are the investments achieving their intended outcomes?**

    1.1. To what extent are the investments delivering against their End of Program Outcomes?
    1.2. Are the investments making a difference to climate change resilience, biodiversity protection and livelihoods (noting these criteria are not explicit in all EOPOs)?
    1.3. What are the positive and negative, intended and unintended, consequences associated with the investments?

2. **Are the investments positively influencing Partner Governments in their approaches to climate adaptation and resilience?**

    2.1. To what extent are these projects implemented in partnership with local governments?
    2.2. To what extent are the projects being embedded at the community and institutional levels, and working towards local ownership?
    2.3. To what extent do the investments achieve uplift or engagement of Indigenous Peoples and First Nations? Are GEDSI perspectives and those from other vulnerable groups taken into account adequately?
    2.4. To what extent do the investments align with national and subnational government priorities?
    2.5. Are the investments considered valuable for Posts and their development relationships with partner governments?

3. **Are the investments sustainable, replicable, and scalable?**

    3.1. How are communities achieving new and/or diversified livelihood opportunities through nature-based solutions?
    3.2. Are the nature-based solutions enabling communities to access climate finance and participate in high integrity carbon markets?
    3.3. To what extent is long-term ecological protection and/or restoration being achieved through approaches to support sustainable livelihoods?
    3.4. To what extent are local knowledges being drawn on and applied in project implementation?
    3.5. Which, if any, investments represent greatest potential for delivering against Australia's climate, biodiversity, and development objectives?

4. **What lessons can be carried forward for future programming?**

    4.1. Do the most successful projects share characteristics that can be used as selection criteria for future programs?
    4.2. To what extent can NbS be integrated in existing programs?
    4.3. To what extent can NbS be used to integrate biodiversity and/or climate change into existing programming?
    4.4. How can programs be designed to facilitate blended finance and access to carbon markets?

ANNEX 2: METHODOLOGY

The evaluation used a mixed methods approach, combining a document and literature review, stakeholder interviews, and Pacific Research Methodologies. Field visits to Fiji, Solomon Islands, and Timor-Leste were undertaken and included a minimum of one project site per investment. Findings, conclusions and recommendations are evidence based and have been triangulated where possible. Research was largely qualitative, using quantitative secondary data where available and relevant, in particular looking at results achieved and at data disaggregated by sex, age, ability and group reached.

Document review

The document review included analysis of DFAT policy and strategy documents, program documents including the design documents of each of the three investments, data gathered under the investment's monitoring and evaluation (M&E) systems, and investment monitoring reports (IMRs). The evaluation also reviewed recent publications on NbS globally and other grey literature including reports published by government, regional and multilateral institutions, academic articles, and documents concerning other development programs as relevant. The team prioritised the review of material given the limited time available. Prioritisation was considered according to the following principles:

- **Relevance** – documents, or sections therein, which clearly relate to the key evaluation questions outlined below will receive priority attention.

- **Credibility and objectivity** – within the selection of documents identified for review the team ensured that a range of sources and perspectives were captured, and information was triangulated where possible.

Key informant interviews

Semi-structured interviews were conducted with DFAT staff in Canberra and relevant Posts, partner government representatives, implementing partners, and local stakeholders. Interview guides were used to loosely guide discussions. Interviews were prioritised in a similar manner to that outlined above. The approach of using the same or similar questions with each of these partners allowed the evaluation team to reliably identify consistent themes or perspectives in the responses of different partners.

The questionnaires provided consistency but were not rigid. The semi-structured interviews allowed a level of flexibility that enabled the interviewer to explore emerging themes or unexpected areas of interest as they arose during the interview. Questionnaires were reviewed after preliminary interviews had taken place, allowing emergent issues to be further explored across the remainder of consultations. Where relevant, completed interviews were succeeded with follow-up questions to ensure emerging themes were adequately addressed. Interviews were completed virtually, except during the field visits where face to face meetings were possible. When engaging with local communities Pacific Research Methods were utilised (see below).

Prior to the commencement of interviews, the team outlined the purpose of the evaluation, how the information will be used, and steps that will be taken to maintain confidentiality of responses (such as non-attribution of quotations). It was explained to interviewees that the team abides by DFAT's Ethical Research and Evaluation Guidance Note, and the Australasian Evaluation Society (AES) code of ethics. Informants were made aware that the evaluation's final report and DFAT's management response will be published on the DFAT website.

Field visits

The evaluation team (accompanied by DFAT staff from CSD) spent 19 days conducting field visits to meet with key DFAT staff at post and in-country program partners, and to conduct site visits to each of the three investment sites. Site visits to at least one in-country project per investment were undertaken to conduct interviews, verify information, and gauge community perceptions. The field visit itinerary was developed in partnership with DFAT and program managers, and included travel to Fiji, Solomon Islands, and Timor-Leste. Site selection included prioritisation of First Nations and GEDSI engagement, size, innovation, scalability, effectiveness, and logistical efficiency. The team was accompanied by the Evaluation Manager and other key DFAT staff, as required. An indicative itinerary of field work activities can be found in Annex Four.

Pacific research methodologies

Where appropriate, the evaluation utilised Pacific Research Methodologies (such as Talanoa and Tok Stori) to ensure consultations were contextually and culturally sensitive. This approach provided an important perspective on the appropriateness of the investments provided, capturing unanticipated impacts, and providing insight on the extent to which NbS approaches have affected local communities.

The Talanoa facilitator captured key messages by actively listening to participants, extracting common themes and narratives, and synthesising them into concise and meaningful statements that reflect the collective insights and experiences shared through the discussion.

Where a group Talanoa proved unviable, a series of individual interviews were conducted with local stakeholders to elicit local perspectives, understandings, and experiences.

Triangulation, rigour of evidence and quality assurance

Evidence was triangulated as much as possible to maximise rigour. This means in practice that emerging themes from interviews were tested in subsequent interviews, document review and/or engagement with communities. Major findings emerging from the document review were concluded through multiple sources, as well as being tested in interviews.

Data analysis and synthesis

Quantitative and qualitative data was compiled and cleaned to enable analysis. Qualitative data and analysis provided the bulk of the information for this evaluation. Quantitative data was sourced through existing documentation at the project and investment level. Qualitative data was analysed using an interview matrix, allowing a comparison of stakeholder responses to the same question and identifying trends and outlier opinions.

Sampling

A purposive sampling strategy was utilised to select relevant projects under each investment included in the evaluation, and to select the key contacts who were most knowledgeable regarding the identified projects. Only selected projects were reviewed in depth to maximise the value of information gathered against the time and opportunity cost associated with each interview. The sample was selected in collaboration with DFAT staff and partners who have thorough knowledge of the portfolio of projects.

ANNEX 3: RESPONDENTS INTERVIEWED

Organisation	Project	Country/Region of implementation	Gender
Strategic level			
DFAT - Climate Diplomacy and Development Finance Division	*NbS Portfolio*	*Indo-Pacific*	*F*
DFAT - Climate Diplomacy and Development Finance Division	*NbS Portfolio*	*Indo-Pacific*	*F*
DFAT - Blended Finance Division	*NbS Portfolio*	*Indo-Pacific*	*M*
DFAT - Pacific Climate Negotiations and Oceans Section	*NbS Portfolio*	*Pacific*	*M*
Pacific Blue Carbon Program			
Conservation International	*Blue Carbon Pilot Project in Fiji: Adaptation and Mitigation Outcomes for Resilient Island Communities*	*Pacific*	*M*
Department of Climate Change, Environment, Energy and Water	*Blue Carbon Pilot Project in Fiji: Adaptation and Mitigation Outcomes for Resilient Island Communities*	*Pacific*	*F*
Conservation International Team	*Blue Carbon Pilot Project in Fiji: Adaptation and Mitigation Outcomes for Resilient Island Communities*	*Fiji*	*1 F / 5M*
Community of Barotu	*Blue Carbon Pilot Project in Fiji: Adaptation and Mitigation Outcomes for Resilient Island Communities*	*Fiji*	*9F / 12M*
Coral Reef Innovation Project			
Australian Institute of Marine Science (AIMS)	*ReefCloud*	*Pacific*	*F*
Australian Institute of Marine Science (AIMS)	*ReefCloud*	*Pacific*	*F*
Australian Institute of Marine Science (AIMS)	*ReefCloud*	*Pacific*	*M*

Australian Institute of Marine Science (AIMS)	*ReefCloud*	*Pacific*	*F*
Climate Resilient by Nature (CRxN)			
DFAT post-Thailand	*CRxN Mekong Expansion*	*Mekong*	*M*
DFAT post-Thailand	*CRxN Mekong Expansion*	*Mekong*	*F*
DFAT post-Laos	*CRxN Mekong Expansion (Laos)*	*Laos*	*F*
Live & Learn Pacific Network	*Nature-based Solutions for Forests and People*	*PNG, Vanuatu, Fiji*	*M*
WWF-Australia	*Program level*	*Indo-Pacific*	*M*
WWF-Australia	*Program level*	*Indo-Pacific*	*F*
WWF-Australia	*Program level*	*Indo-Pacific*	*F*
Action Aid	*Ni-Vanuatu Women Leading Solutions to Climate Change*	*Vanuatu*	*F*
Action Aid	*Ni-Vanuatu Women Leading Solutions to Climate Change*	*Vanuatu*	*F*
Action Aid	*Ni-Vanuatu Women Leading Solutions to Climate Change*	*Vanuatu*	*F*
Matanataki	*Nature-Positive Business for Climate Critical Ecosystems*	*Fiji, Solomon Islands*	*F*
Matanataki	*Nature-Positive Business for Climate Critical Ecosystems*	*Fiji, Solomon Islands*	*M*
Matanataki	*Nature-Positive Business for Climate Critical Ecosystems*	*Fiji, Solomon Islands*	*M*
Kyeema Foundation	*Community-led coral reef restoration: Community, Corals, and Chickens*	*Fiji, PNG, Samoa*	*F*
Kyeema Foundation	*Community-led coral reef restoration: Community, Corals, and Chickens*	*Fiji, PNG, Samoa*	*F*
Kyeema Foundation	*Community-led coral reef restoration: Community, Corals, and Chickens*	*Fiji, PNG, Samoa*	*F*
Aboriginal Carbon Foundation	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*F*
Aboriginal Carbon Foundation	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*M*
Nakau	*Nature-based Solutions for Forests and People*	*Fiji, PNG, Vanuatu*	*M*
Nakau	*Nature-based Solutions for Forests and People*	*Fiji, PNG, Vanuatu*	*M*

World Vision Team	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Solomon Islands*	*1F / 3M*
World Vision Community of Sulagwahu	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Solomon Islands*	*8F / 15M*
World Vision Community of A'ama	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Solomon Islands*	*17F / 28M*
World Vision Community of Kwene	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Solomon Islands*	*7F / 9M*
World Vision Community of Manakwai	*Farmer Managed Natural Regeneration (FMNR) of mangroves and tropical forests*	*Solomon Islands*	*7F / 12M*
Save The Children Team	*Sustainable Community Climate Resilience through Nature-based Solutions in Papua New Guinea and Solomon Islands*	*Solomon Islands*	*1F / 4M*
Save The Children Community of One Para	*Sustainable Community Climate Resilience through Nature-based Solutions in Papua New Guinea and Solomon Islands*	*Solomon Islands*	*4M*
Save The Children Community of Aruaru-Hauhari	*Sustainable Community Climate Resilience through Nature-based Solutions in Papua New Guinea and Solomon Islands*	*Solomon Islands*	*6F /12M*
WWF Pacific Team	*Nature-Positive Business for Climate Critical Ecosystems (NPBCCE)*	*Fiji*	*4F / 2M*
CRS / Caritas Team	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*2F / 1M*
CRS / Caritas Community of Bibileo	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*7F / 11M*
CRS / Caritas Community of Uaguia	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*8F / 14M*
CRS / Caritas Community of Bualale	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*7F / 12M*
CRS / Caritas Community of Macalaco	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*9F / 13M*
CRS / Caritas Gov of Timor-Leste National Designated Authority	*Transforming Rural Lives through Adaptation and Carbon Capture (TRACC) Project*	*Timor-Leste*	*2M*

ANNEX 4: FIELD VISIT ITINERARY

Date	Country	Itinerary
5 November (Sunday)	*Solomon Islands*	*Arrive Honiara*
6 November (Monday)	*Solomon Islands*	*AM: Honiara to Auki* *PM: Meet World Vision Solomon Islands*
7 November (Tuesday)	*Solomon Islands*	*Site visit World Vision project.*
8 November (Wednesday)	*Solomon Islands*	*AM: Travel from Auki to One Para community by boat.* *2/3 hours travelling time.* *PM: Meet with One Para community members.* *Travel from One Para community to One community (MMGB site) by boat.* *Overnight in One community.*
9 November (Thursday)	*Solomon Islands*	*AM: Travel from One Para community to Aruaru-Hauhari community.* *Meet with community.* *PM: Travel from Aruaru-Hauhari to Masupa.* *Overnight at Masupa community.*
10 November (Friday)	*Solomon Islands*	*Travel from Masupa to Rokera for return flight to Honiara.* *Meet WWF-Solomon Islands.*
11 November (Saturday)	*Solomon Islands to Fiji*	*AM: Auki to Honiara by ferry (8am)* *PM: Honiara to Nadi (3:05pm), stay overnight*
12 November (Sunday)	*Fiji*	*Travel to Rakiraki.*
13 November (Monday)	*Fiji*	*AM: Conservation International site visit Navitilevu Bay in Ra Province* *PM: travel to Suva.*
14 November (Tuesday)	*Fiji*	*Locked down due to Cyclone Mal*
15 November (Wednesday)	*Fiji*	*Locked down due to Cyclone Mal*

16 November (Thursday)	*Fiji*	*AM-PM: Meet with WWF-Pacific team in Suva*
17 November (Friday)	*Fiji to Australia*	*PM: Travel to Nadi for onward flight to Sydney*
18 November (Saturday)	*Australia to Timor-Leste*	*Arrive Dili*
19 November (Sunday)	*Timor-Leste*	*Rest day*
20 November (Monday)	*Timor-Leste*	*Meet Caritas, Catholic Relief Service in Dili, travel to Viqueque (depart 11am or earlier)*
21 November (Tuesday)	*Timor-Leste*	*AM: community visits Bibileo, onwards to Viqeueue for lunch.* *PM: community visit in Uaguia. Travel to Baucau to stay overnight.*
22 November (Wednesday)	*Timor-Leste*	*AM: community visits in Bualale.* *PM: community visit in Macalaco, return to Baucau.*
23 November (Thursday)	*Timor-Leste*	*AM: Return Dili from Baucau (minimum 3 hours' drive), debrief with Dili Post before flight.* *Meeting with the Nationally Designated Authority for Carbon Project of the Government of Timor-Leste* *PM: Dili to Darwin*

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