ADAPTATION FUND

AFB/PPRC.37/Inf.34
16 March 2026

Adaptation Fund Board
Project and Programme Review Committee
Thirty-seventh Meeting
Bonn, Germany, 7-8 April 2026

PROPOSAL FOR
NIUE, TONGA, TUVALU

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regional Project Concept

Countries/Region: Niue, Tonga, Tuvalu
Project Title: Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Niue, Tonga and Tuvalu
Thematic Focal Area: Ecosystem-based Adaptation
Implementing Entity: Secretariat of the Pacific Regional Environment Programme
Executing Entities: SPREP in coordination with national environment and climate change agencies in Niue, Tonga and Tuvalu
AF Project ID:
IE Project ID:
Requested Financing from Adaptation Fund (US Dollars): 26,956,626
Reviewer and contact person: UnaMay Gordon
Co-reviewer(s): Alexandra Munoz
IE Contact Person:

Technical Summary	The project "Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Niue, Tonga and Tuvalu" aims to enhance the climate resilience of ecosystems and communities in Niue, Tonga, and Tuvalu through innovative, regionally coordinated invasive species management that safeguards vital ecosystem services. This will be done through the four components below: Component 1: Biosecurity & Early Detection Rapid Response (EDRR) (USD 2,439,098). Component 2: Community-Based Management & Restoration (USD3,203,115). Component 3: Large-scale transformative management (USD 11,652,126). Component 4: Regional Cooperation & Knowledge Management (USD 4,760,775). Requested financing overview: Project/Programme Execution Cost: USD 2,451,000 Total Project/Programme Cost: USD 24,506,115

	Implementing Fee: USD 2,450,511 Financing Requested: USD 26,956,626 The proposal does not include a request for a project formulation grant. The initial technical review raises several issues, such as the gaps in the Theory of Change, lack of justification for serving as IE and EE, articulation of benefits as is discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review. *Please be advised that the findings of the AFB Secretariat's review of the funding proposal(s) do not reflect, indicate, or prejudge the outcome of the reaccreditation process currently underway. The Implementing Entity (IE) shall acknowledge that the funding proposal will not be approved by the Board if the IE's accreditation has expired, and reaccreditation has not been achieved at the time of the Board's decision. Notwithstanding this potential risk, the IE has elected to proceed with the development of the funding proposal.*
Date	February 17, 2026

Review Criteria	**Questions**	**First Technical Review Comments February 17, 2026**
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol and/or the Paris Agreement?	**Yes.**
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	**Yes.** The three island nations are at the forefront of climate change and are increasingly under the threat of rising mean temperatures, warming and rising seas, ocean acidification and deoxygenation, degradation of protective coral reefs, unpredictable and more extreme rainfall, more intense tropical cyclones and flooding, and prolonged droughts.

Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	**No.** The endorsement letters from Tonga and Tuvalu were signed by the correct designated authority: • **Tonga:** 24 February 2025, signed by Mr. Sione Pulotu 'Akau'ola • **Tuvalu:** 27 November 2025, signed by D.A., Dr. Tufoua Panapa However, the letter from Niue is signed as follows: • **Niue:** 23 December 2025 signed by the Prime Minister and not the Designated Authority Mr. Sauni Tongatule **CAR1**: Please replace the endorsement letter from Niue with one signed by the AF Designated Authority, Mr. Sauni Tongatule.
	2. Does the length of the proposal amount to no more than fifty (50) pages for the project/programme concept, including its annexes?	**No.** The proposal is 64 pages long, excluding annexes. The annexes are 109 pages long. **CAR2**: Please revise accordingly to reduce the total number of pages to 50 as per AF's guidelines. This limit includes annexes.

	3. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?	**Yes.** **However, further information is required.** Project/Programme Objectives (pages 21-26) and Part II, Section A (pages 27-35). The regional project supports concrete activities to assist participating countries but is articulated as conservation measures and does not clearly make the linkage to human vulnerability. The outputs are not clearly articulated as discrete and verifiable or measurable but instead describes activities. The proposal clearly outlines the added value to the regional approach highlighting four fundamental reality of the countries: synchronized threats, transboundary pathways, shared capacity constraints and regional diffusion multiplier whereby solutions in one country can benefit others. The Theory of Change diagram should be relooked as it is missing the Outputs, Activities, Assumptions and Risks. There appears to be some misalignment with Table 4. **CR1**: Please ensure that the Outputs and Activities are included in the Theory of Change diagram, along with risks and assumptions. Additionally, please rephrase the outputs – noting that outputs generally include a noun that is qualified by a verb describing positive change. Outputs should also be SMART - specific, measurable, achievable, relevant and time-bound. **CR2**: Please review Table 4 “Project components, expected outcomes and outputs” and ensure the outcomes in Table 4 are aligned with the outcomes and outs in Part II, Section A, as well as the Theory of Change.

		CR3: Please revise the Theory of Change and consider having one component per specific objective. This will strengthen the vertical logic of the proposed project. **CR4:** Please include in Figure 1, Theory of Change, the following: • The relationship arrows of Component 4 to outcomes, and from outcomes to specific Objectives. • Proposed project assumptions. • The Theory of change should start by stating the main problem that this programme aims to address. **CR5:** Please revise the objectives and: • rephrase them, as they are currently too broad and reflect overall results rather than specific actions. Ensure that the revised objectives focus on concrete actions and include clear specifications, such as scope and/or location. • Ensure that the outputs under each objective are aligned with the intended purpose of each specific objective. The objectives should be clearly differentiated and should not overlap. **CR6:** Please include targets for each output and outcome of the proposed project under Part II.A. **CR7:** Please provide order-of-magnitude estimates for each component to better understand and justify why Component 3 accounts for nearly 43% of the Amount of Financing Requested.

	4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	**Yes.** **However further information is needed.** Part II, Section C (pages 38-40). The proposal mentions benefits in all three areas (economic, social and environmental) but the estimated benefits are not quantified. As per Annex D, a Gender Equality, Disability, and Social Inclusion (GEDSI) analysis has been conducted, revealing the differentiated impacts of invasive species. It highlights how the analysis informs project design as per page 39. It provides national level data regarding labour, economic participation and disability statistics. **CAR3**: Please ensure the proposal includes a summary of the gender analysis determine the different needs, capabilities, roles and knowledge resources of women and men, and/or identify how changing gender dynamics might drive lasting change*. It should not only be listed in the Annex.* **CR8:** Please provide information on the project's overall beneficiaries, including both direct and indirect beneficiaries, disaggregated by gender, and identify the specific vulnerable groups (e.g., women, indigenous peoples) that will benefit from the project. In particular, indicate the number of PWDs that will be positively impacted by the project. **CR9**: Please indicate whether there are any potential negative impacts or risks of maladaptation associated with the proposed project. **CR10**: Please provide quantitative estimates of the economic, social, and environmental benefits, accompanied by a brief explanation of the methodology used to calculate them. If precise figures are not available, please include proxy estimates.

		CR11: Please include a sound justification of the benefits of a regional approach to addressing the identified main problem, in comparison with a single approach under Part II, Section C.
	5. Is the project / programme cost-effective and does the regional approach support cost-effectiveness?	**Yes.** **However, further information is required.** As per Part II, Section D (page 41), the concept justifies that the approach is a highly cost-effective investment in climate resilience, noting the investment supports avoided losses. It clearly shows the comparison of the project approach to the alternative approaches The cost effectiveness is demonstrated from a sustainability point of view as it highlights preventive action which eliminates recurrent management costs and focuses on early detection and rapid response. **CR12**: Some clarity is required regarding the scope as the proposal seeks to address many invasive species under the initiative. **CR13:** Kindly include a table listing under Part II, Section D, to show the comparison with BAU potential adaptation interventions implemented at different levels, including the community level. Where possible, provide quantitative estimates to support the comparison. Additionally, please highlight the sustainability of the proposed interventions. **CR14:** Please strengthen the adaptation rationale to better demonstrate the cost-effectiveness of the proposed project.

	6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.	**Yes.** As per Part II, Section E (pages 42-44, Table 6), the concept links project components to key policies within each country such as NAP, NDC, NSDS, and NBSAP.
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	**No.** As per Part II, Section F (pages 44-48), the proposal mentions that it would adhere to the Environmental Impact Assessments (EIAs) in each country and any other sector-specific regulations. However, there are some gaps in information on compliance. **CR15**: Please provide a comprehensive list of national and regional technical standards for which the project needs to comply with. For each regional/national standard please ensure that the following is highlighted: • The **scope and relevance** should be described specifically. • How it **relates** to the proposed project, clearly identifying the outputs/activities that will require compliance with the identified. • The project's **compliance status**. If compliance is required, outline the steps needed to achieve it.

	8. Is there duplication of project / programme with other funding sources?	**Unsure.** As per Part II, Section G (pages 48-49), the project aims to fill a critical operational gap between past foundational work and future large-scale investments. However, there is not a comprehensive list of regional and national projects. **CR16**: Please provide in tabular format a comprehensive list of all existing, relevant and overlapping projects/programmes which will complement the projects. This should include regional and national projects. For each project/programme, the table should include: i. Project title and funding sources, ii. Main project interventions, iii. Timeline and specific location within the country, iv. Target population, v. Implementing entity, vi. Lessons learned, vii. Overlaps and synergies with the proposed project. **CR17:** Please include a clear justification for no duplication (e.g. by indicating the distinct geographic locations and/or types of interventions) for each corresponding related project identified.

	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	**Yes.** **However, further information is required.** As per Part II, Section H (pages 49-50), the project has a dedicated component for knowledge management (Component 4). This component is dedicated to learning and sharing, both between Niue, Tonga and Tuvalu and more broadly with other Pacific Countries and territories. The project will fund the creation of products, including technical "how-to" guides for practitioners (e.g., "A Guide to Community-Based Pig Management in the Pacific"); policy briefs for government decision-makers; and engaging case studies and short videos for community audiences. It will use the existing Battler Resource Base-Pacific's invasive species knowledge repository and the Pacific Invasives Learning Network to provide essential technical infrastructure and knowledge exchange for effective invasive species management in the Pacific region. Fostering a Regional Community of Practice will also be key. Additionally adaptive management will be supported through structured processes such as quarterly learning reviews, after-action assessments, real-time strategy adjustments, and feedback loops. **CAR4:** Kindly clarify or include details to ensure the following information is provided: • The entity will be responsible for tracking the experiences gained, how this will be done, and when the tracking periodicity. • The resources, if any, needed to sustain lessons learned after the project ends. • Provide detailed information on the learning and knowledge-sharing activities to be conducted, including budgeting and all necessary arrangements for their implementation. For example, are there any

		agreements with public institutions to carry out these activities? • Explain how the knowledge generated will be sustained after the project concludes and what arrangements will be needed to support these actions. • Describe the feedback mechanisms in place to evaluate and refine the training materials and capacity-building activities to ensure they are effective and impactful.

	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Yes.** **However further information is required.** As per Part II, Section I (pages 50-52), a wide range of consultations including GEDSI focused engagement were facilitated. Eleven GEDSI community and ministry representatives, alongside the PRISMSS GEDSI and Traditional Knowledge Coordinator, analysed gendered and social impacts of invasive species and climate change, documented women and youth led initiatives, and identified training, accessibility and communication needs. Direct inputs from local government bodies, island councils, traditional authorities, women's groups, youth groups and community-based organisations across the three countries are well summarised in Annex A. **CR18**: Despite details in the Annex, please ensure the consultations are documented concisely in Section I. Please prepare a table that provides a comprehensive list of the stakeholder consultations convened in each of the three countries. The table would include i. The total number of attendees, disaggregated by sex, with background information to verify whether marginalized and vulnerable groups have been consulted. Please ensure the names/titles of the stakeholders are also highlighted. ii. A summary of the subjects/issues discussed and any agreements reached. iii. Indicate how their interests have been incorporated in the project, including how gender and other vulnerable group considerations were addressed. iv. Clearly indicate participation of stakeholders with gender remit for each participating country.

	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Unsure.** As per Part II, Section J (paragraph 4), the activities that support the outputs of the project have been designed so that they can deliver concrete adaptation outcomes without additional funding from other donors. The Adaptation Fund covers the cost required to secure long-term resilience benefits, which will reduce future pressures on constrained development or disaster-recovery budgets. **CR19**: Please clarify whether the proposed project will require funding from other sources. Additionally, please confirm that the project's results using AF resources will be achieved irrespective of any additional financing that may arise.
	12. Is the project / program aligned with AF's results framework?	**Yes.** **However, some revisions are required.** Part III, Table 8 (pages 59-62). The alignment of the proposed project with the Adaptation Fund Results Framework is presented, considering outcomes and outputs for each component. However, some revisions to the content and format are required. **CR20:** Please ensure the following information is included in Table 8: • All project's outputs and outcomes indicators are SMART. • Please ensure consistency between the AF outcome, outcome indicators, output and output indicators according to the Adaptation Fund Strategic Results Framework outlined in the updated AF Results Framework (Nov 2025).

		• Update the table using the format provided in the updated AF Results Framework, and complete it following the instructions in the same document. The bottom part of the Table should include the information on the project's outcomes; therefore, the grant amounts should correspond to each component. • Following the previous point, please include the Grant Amount for each project objective. • Please avoid using decimals in the figures. • Please ensure figures are consistent. For example, the sum of the Grant Amounts for Project Outcomes 1 and 2 is bigger than the sum of Components 1 and 2. • Please consider reorganizing the Theory of Change to avoid shared outcomes between specific objectives.
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Yes.** Part II, Section K (pages 53-55). The project's sustainability strategy is built on four interconnected dimensions, institutional, financial, environmental, and social, that together ensure adaptation benefits continue long after the seven-year implementation period. From an institutional perspective, activities are aligned to the existing national operational plans and budgetary frameworks of Tonga, Niue, and Tuvalu, ensuring that interventions directly contribute to national priorities and can be integrated into ongoing government work programmes. Long-term financing will be secured by integrating operational costs into national budgets and establishing innovative financing mechanisms, such as Conservation Trust Funds and biosecurity levies on international arrivals, to ensure continuous support for invasive species management after project completion.

		CR21: Have there already been discussions on biosecurity levies and the use of funds collected? **CR22**: Kindly explain clearly how replication and scaling up of the proposed project activities and benefits will be achieved. Are there any existing Conservation Funds that can be used in each country? Considerations should be made for mobilising resources for the fund e.g. A resource mobilisation strategy should be developed with commitment from countries and partners.
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**No.** As per Part II, Section L (pages 55-57), the proposal identifies some environmental and social impacts/risks. The checklist against the 15 ESP principles were not completed in the required format. The project's overall risk rating is classified as Category B. **CR23**: Please complete the checklist of environmental and social risks against each of the 15 ESP principles in the tabular format given as follows: • Indicate whether the principle is rated as a 'no risk, low risk, medium risk or high risk' • Identify the magnitude of the risks and impacts. Risk should describe as: "There is a risk …." and should be accompanied by mitigation plans – especially for Principle 1,4 and 6. • Ensure that risks should also cover all potential direct, indirect, transboundary, and cumulative impacts and risks that could result from the proposed project/programme. • Kindly leave a check mark in the second column 'No further assessment required for compliance' if no further assessment, please leave column blank.

		CAR5: Please note for the checklist that Adaptation Fund Principles 1, 4 and 6 always apply. For more information, please visit: AF's ESP guidance and Environmental and Social Policy . **CR24**: Please also ensure that these categories reflect AF ESP and not necessarily, nor only the IE policy. **CR25**: Please elaborate on the gender-specific cultural and/or legal context in which the project/programme will operate.
	15. Does the project promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms?	**Yes**. As per Part II, Section B (pages 36-37), the project is rolling out innovative practices, tools and technologies that have been utilized in other countries. The project is grounded in innovations in terms of ecological and methodological approaches, technological, social and institutional. This pioneering of new applications, methodologies, and social processes that make adaptation more effective, efficient, and sustainable. Furthermore, innovation value lies in the integration of systematic integration into climate-resilient biosecurity, community-led restoration and early detection systems across multiple island context. For example, the project pioneers the development and deployment of new climate-adapted biological control agents, as well as an Early Detection-Rapid Response system dedicated to tackling outbreaks of marine invasive species – the first of its kind in the Pacific. **CR26:** Please share clear references demonstrating where these approaches have already been successfully applied and the outcome. For example, please clarify regarding community-based pig management.

Resource Availability	1. Is the requested project / programme funding within the funding windows of the regional projects/programmes?	**Yes.** T
	2. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 10 per cent of the project/programme for implementing entity (IE) fees and at or below 10 per cent of the project/programme cost for the execution costs?	**No.** There appears to be discrepancy in the total. The proposal states the Programme Costs is USD 22,055,115. However, the correct figure is USD 22,055,114. The figures do not add up, specifically the total amount requested, vs. components table. The figures in Table 8 are not rounded to a whole number. Kindly note that the IE is serving also as the EE. No PFG request is included in submission. **CAR6**: Please provide a sound justification for SPREP as the IE is also serving as the EE. *Justify IE involvement as EE in line with Decision B.18/30 "written request by recipient country, involving designated authorities" also see https://www.adaptation-fund.org/document/proposed-adjustments-to-implementation-fees-and-execution-costs/* Please note if well-justified, the cap for IE is 1.5% of the sum of components/ outputs that they will execute. Therefore, the cap should be adjusted to USD 335,864. **CR27**: Please review the AF Results Framework Table to ensure figures match figures in Components table. Please ensure all figures are rounded to whole numbers (no decimals).
Eligibility of IE	1. Is the project/programme submitted through an eligible Multilateral or Regional Implementing Entity that has been accredited by the Board?	**No.** Secretariat of the Pacific Regional Environment Programme is an eligible Regional Implementing Entity (RIE), currently, under Re-accreditation process.

		Last accreditation expiration date: 14 March 2024. *Please be advised that the findings of the AFB Secretariat's review of the funding proposal(s) do not reflect, indicate, or prejudge the outcome of the reaccreditation process currently underway. The Implementing Entity (IE) shall acknowledge that the funding proposal will not be approved by the Board if the IE's accreditation has expired, and reaccreditation has not been achieved at the time of the Board's decision. Notwithstanding this potential risk, the IE has elected to proceed with the development of the funding proposal.*
Implementation Arrangements	1. Is there adequate arrangement for project / programme management at the regional and national level, including coordination arrangements within countries and among them? Has the potential to partner with national institutions, and when possible, national implementing entities (NIEs), been considered, and included in the management arrangements?	n/a at concept stage
	2. Are there measures for financial and project/programme risk management?	n/a at concept stage
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund? Proponents are encouraged to refer to the Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.	n/a at concept stage
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a at concept stage
	5. Is an explanation and a breakdown of the execution costs included?	n/a at concept stage

	6. Is a detailed budget including budget notes included?	n/a at concept stage
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a at concept stage
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a at concept stage
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a at concept stage
	10. Is a disbursement schedule with time-bound milestones included?	n/a at concept stage

ADAPTATION FUND

CONCEPT NOTE FOR REGIONAL PROJECT

PART I: PROJECT INFORMATION

Title of Project: Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Niue, Tonga, and Tuvalu

Countries: Niue, Tonga, Tuvalu

Thematic Focal Area[1]: Ecosystem-based Adaptation (EbA)

Type of Implementing Entity: Multilateral Implementing Entity (MIE)

Implementing Entity: Secretariat of the Pacific Regional Environment Programme

Executing Entities: SPREP in coordination with national environment and climate change agencies in Niue, Tonga, and Tuvalu.

Amount of Financing Requested: USD 26,956,626

Project Formulation Grant Request: Yes ☐ No ☒

Amount of Requested financing for PFG: none.

Letters of Endorsement (LOE) signed for all countries: Yes ☒ No ☐

Stage of Submission: Resubmission (previously submitted at pre-concept stage)

☒This proposal has been submitted before including at a different stage (pre-concept, concept)

In case of a resubmission, please indicate the last submission date: 05/19/2025.

[1] Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

List of Acronyms	
AF	Adaptation Fund
DPO	Disabled Persons Organization
EbA	Ecosystem-based Adaptation
EDRR	Early Detection/Rapid Response
ESP	Environmental and Social Policy (of the Adaptation Fund)
FPIC	Free, Prior, and Informed Consent
FRDP	Framework for Resilient Development in the Pacific
GCF	Green Climate Fund
GEF	Global Environment Facility
GESI	Gender Equality and Social Inclusion
GIS	Geographic Information System
IS	Invasive Species
ILO	International Labour Organization
ISPM	International Standard for Phytosanitary Measures
IUCN	International Union for Conservation of Nature
JNAP	Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management
M&E	Monitoring and Evaluation
MEIDECC	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (Tonga)
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contribution
NENS	Natural Enemies - Natural Solutions
NISSAP	National Invasive Species Strategy and Action Plan
NIWA	National Institute of Water and Atmospheric Research
PFP	Predator Free Pacific
PICs	Pacific Island Countries
PMU	Project Management Unit
POI	Protect Our Islands
POMA	Protect Our Marine Areas
PPE	Personal Protective Equipment
PRISMSS	Pacific Regional Invasive Species Management Support Service
PWDs	Persons with Disabilities
RERC	Resilient Ecosystems - Resilient Communities
RIE	Regional Implementing Entity
SPREP	Secretariat of the Pacific Regional Environment Programme
TEK	Traditional Ecological Knowledge
WOW	War on Weeds

Project Background and Context:

1. The climate change and invasive species nexus

The Pacific Island Countries (PICs) of Niue, Tonga, and Tuvalu are facing a synergistic crisis where climate change impacts and Invasive Species (IS) converge, creating a destructive feedback loop that erodes ecosystem resilience and threatens the livelihoods of approximately 115,000 people[i]. Climate change is fundamentally altering the dynamics of biological invasions through extreme weather events shifting environmental conditions to favour non-native species, and stressing native ecosystems.[ii] In turn, invasive species, such as rats, feral pigs and invasive plants - outcompete native flora and fauna, degrade agricultural lands, and accelerate ecosystem degradation. This diminishes the capacity of natural systems to provide critical services like coastal protection, freshwater retention, and food security, thereby increasing the vulnerability of Pacific communities to climate change and disasters.

The adaptation problem caused by climate change and invasive species can be broken down into two subcategories, respectively (i) the degradation of terrestrial and marine ecosystem functions and (ii) the threat to food security.

The degradation of terrestrial ecosystems, such as native forests, increases the vulnerability to climate and natural extreme events. In particular, the degradation of native forest seriously affects the soil structure and stability, increasing soil erosion in the context of extreme rainfall and tropical cyclones and the intensity is exacerbated by climate change. In the context of volcanic islands characterised with steep terrain, such as Vava'u in Tonga, extreme events can lead to significant damage from landslides or fallen trees. For low-lying atolls, as in Tuvalu or in the Ha'apai archipelago in Tonga, the degradation of coastal plant cover accelerates coastal erosion, which is an existential threat for communities faced with sea-level rise and more intense tropical storms. This increased run off is also reducing soil fertility. On an elevated atoll such as Niue, where the soils are very shallow, soil degradation can rapidly lead to losing the possibility to grow crops. Finally, such increase in sediment flows degrade coral reefs on top of which they accumulate.

The degradation of native vegetation with deep root systems is generally caused by interactive impacts from several invasive alien species. Invasive rats and feral pigs have an impact on the regeneration of the forest through the depredation of seeds and seedlings, as well as through damage caused to roots. On the other end, invasive plants can smother and outcompete native trees, which leads to the formation of monospecific bushes, oftentimes characterised by shallow root systems unable to provide significant stability to soils.

In turn, climate change has been evidenced to favour invasive species. On the one hand, native changing temperature and rain patterns. Secondly, damage from extreme climate events can create open areas in forests that are favourable for the outburst of invasive weeds. In Niue for example, the tropical cyclone Heta was responsible for significant degradation of forests with 60% of trees suffering some damage and thus assisted invasive species to invade intact forest areas.[iii]

The degradation of marine ecosystem, and more particularly of coral reefs, is a critical adaptation problem for all three countries in the light of the numerous and existential ecosystem services they provide. Firstly, they form a protective barrier against coastal erosion and tropical storms. Healthy reef ecosystems are also a nursery for fish populations and seafood that play a central role for Pacific Island communities, and host very distinct marine biodiversity including species of totemic cultural value and socio-economic value.

In a context where climate change threatens the future of coral reef ecosystems through sea-level rise, increased intensity of tropical storms, increase in sea surface temperatures and ocean acidification, invasive species represent additional stressors. Among these stressors, some marine invasive species directly damage the corals, such as *Drupella* snails that are a high concern in Niue. These marine snails that feed on damaged coral tissue aggregate on partially damaged and healthy corals following climate driven disturbances, such as bleaching events and tropical cyclones, heavily increasing damage and degradation to coral reefs.[iv] The perturbation of nutrient cycles relying on seabirds and turtles' populations is another key local stressor for reef ecosystems. When abundant, seabirds feeding in the open ocean transport large quantities of nutrients onto islands, enhancing the productivity surrounding reef ecosystems. Invasive mammalian predators, rats in particular, are a primary cause of collapse of turtles and seabirds' populations, disrupting the regenerative capacity of corals.

Finally, invasive species threaten food security of Pacific Island communities, adding up to the negative impacts of climate change by further undermining the productivity of marine and terrestrial ecosystems, but also by directly reducing crop yields, damaging food in storage and removing natural resources. With the decreasing availability of local food sources, from fisheries, agriculture or harvesting, the increased dependency on food imports contributes to the deterioration of living standards, also leading to a higher incidence of non-communicable diseases.

1.1. Regional Climate Risk Context

The three countries of the project are Small Island Developing States (SIDS) that are at the forefront of climate change and disproportionately affected compared to continental landmasses. They are increasingly under the threat of similar climate challenges, such as rising mean temperatures, warming and rising seas, ocean acidification and deoxygenation, degradation of protective coral reefs, unpredictable and more extreme rainfall, more intense tropical cyclones and flooding, and prolonged droughts. The following section provides with latest scientific data describing the anticipated evolution of chronic and acute climate risks in Niue, Tonga and Tuvalu. It also highlights the key risks and potential impacts in relation to invasive species, based on their description in the countries' National Invasive Species Strategy and Action Plans[28].

Rising Temperatures and Heatwaves

Across the Pacific, rising temperatures and the increasing frequency and intensity of heatwaves are major concerns. By 2090, annual mean air surface temperatures are projected to rise by 2.5 to 3.0°C under high-emission scenarios (SSP5-8.5)[v]. Significant increases in the occurrence of heatwaves, extremely hot days, and warm nights are expected across Tuvalu, Tonga, and Niue, with potential impacts on human health, agricultural productivity, and the development of conditions favourable to new invasive species.

Accelerating Sea-Level Rise

Sea-level rise rates reach 4-6 mm per year across the Pacific region, substantially above the global average of 3.2 mm per year[4]. Projections indicate 0.4-0.8 meters of sea-level rise by 2090 under moderate emissions scenarios, threatening coastal ecosystems. Sea-level rise directly reduces land area available for agriculture and settlements while creating saltwater intrusion that stresses native coastal vegetation, enabling invasive species adapted to saline conditions to expand inland. On low-lying atoll islands, saltwater intrusions in the freshwater lens dramatically undermines water security by spoiling a key reserve used for human consumption and irrigation.

Intensifying Tropical Cyclones

Since 2015, the Pacific region has experienced five Category 4-5 tropical cyclones: Cyclone Pam (2015), Cyclone Gita (2018), Cyclone Harold (2020), and Cyclone Judy (2023), each causing widespread destruction[vi]. The impacts of extreme climate events have been evidenced to be aggravated by ecosystem degradation caused by invasive species. On volcanic islands, invasive and shallow-rooted trees have been witnessed to be uprooted by cyclones, consequently damming rivers and causing flash flooding that damaged houses and other infrastructure.[vii] On low-lying atoll islands, the degradation of coastal vegetation and coral reefs accelerates coastal erosion from tropical cyclones. Conversely, cyclones physically disperse invasive species propagules between islands, damage forest canopy creating establishment opportunities for invasive vines, and stress native vegetation reducing competitive resistance against invasives.

Increasing Drought Frequency and Severity

Changing precipitation patterns bring more frequent and severe droughts. Tuvalu experienced severe drought requiring emergency water supplies in 2011, 2016, and 2023, a marked increase from historical patterns[viii]. While climate projections indicate a decline in drought frequency, their intensity is expected to increase. Droughts stress native vegetation reducing competitive ability, while many climate-adapted invasive species maintain growth during dry periods through physiological adaptations. Invasive species on the other hand have been evidenced to exacerbate water stress. Invasive weeds with superficial root systems for instance have been evidenced to lead to increased runoff and soil erosion, reducing water infiltration. In Tuvalu, water security is further threatened by the contamination of water cisterns used for rainwater collection by invasive cane toads (*Rhinella Marina*).

Ocean Warming and Coral Bleaching

Ocean warming drives coral bleaching events every 5-7 year, dramatically increased from historical return periods of 20-25 years[ix]. Marine heatwaves in 2016, 2019-2020, and 2024 caused mass bleaching across Pacific reefs, with mortality rates reaching 20-40% at surveyed sites in the program countries. Projections indicate potentially annual bleaching by 2040-2050 under high-emissions scenarios, threatening existential risks to reef-dependent communities[3]. Coral bleaching is aggravated by the expected increase in ocean acidification with the saturation state of critical carbonate minerals, such as aragonite, projected to decrease below the threshold for sustaining healthy coral reefs under medium and high emission scenarios[21]. Invasive marine species can exacerbate the impact of bleaching events and prevent coral recovery by aggregating on surviving colonies, which they consume, delaying recovery.[x]

Table 1 summarises country-specific climate trends and future projections for Niue, Tonga, and Tuvalu under medium (SSP2-4.5) and high (SSP5-8.5) emission scenarios.

Table 1 Observed climate trends and future projections for Niue, Tonga and Tuvalu

Observed climate trends	Future projections
Air temperatures[xi]	

Niue: The historical annual average mean surface air temperature is 25.03°C. The annual average maximum and minimum temperatures are 27.75°C and 22.37°C, respectively. The annual average mean temperature has risen by 0.17°C per decade between 1971 and 2020, with the highest increase of 0.18°C observed during the September–November period. The rise in average maximum and minimum temperatures shows similar trends. The historical maximum number of days with a heat index > 35°C is 0.	Niue: Under medium-emission scenarios, the mean surface air temperature is projected to increase within the range of 0.51 to 1.15°C (2040-2059) and 0.92 to 1.73°C (2080-2099). Under a high-emission scenario, projections indicate an increase in mean air surface temperature by 0.77 to 1.56°C and 1.8 to 3.45°C for these same periods. By 2080–2099, the projected median maximum number of days with a heat index above 35°C is 16 days under a medium-emission scenario and 120 days under a high-emission scenario.
Tonga: The historical annual average mean surface air temperature is 25.01°C. The annual average maximum and minimum temperatures are 27.67°C and 22.4°C, respectively. The annual average mean temperature has risen by 0.17°C per decade between 1971 and 2020, with the highest increase of 0.2°C observed during the September–November period. The rise in average maximum and minimum temperatures shows similar trends. The historical maximum number of days with a heat index > 35°C is 0.	Tonga: Under medium-emission scenarios, the mean surface air temperature is projected to increase within the range of 0.64 to 1.3°C (2040-2059) and 1.02 to 2.06°C (2080-2099). Under a high emission scenario, projections indicate an increase in mean air surface temperature by 0.91 to 1.72°C and 2.05 to 3.91°C for these same periods. By 2080–2099, the projected median maximum number of days with a heat index above 35°C is 202 days under a medium-emission scenario and 360 days under a high-emission scenario.
Tuvalu: The historical annual average mean surface air temperature is 28.58°C. The annual average maximum and minimum temperatures are 31.69°C and 25.52°C, respectively. The annual average mean temperature has risen by 0.17°C per decade between 1971 and 2020. The rise in average maximum and minimum temperatures shows similar trends. The historical maximum number of days with a heat index > 35°C is 0.	Tuvalu: Under medium-emission scenarios, the mean surface air temperature is projected to increase within the range of 0.53 to 1.14°C (2040-2059) and 0.93 to 1.83°C (2080-2099). Under a high emission scenario, projections indicate an increase in mean air surface temperature by 0.74 to 1.57°C and 1.89 to 3.57°C for these same periods. By 2080–2099, the projected median maximum number of days with a heat index above 35°C is 14 days under a medium-emission scenario and 110 days under a high-emission scenario.
Rainfall[xii]	
Niue: The historical average annual rainfall in Niue is 2,097.31 mm. The highest rainfalls are	Niue: There is less certainty associated with rainfall projections. CMIP6 multi-model

observed between January and March, with a monthly average of 263.82 mm of rain. The dry season lasts from May to October, with average monthly rainfall ranging from 192 to 208 mm. According to observed trends, annual rainfall has increased by 82.64 mm per decade between 1971 and 2020.	ensemble indicates projections from a decrease to an increase. Under medium-emission scenarios, projections indicate precipitation changes to vary between -108 and 123 mm for 2040 – 2059 and between -205 and 131 mm by 2080 – 2099. Under a high-emission scenario, the projected change in rainfall for 2040 – 2059 varies between -161 and 295 mm, with a median of 5 mm, and between -203 and 249 mm, with a median of 14 mm by the 2080 – 2099 period. The change in average maximum 5-day cumulative precipitation of a 25-year return level for 2040 – 2059 under medium and high emission scenarios is 6 mm (-91 mm to 72 mm) and -2 mm (-64 to 112 mm), respectively. This is one of the indicators that reflects the change in the magnitude of extreme rainfall events.
Tonga: The historical average annual rainfall in Tonga is 1,831.84 m. Rainfall varies across the country from 1,619 mm in Ha'apai to 2,453 mm in Niua Fo'ou[xiii]. The highest monthly rainfalls range from 231 – 241 mm and are observed between January and March. The dry season lasts from May to October. The lowest amount of rainfall is recorded in June (92.43 mm). According to national observed trends, annual precipitation has increased by 86.52 mm per decade. However, declines have been reported in Ha'apai (by 6 mm per year). The effect of climate change on this decline is unclear.	Tonga: Under medium-emission scenarios, projections indicate precipitation changes to vary between -129 and 124 mm by 2040 – 2059 and between -244 and 177 mm by 2080 – 2099. Under a high-emission scenario, the projected change in rainfall for 2040 – 2059 varies between -129 and 124 mm, with a median of -15 mm, between -223 and 279 mm, with a median of 51 mm by the 2080 – 2099 period. The change in average maximum 5-day cumulative precipitation of a 25-year return level for 2040 – 2059 under medium and high emission scenarios is 17.12 mm (-28.47 mm to 54.04 mm) and 4.64 mm (-29.11 to 64.98 mm), respectively.
Tuvalu: The historical average annual rainfall in Tuvalu is 2819.41 mm. The highest amount of rainfall occurs between December and March, with a monthly average of 284.98 mm of rain. The dry season lasts from May to October, with the lowest monthly rainfall of 85.17 mm observed in July	Tuvalu: Under medium-emission scenarios, projections indicate precipitation changes to vary between -20 and 390 mm by 2040 – 2059 and between 98 and 540 mm by 2080 – 2099. Under a high-emission scenario, the projected change in rainfall for 2040 – 2059 varies between -18 and 463 mm, with a median of 254 mm, and between 138 and 911 mm, with a median of 583 mm by the 2080 – 2099 period.

According to observed trends, annual rainfall has declined by 44.64 mm per decade between 1971 and 2020.	The change in average maximum 5-day cumulative precipitation of a 25-year return level for 2040 – 2059 under medium and high-emission scenarios is 16 mm (-65 mm to 77 mm) and 30 mm (-70 to 114 mm), respectively.
Sea level rise (SLR)[xiv]	
Niue: Historical data show that Niue has experienced a sea level rise of 2.5 mm per annum from 1993 to 2024.	Niue: By 2090, SLR is estimated to be 0.70 m relative to historical records (1995 – 2015), or within the range of 0.52 – 0.96 m under a high-emission scenario.[xv]
Tonga: According to Tonga's Third national communication to UNFCCC, Tonga has already witnessed a sea level rise of 3.125 mm per annum, using historical records from 1993 to 2024.	Tonga: By 2090, SLR is estimated to be 0.72 m relative to historical records (1995 – 2015), or within the range of 0.65 – 1.19 m under a high-emission scenario.
Tuvalu: Historical data show that Tuvalu has experienced a sea level rise of 4.375 mm per annum from 1993 to 2024.	Tuvalu: By 2090, SLR is estimated to be 0.67 m relative to historical records (1995 – 2015), or within the range of 0.47 – 0.94 m under a high-emission scenario Tuvalu is particularly vulnerable to the impacts of sea level rise due to its flat profile, with the highest elevation of less than 5 m above sea level. According to coastal inundation models, more than 90% of Fongafale, the main islet of Tuvalu, will be impacted by coastal flooding with a 10-year return period by 2100[xvi].
Tropical cyclones	
Niue[xvii]: Tropical cyclones affect Niue between November and April. Sixty-three cyclones passed within 400 km of Alofi between 1969 and 2010. These occurred more frequently during El Niño years. Category 5 Cyclone Heta (2004) caused US$21.5 million worth of economic damage. This was three times Niue's GDP.	Niue[10]: Projections indicate a decline in cyclone frequency but an increase in intensity.
Tonga[xviii]: The cyclone season lasts from November to April. Since 1980, 55 cyclones have entered Tonga's Exclusive Economic Zone (EEZ). Nineteen of these events were of Category 3 and higher. Category 4 Cyclone Waka (2001) and Category 5 Cyclone Ian (2014) resulted in	Tonga[17]: Projections indicate a decline in cyclone frequency but an increase in intensity. Based on historical observations, increased incidences of cyclones may be expected during El Niño years.

economic damages of up to US$51.3 million and US$31 million, respectively.	
Tuvalu[21]: Cyclone season in Tuvalu is between November and April. From 1969 to 2010, 35 cyclones developed in or crossed Tuvalu's EEZ. Category 5 Cyclone Pam (2015) affected 40% of Tuvalu's population and resulted in US$11 million of economic damages[xix].	Tuvalu[xx]: The Australian Bureau of Meteorology (BoM) projections indicate an overall decline in cyclone frequency in Tuvalu. However, frequency is expected to increase during El Niño events and decrease during La Niña events.
Droughts	
Niue: Low rainfall occurs in Niue from time to time. However, the current drought risks in the country are relatively low[xxi].	Niue: Projections indicate little change in drought frequency throughout the 21st century[18].
Tonga[xxii]: The last three major drought events in Tonga were in 1983, 1998 and 2006. These events were directly linked to El Niño events.	Tonga: There is low confidence in drought projections for Tonga. However, the percentage of time spent in drought may likely decrease. This is generally shown across all emission scenarios.
Tuvalu: Severe droughts impacted Tuvalu in 2011, 2016, 2023, impacting water security in the country.	Tuvalu[21]: There is low confidence in drought projections for Tuvalu. Analysis by the Australian BoM suggests a reduction in the amount of time spent in drought conditions.
Sea surface temperature[xxiii] and marine heatwaves	
Niue: Records show considerable decadal variability. Sea-surface temperatures declined slightly between the 1950s and the 1980s, followed by an increase of 0.08°C per decade. However, as these were estimated on a regional scale, the natural variability of sea surface temperatures could also influence the observed trends and, therefore, the long-term effects of climate change are difficult to identify.	Niue: By 2050, sea surface temperatures are projected to increase by 0.6 – 1.6°C under the medium-emission scenario and by 0.9 – 1.7°C under a high-emission scenario.
Tonga: Sea-surface temperatures declined slightly between the 1950s and the 1980s, followed by an increase of 0.06°C per decade according to climate models. Globally, the frequency and intensity of marine heatwaves have increased by 34 percent and 17 percent, respectively, between 1926 and 2016. Current research does not identify marine heatwaves as a key threat in Tonga.	Tonga: By 2050, sea surface temperatures are projected to increase by 0.5 – 1.4°C under medium-emission scenario and high- emission scenarios.

However, the consequences of the above trends may be serious for marine ecosystems across the region as a whole[xxiv].	
Tuvalu: The average sea surface temperature over the Tuvalu EEZ historically ranged between 8.6 and 29.5 °C. Sea-surface temperatures have gradually increased since the 1950s, with an increase of 0.13°C per decade reported from the 1970s onwards. At the regional scales, natural variability may play a large role in determining sea-surface temperature in the region, making it difficult to identify any long-term trends.	Tuvalu: By 2050, sea surface temperature in Tuvalu is projected to increase by 0.9°C and 1.3°C under medium and high-emission scenarios, respectively. The Western Tropical Pacific, where Tuvalu is located, is a global hotspot for marine heatwaves driven by climate change. According to projections, the spatial footprint, as well as the duration and intensity of marine heatwaves, are expected to increase[xxv].

1.2. Biodiversity Context and Priority Invasive Species

Natural biological communities constituting the biodiversity of Niue, Tonga and Tuvalu have evolved over thousands or millions of years and have resulted in adaptations to local conditions that make these species resilient to natural environmental change. These communities of native species contribute to ecosystem functioning and together provide multiple ecosystem services that communities rely on. These services include provisioning (such as food, fuel, raw materials, and medicines), regulating (such as provision of clean water and clean air, climate regulation and flood protection, waste decomposition, and biological pest and disease control), supporting (such as nutrient cycling), and cultural services (such as spiritual and heritage value, recreation, and science).

Invasive Species (IS) are species that have been transported, intentionally or not, outside their natural range and that have established and spread with negative impacts on biodiversity, local ecosystem and people. While invasive species are a major global threat to biodiversity, Pacific islands are particularly vulnerable due to their isolation and relatively recent human occupation. In such context, native species often cannot cope with predation or competition from new arrivals. Invasive species are already a major driver of biodiversity loss in Tonga: it is estimated that over half of Tonga's bird species have become extinct since human arrival, to which invasive species have likely contributed.[xxvi]

Priority invasive species are identified through three sources: National Invasive Species Strategies and Action Plans (NISSAPs), extensive stakeholder consultations conducted June-October 2025, and scientific literature documenting climate-resilience impacts. They can be classified in four main categories, with each specific set of impacts and management approaches.

Table 2 outlines the key priorities in each country, highlighted in green and marked with an X. This is then further explained in the following sub-sections.

Table 2 Priority invasive species by country

IS Type	IS Specifics	Niue	Tonga	Tuvalu
Mammalian Predators	Rats	X	X	X
	Pigs	X	X	
Other terrestrial invasive animals	Cane Toads	Prevention	Prevention	X
	Yellow Crazy Ants	Monitoring	Monitoring	X
Terrestrial Invasive Plants	Singapore Daisy	X	X	X
	Air Potato	X		
	Tarot Vine	X	X	Monitoring
	Tithonia	X	X	
	African Tulip	Monitoring	X	
	Leucaena	X	X	X
Marine Invasive Species	Drupella snails	X	Monitoring	Monitoring
	Crown of Thorns	X	X	X
	Invasive algae		X	X

The following section provides information on the invasive species targeted by the project, highlighting their specific adverse impacts on ecosystems, ecosystem services and food security.

Mammalian Predators

Rats (Rattus exulans, R. rattus, R. norvegicus) - All three countries

Rats are one of the most impacting invasive species in the Pacific, contributing the degradation of both terrestrial and marine ecosystems, and having adverse consequences on food security. Rats are predators of seabird's eggs and younglings nesting, causing 85-95% nest failure rates on rat-infested islands compared to <5% on rat-free islands.[xxvii] They are similarly predators of sea turtles nesting in the sand. They consume tree seeds and seedlings, preventing forest regeneration (85% seedling mortality in rat-present areas vs 20% rat-free)[lix]. They damage crops including coconut, taro, and breadfruit, with losses of 20-40% during rat population peaks. They are also a disease vectors for leptospirosis and typhus.

By preventing forest regeneration, rats undermine water retention (native forests retain 40-60% more rainfall than degraded alternatives during drought), soil stabilisation (erosion rates are 3 to 5 times higher in degraded vs intact forest during heavy rainfall), and coastal protection (storm surge penetration is 2 to 3 times greater through degraded vs intact coastal forest). By eliminating seabirds, rats sever nutrient cycling to reefs, seabird guano provides 50-100 tonnes nitrogen annually for a medium colony, enhancing coral resilience to bleaching (in absence of invasive rats reefs adjacent to seabird colonies show 20-30% faster recovery post-bleaching).[xxviii]

Pigs (domestic and feral Sus scrofa) - Niue and Tonga

Pigs exist in domestic and feral states across the Pacific, with both significant place in local diets and food security and significant damage to ecosystem and crops. The management of pigs is therefore a challenge to prevent agricultural and environmental damage while respecting cultural and food security importance. Management of domestic pig is therefore focused on safe and sustainable fencing. Feral pigs destroy native vegetation by consuming seedlings, fruits, and understory plants; dig root systems seeking food and moisture causing soil erosion and compaction; and prevent restoration success (areas accessible to pigs show 70-90% lower native

regeneration rates). In areas where the feral population is under control, significant damages are also caused to staple crops (taro, cassava and coconuts specifically) and food resources (such as land crabs).

Damage to forest understory and root systems reduces water infiltration (50-70% reduction in areas with high pig activity) and increases erosion during floods and heavy rainfall (2-4× higher erosion rates). Soil compaction from pig activity reduces water-holding capacity critical during droughts. Addressing pig impacts is essential for enabling forest restoration providing climate adaptation services. Managing the feral pigs population is also a key from of food security, due to the damage to crops and natural food sources[xxix].

Other terrestrial invasive animals

Cane Toads (Rhinella marina/Bufo marinus) – Tuvalu

Cane toads is a priority invasive species in Tuvalu. They secrete toxic substances known as bufotoxins from glands on their skin that are lethal to many animals and that can cause irritation of skin and eyes to people. Additionally, they compete with native reptiles as they prey on native insects and threaten native aquatic organisms, and the toxins can kill local species and disrupt freshwater ecosystems. In Tuvalu, these amphibians are known to enter water cisterns, which are vital sources of drinking water for most households. Their toxins can contaminate the supply, making it unsafe for human consumption and posing risks to livestock and pets. In addition, the decomposition of dead toads in water cisterns can further degrade water quality, leading to bacterial growth, foul odors, and increased health risks. These impacts are particularly serious during droughts, when communities rely heavily on limited rainwater reserves, underscoring the need for community-led monitoring, improved cistern protection, and effective cane toad control measures. Niue lists the cane toad as a high-priority species for prevention, noting its established presence in nearby Pacific locations including Fiji, the Federated States of Micronesia (Kosrae), and Tuvalu, which creates a significant risk of introduction through regional trade and travel pathways. Tonga does not currently list this species as a concern.

*Yellow Crazy Ant (*Anoplolepis gracilipes*) – All three countries*

The Yellow Crazy Ants (YCA) are present in Niue, Tonga and Tuvalu. They threaten a wide range of species, including birds, reptiles, and invertebrates such as land and coconut crabs. In Tuvalu where they are widespread and subject to damaging outbreaks, management program has been ongoing on islets of the Funafuti atoll since 2016. It remains however ranked as a top priority pest in Tuvalu's NISSAP consultations, second only to rats and would require enhanced work. In Niue and Tonga, YCA are present but not a major concern but remains monitored due to impacts recorded in other Pacific islands.

Terrestrial Invasive Plants

Singapore Daisy (Sphagneticola trilobata) - All three countries

The Singapore Daisy forms dense mats achieving 100% ground cover in heavily infested areas, smothering all vegetation including crops, native plants, and coastal vegetation. This weed exudes allelopathic chemicals inhibiting germination of other plants. It dominates approximately 30% of disturbed agricultural land in Tuvalu, forcing shift away from traditional pulaka cultivation with reported yield losses of 30-50% in affected areas (consultation data, 2024). Locally present in Tonga, it grew out of control in the wake of the damage caused by the eruption of the Hunga Ha'apai submarine volcano in Tonga and the subsequent tsunami in 2022. It is also present and of concern in Niue.

This daisy exploits drought-stressed conditions to outcompete natives (maintains growth during dry periods when natives desiccate). It prevents natural coastal vegetation regeneration essential for storm protection (colonises post-cyclone disturbed areas 5 to 10 times faster than natives). The Singapore Daisy also reduces agricultural productivity during climate stress when food security is most threatened.

Air Potato (Dioscorea bulbifera) - Niue and Tonga

This invasive plant is identified as the number one weed threat in Niue's 2020 NISSAP assessment, covering an estimate of 150-200 hectares in Huvalu Forest Conservation Area and surrounding areas. It is also of growing concern in Tonga, especially on ‘Eua Island where it covers significant portions of the National Park. The Air Potato smothers trees, preventing regeneration (forms mats up to 20m high in canopy), disrupts forest structure creating monocultures. Rapid post-cyclone colonisation prevents natural forest recovery (exploits canopy gaps from storm damage) and the Air Potato locks water infiltration reducing drought resilience (dense mats intercept rainfall preventing soil infiltration).

Taro Vine (Epipremnum aureum) - Niue and Tonga, monitoring for Tuvalu

This vine dominates Huvalu Forest understory in Niue, covering an estimated 60-80% of forest floor in heavily affected areas[xxx]. The Taro Vine increased significantly following Cyclone Heta (2004) and subsequent cyclones. In Tonga, the Taro Vine is listed among priority invasive plant species impacting native forests and agricultural productivity by smothering vegetation and impeding natural regeneration[xxxi]. In Tuvalu, it is acknowledged under “Problematic Plants” and included in national consultations as a potential invasive vine known for rapid colonization after disturbance[xxxii]. Its ecological threat is compounded by increasing cyclone incidence, which creates ideal conditions for spreading across coastal and fallow lands. The Taro Vine prevents native seedling establishment critical for water retention (seedling survival <5% under dense vine cover vs 60-80% in vine-free areas). It exploits cyclone disturbance, creating dense mats that block 90-95% of sunlight at forest floor and intercept 40-60% of rainfall before reaching ground[xxxiii].

Tithonia diversifolia - Niue

With rapid vegetative growth and prolific seed production, Tithonia spreads quickly in environments impacted by heat and drought. In Niue, Tithonia invades road edges, cleared forest margins and other disrupted habitats, which poses a risk to the island’s native biodiversity and regeneration of indigenous plant communities[xxxiv].

African Tulip (Spathodea campanulata) - Tonga priority

The African Tulip forms dense stands (50-80 trees per hectare) excluding natives, preventing natural forest succession. This plant prevents native forest regeneration, reducing ecosystem water retention capacity (African Tulip monocultures retain 30-40% less rainfall than native forest). It increases fire risk during dry periods (fallen flowers and leaves create fuel loads). Biocontrol has proven successful in Cook Islands (beetle establishment 2021-2022, island-wide dispersal by 2023), ready for transfer to Tonga[xxxv].

Leucaena (Leucaena leucocephala) - All three countries

Leucaena rapidly colonises disturbed areas (can establish dense stands of 500-1000 stems per hectare within 2-3 years), disrupts nutrient cycling through nitrogen fixation (favouring itself over natives), alters soil chemistry through allelopathy preventing native regeneration, is toxic to pigs (mimosine toxicity), and forms dense thickets excluding other species. This plant exploits cyclone and drought disturbance for rapid establishment (pioneer species colonising bare ground). It also

alters soil chemistry preventing native regeneration even after Leucaena removal and increases fire risk during dry periods (dense, dry leaf litter creates fuel loads).

Marine Invasive Species

Drupella spp. - Niue priority, monitoring in Tonga and Tuvalu

The populations and feeding coral grazing gastropod, Drupella, have been recorded to shift after climate-driven coral disturbance, often aggregating on surviving colonies and delaying recovery. Their feeding can worsen coral stress via wounds and microbiome disruption.[xxxvi] High-density Drupella feeding removes tissue and can prevent recovery of remaining colonies after bleaching, potentially eliminating formerly dominant or heat-resistant genotypes on reefs where aggregations persist[xxxvii]. Niue monitoring (2020-2024) documented densities reaching 1.2-1.8 ind/m² following 2019-2020 bleaching event, preventing coral recovery for 12-18 months until manual removal campaigns reduced populations[xxxviii]. Drupella prevents reef recovery following climate-induced bleaching events (consumes coral recruits and weakened adult corals), compounding coral loss and reducing coastal protection (healthy reefs reduce wave energy by 70-90%; degraded reefs provide minimal protection) and fisheries productivity (fish biomass 50-300% lower on Drupella-affected vs healthy reefs)[xxxix].

Crown-of-Thorns Starfish (Acanthaster planci) – All three countries

This coral-eating echinoderm is a species native to all three countries, which can however become invasive as it can experience population outbreaks damaging coral reef functioning. Such outbreaks often caused by nutrient addition (waste), causing further damage to reef ecosystems put under stress by changing climatic conditions.

Invasive algae - Tonga and Tuvalu

Early detection needed for potential outbreaks of invasive algae species documented in other Pacific locations. Species of concern include Hypnea musciformis, Sargassum, and other fast-growing algae that can smother recovering corals. Warmer water temperatures favour certain invasive algae species (growth rates increase 20-40% with 1-2°C warming). Outbreaks can smother recovering corals post-bleaching, preventing recovery for years. Invasive algae reduce habitat quality for herbivorous fish, further degrading reef resilience.

1.3. Invasive Species Management for climate resilience

The management of each invasive species often provides multiple benefits in terms of ecosystem services restoration across both marine and terrestrials ecosystems, as well in terms of food security. The following table aims to present a comprehensive visual summary of the climate rationale, linking the targets retained to the adaptative capacity improvements.

Table 3 Applicability of vulnerability is identified as follows: All (three countries), TO (Tonga), TV (Tuvalu) and NU (Niue).

Adaptation problem	Climate risk	Vulnerabilities	Adaptation intervention	Expected adaptative benefits
Degradation of marine ecosystems	Increased intensity of tropical cyclones.	Coastal erosion and marine submersions (TO & TV). Damage on coral reefs (All). Infrastructure damage (All).	Removal or management of mammalian predators, so as to: - Restore nutrient cycling service provided by seabirds - Accelerate the regeneration of native forests that limit soil erosion Management of terrestrial weeds to restore native forests that limit soil erosion and the accumulation of sediment overflows on reefs.	Reduces exposure of communities by strengthening nature-based coastal defences.
	Increase in sea surface temperature and ocean acidification.	Damage on coral reefs (All). Fishery loss and livelihood instability (All).		Reduces sensitivity of coral reefs to climate stressors.
			Early detection and rapid response capacity building against outbreaks of marine invasive species directly damaging coral reefs.	Builds adaptative capacity to manage secondary degradations following climate events
Degradation of terrestrial ecosystems	Increased intensity of tropical cyclones, and extreme rain events.	Landslides and flash floods (Tonga), damage on natural ecosystems (All) Infrastructure damage (All)	Removal or management of mammalian predators to accelerate the regeneration of native forests. Management of terrestrial weeds to restore native forests Management of Yellow Crazy Ants.	Restored soil stability limits the risk of landslides, fallen trees and flash floods. Restored stability.

	Change in precipitation regimes, leading to more intense and frequent droughts.	Water-scarcity (All)	Removal or management of mammalian predators to accelerate the regeneration of native forests. Management of terrestrial weeds to restore native forests Management of toads to prevent water cisterns contamination	Improved water security
Threat to food security	Change in precipitation regimes, leading to more intense and frequent droughts.	Reduced productivity of crops (All) Reduced availability of natural resources (All)	Removal or management of mammalian predators, to reduce depredation of natural resources (crabs, coconuts, …) and crops. Management of Yellow Crazy Ants that prevent access to natural resources.	Enhances food security by increasing the availability of natural resources and crops.
	Increase in sea surface temperature and ocean acidification.	Damage on coral reefs (All). Reduced productivity of coastal ecosystems, for fisheries and seafood (All).	Early detection and rapid response capacity building against outbreaks of marine invasive species directly damaging coral reefs. Removal or management of mammalian predators, to improve the ecosystem productivity (restoration of nutrient cycles).	Enhances food security by increasing the availability of natural resources and crops.

1.4. Country-Specific Vulnerabilities and Socio-Economic Contexts

Niue, Tonga and Tuvalu share similar socio-economic characteristics as small, remote island developing states with limited land and access to resources. They are among the smallest economies measured by GDP, estimated at USD 23 million in 2025 in Niue (USD 13,662 per capita), USD 590 million in Tonga (USD 5,920 per capita)[xl] and USD 60 million in Tuvalu in 2025 (USD 5,830 per capita).[xli] Their economies depend heavily on healthy terrestrial and marine ecosystems and climate-sensitive sectors: agriculture contributes 14-20% of GDP in Tonga and Niue, while fisheries provide 80% of animal protein across all three countries[xlii]. Finally, the strong dependency on remittances, constituting 39-46% of GDP in Tonga and Tuvalu, reflects limited domestic economic opportunities[xliii].

Niue

Niue is a single raised limestone island of 261 km² with approximately 1,600 residents concentrated in 14 villages. The economy relies on agriculture (20% GDP), small-scale fisheries, growing tourism (~10,000 visitors annually), and remittances (14% GDP)[xliv]. Beyond contribution to the economy, the fundamental and widespread reliance on agriculture is highlighted by census data from 2009, which found that 87% of households on Niue are actively involved in agricultural activities.[xlv] Fisheries bring a significant contribution to food security, with close to 100 kg consumed per inhabitant in 2021, largely from costal subsistence fishing.[xlvi]

Niue's geography makes it uniquely vulnerable to island-wide impacts from single climate events, such as the Tropical Cyclone Heta (2004), a Category 5 storm that caused catastrophic damage estimated at 200% of GDP, droughts (severe events 2011, 2019), and sea-level rise averaging 5mm/year. Niue’s socio-economic context also makes it uniquely vulnerable to damages caused to local subsistence farming and small-scale fisheries that play a key role for food security.

The linkage between climate change and invasive species is stark. Cyclones create large-scale "invasion windows"; the widespread canopy damage from Cyclone Heta enabled the explosive growth of invasive weeds, which now smother agricultural lands and large tracts of the Huvalu Forest Conservation Area. This invasive groundcover prevents the regeneration of native forest, which is critical for protecting the island's freshwater lens from both contamination and drought. Feral and free-ranging domestic pigs exacerbate this degradation by destroying the forest understory, reducing water infiltration and soil stability. They are also responsible for significant damage to staple crops such as taro, and of consuming other natural resources important in Niuean diets, such as land crabs. In the marine environment, climate-driven marine heatwaves cause coral bleaching, which in turn fuels outbreaks of the native but invasive corallivorous *Drupella* snails that prey on already-stressed corals, preventing the recovery of reefs that are crucial for the sustainability of fisheries and the preservation of Niue’s eco-tourism potential.

Tonga

Tonga comprises 176 islands (36 inhabited) with approximately 100,000 people across 747 km² of land. The country is composed of four main island groups: the Tongatapu group in the south (population 74,320); the Ha’apai group in the middle (population 5,665); the Vava’u group in the north (population 14,182); and the Niuas in the far north (population 1,148).The economy is heavily reliant on climate-sensitive sectors, including agriculture (14% GDP), fisheries (4-7%), and remittances (39% GDP)[xlvii]. The agricultural sector, which includes fisheries and forestry, employs around 30% of the population but also supports most of the population for subsistence

and accounts for 50% of export earnings. This dependency on natural resources is exacerbated on smaller islands, where industry and services sectors bring a marginal contribution to communities' livelihoods. The contribution of tourism, accounting for 12% of GDP in 2019, is also worth noting due to the contribution of the whale watching industry in the Vava'u island group.

Tonga's geography, particularly its many low-lying islands, makes it exceptionally vulnerable to sea-level rise, storm surge, and cyclones. This vulnerability is exacerbated by the exposition of Tongan islands to seismic hazards. Located in the subduction zone of the Indian Australian and the Pacific tectonic plates, they lie within the Ring of Fire where intense seismic activity occurs. Tsunami inundation modelling suggests that Tonga's islands are critically vulnerable to tsunamis, given their locations along the Tonga Trench. The impacts of such events are modelled to be aggravated by sea level rise, but also by the degradation of coral reefs that can act as natural protective barriers. In a similar way as for Niue, Tongan socio-economic context also makes it uniquely vulnerable to damages caused to local subsistence farming and small-scale fisheries that play a key role for food security.

A primary cross-cutting threat comes from invasive rats. They not only cause significant agricultural losses but also decimate native seabird populations. This predation severs the vital ecological link where seabird guano fertilises nearshore reefs, a process proven to enhance coral resilience to bleaching[xlviii]. The degradation of this ecosystem service by an invasive species thus directly reduces the adaptive capacity of Tonga's coastal defences. Together with feral pigs and invasive weeds, they also contribute to the degradation of native forests and the ecosystems services they provide. On the other hand, climate change directly facilitates invasions. Sea-level rise is causing saltwater intrusion that degrades prime coastal agricultural land, creating disturbed, saline soils that are rapidly colonised by invasive plants like the Singapore Daisy, which outcompete traditional crops and hinder food security. In the marine ecosystem, ocean warming drives coral bleaching, allowing invasive algae to smother recovering reefs.

Tuvalu

Tuvalu comprises nine low-lying coral atolls (eight inhabited) with approximately 11,000 people across 26 km² of land (mean elevation 2 metres above sea level). The economy depends on fishing licenses (50% government revenue, ~USD 40 million annually), remittances (46% GDP), and subsistence agriculture[xlix]. Subsistence farming and small-scale coastal fisheries are essential pillars of Tuvalu's food security and household resilience. Most families cultivate traditional crops such as pulaka (swamp taro), breadfruit, pandanus, and coconuts, while supplementing diets through artisanal reef and lagoon fishing[l]. These activities provide vital nutrition and income buffering in times of import disruption or climate stress[li], but are increasingly constrained by saltwater intrusion, soil degradation, and declining nearshore fish stocks[lii]. Strengthening sustainable land and marine resource management is therefore critical for long-term food security and climate adaptation in Tuvalu[liii].

Tuvalu is among the world's most vulnerable to climate change: severe droughts in 2011 (requiring emergency water supplies), 2016, and 2023 (six months below normal rainfall); frequent cyclones including Cyclone Pam (2015) causing widespread damage; sea-level rise averaging 5mm/year (among highest globally); regular king tide flooding affecting 30-40% of land area during peak events; ocean acidification impacting reefs (pH decline of 0.1 units since pre-industrial, affecting coral calcification rates by 10-15%). Tuvalu has already recorded the loss of several islets following tropical storms in a context of rising sea level and environmental degradations, locally named "missing islands". Climate projections indicate these threats will

intensify, with existential risks from sea-level rise (projected 0.5-0.9m by 2090, threatening habitability of low-lying atolls), increasing drought frequency and severity, and continued coral bleaching (potentially annual bleaching by 2040-2050 under high emissions scenarios)[liv].

In this context of extreme vulnerability, invasive species are a direct threat multiplier. Drought and saltwater intrusion degrade the soil of the nation's traditional pulaka (swamp taro) pits, the cornerstone of Tuvaluan food security. These disturbed areas are then aggressively colonized by the invasive Singapore Daisy, which smothers the remaining viable agricultural land and prevents crop recovery. On land and at sea, invasive rats are a critical threat. By preying on seabird eggs and chicks, they devastate the seabird colonies that are essential for atoll ecosystem health. The loss of guano fertilisation reduces soil fertility on land and, crucially, starves the adjacent coral reefs of the nutrients they need to recover from climate-induced bleaching. By weakening the coral reefs, the atolls' first and most important line of defence against storm waves and sea-level rise, invasive rats directly exacerbate Tuvalu's existential climate threat. The reduced productivity of coastal ecosystems that also result from the collapse of seabird populations is also affecting fisheries, of prime importance for subsistence fishing and government revenues. Together with damage of food sources on land, coconuts and land crabs, they put the food security of small island communities at risk.

1.5. The Regional Coordination Imperative

The case for regional coordination rests on four fundamental realities:

Synchronised Threats: Characterised by similar ecosystem settings, Pacific islands are also faced by similar priority invasive species and face similar challenges as climate change exacerbates their impacts on small island communities. Regional climate events trigger simultaneous invasive species impacts across all three countries. The simultaneous experience of reduced crop productivity, fishing stocks and increased water stress in all three countries underpins the common goal to restore ecosystems degraded by invasive weeds, mammalian predators and marine invasives to improve the resilience of communities in a changing climate. Addressing synchronised threats regionally rather than through independent national responses allows the PICs to overcome challenges of limited individual capacity and provides efficiency gains.

Transboundary Pathways: Shipping routes connecting Pacific islands move cargo and people across the region, sometimes inadvertently favouring the dissemination of invasive species, create the need for international biosecurity frameworks. At the same time, Tonga and Tuvalu, composed respectively of 36 and 11 inhabited islands create internal invasion networks that are challenging to manage. Coordinated biosecurity standards and active protocols collectively enhances the biosecurity of all participating countries, by reducing the spread of invasive species.

Shared Capacity Constraints: Small populations can hardly justify employing full-time specialists in niche technical fields. A regional approach can however allow countries to maintain access to world-class expertise in various technical fields, while managing costs for each of them.

Regional Diffusion Multiplier: Solutions developed in one country benefit others through knowledge sharing and direct transfer. Biocontrol agents successfully established in Niue can be redistributed to Tonga and Tuvalu with dramatic efficiency gains regarding international importation, host-specificity testing, and permitting processes. Domestic pig management approaches developed collaboratively in Niue and Tonga provide tested solutions for other Pacific

Island Countries facing similar challenges. By documenting approaches, costs, and outcomes, the project creates replicable models unlocking an estimated USD 80-150 million in additional climate finance. For instance, Niue and Tonga Green Climate Fund proposals totalling USD 80+ million build directly on this Adaptation Fund project.

1.6. Pacific Regional Invasive Species Management Support Service

To regionally address these challenges, the region has established PRISMSS, a pacific-lead service to coordinate and facilitate the scaling up of operational management of invasive species.

PRISMSS brings together technical expertise as a result of collaboration between Birdlife International, Bioeconomy Science Institute (Manaaki Whenua – Landcare Research), the Department of Conservation of New Zealand, Island Conservation, the National Institute of Water and Atmospheric Research (NIWA), the Pacific Community (SPC) and SPREP. It provides a comprehensive suite of support services through six operational programmes:

1. *Protect Our Islands (POI): National and Inter-Island Biosecurity and Early Detection-Rapid Response*

   The technical leadership for this programme is shared by SPREP and SPC. Its track record includes the reduction risk of new socio-economic-environmental impacts lowered due to active specific Early Detection-Rapid Response (EDDR) Plans in 16 PICTs. The PFP programme has been active in Niue, Tonga and Tuvalu under previous projects, encompassing international and inter-island biosecurity activities that can now be scaled up.

2. *Predator Free Pacific (PFP): Removal of invasive mammalian predators from islands*

   The technical leadership for this programme is ensured by Island Conservation, seconded by Birdlife International. Under this programme, over 130 successful island eradications have been completed across the Pacific since 1990, using methodologies proposed for this project. Most recently, operations have been successfully completed in Tonga and Tuvalu, including the eradication of rats from four motus of the Nukufetau atoll and two of the Funafuti atoll in 2024, which included a combination aerial and ground-based bait application. Within nine months, seabird populations doubled, turtle nesting increased 30-40%, land and coconut crab populations recovered enabling to resume traditional harvest.[lv] This provides a direct demonstration that eradication operations deliver rapid, measurable adaptation benefits.

3. *War on Weeds (WOW): Management of high priority weeds*

   The technical leadership for this programme is ensured by SPREP. Thousands of community "Weed Warriors" have been trained across 12 Pacific countries in safe, effective management of priority weeds. Documented success includes 60-80% weed cover reductions at priority sites over 2-3 years through systematic manual and chemical control combined with cash-for-work providing livelihood benefits.[lvi]

4. *Natural Enemies - Natural Solutions (NENS): Biological control of widespread weeds*

   The technical leadership for this programme is ensured by Bioeconomy Science Institute. The programme has facilitated 173 biological control agent introductions across 16 Pacific Island Countries.[lvii] Recent success includes the African Tulip Beetle (Vereatus sp.) in Cook Islands (2021-2022), which dispersed island-wide within 18 months through natural flight, achieving measurable impact on tree density (15-20% reduction in adult trees) and prevention of new seedling establishment.[lviii]. Air Potato Leaf Beetle (Lilioceris cheni) was introduced to Niue in November 2024, with establishment monitoring showing promising

defoliation rates of 40-60% on target vines.[lix] These recent successes demonstrate that biocontrol agents can establish rapidly and achieve meaningful weed suppression.

5. *Resilient Ecosystems - Resilient Communities (RERC): Priority area ecological restoration*

   The technical leadership for this programme is ensured by SPREP, seconded by Birdlife International. Under this programme, 101 priority sites have benefitted from this approach that combines the management of mammalian predators, weeds and other invasives at priority sites to accelerate the recovery of its ecosystem functions, which can also be supported by the replanting of native trees. Example of successful restoration sites can be found in Tonga, at Mount Talau and Toloa Rainforest Reserve, Tuvalu, in the Funafuti conservation area, and Niue in portions of the Huvalu forest.[lx] This provides evidence that systematic restoration using proven methodologies achieves concrete ecosystem recovery.

6. *Protect Our Marine Areas (POMA): Preventing marine invasive species from spreading to priority marine areas*

   The technical leadership for this programme is ensured by Earth Sciences New Zealand. Although formally launched in 2025, marine invasive monitoring builds on established community-based marine monitoring networks in Niue and Tonga. Niue has successfully engaged 30+ community monitors in quarterly reef surveys using standardised protocols, demonstrating feasibility of community-led marine surveillance[lxi]. Drupella monitoring protocols developed through this experience provided foundation for POMA programme design, ensuring approaches are grounded in what communities can realistically implement rather than idealised but impractical methodologies.

The proposed project will be delivered through this established and proven PRISMSS framework ensuring an efficient, coordinated, and effective regional response to the climate-invasive species crisis. The operational model of PRISMSS is explicated in the PRISMSS Strategy, a document that will be published by the end of 2025 that frames the shared understanding of how PRISMSS operates, provide a framework of its governance and foster collaboration between its Partners to deliver on priorities set by the Pacific region.

Project/Programme Objectives:

The overall objective of the project is to enhance the climate resilience of ecosystems and communities in Niue, Tonga, and Tuvalu through innovative, regionally coordinated invasive species management that safeguards vital ecosystem services. The three key supporting objectives are as follows.

- Objective 1: Enhance and protect terrestrial and marine ecosystems to improve the resilience of small island communities to climate change disasters.
- Objective 2: Improve the food security and livelihoods of communities dependent on natural resources.
- Objective 3: Strengthen regional cooperation, knowledge-sharing, and institutional capacity for sustained invasive species management under a changing climate.

Through the first objective, the project is targeting Outcome 5 of the Adaptation Fund (AF) Strategic Results Framework by increasing ecosystem resilience in response to climate change and variability-induced stress. Its second objective contributes to Outcome 6 of this framework by strengthening livelihoods and sources of income for vulnerable people in targeted areas. The third objective contributes to Outcome 8, by supporting the development and implementation of innovative adaptation practices, tools and technologies.

The project's Theory of Change, as depicted in Figure 1 articulates how project components relate to the outcomes and support the project objectives that enable climate resilience in Tonga, Niue, and Tuvalu.

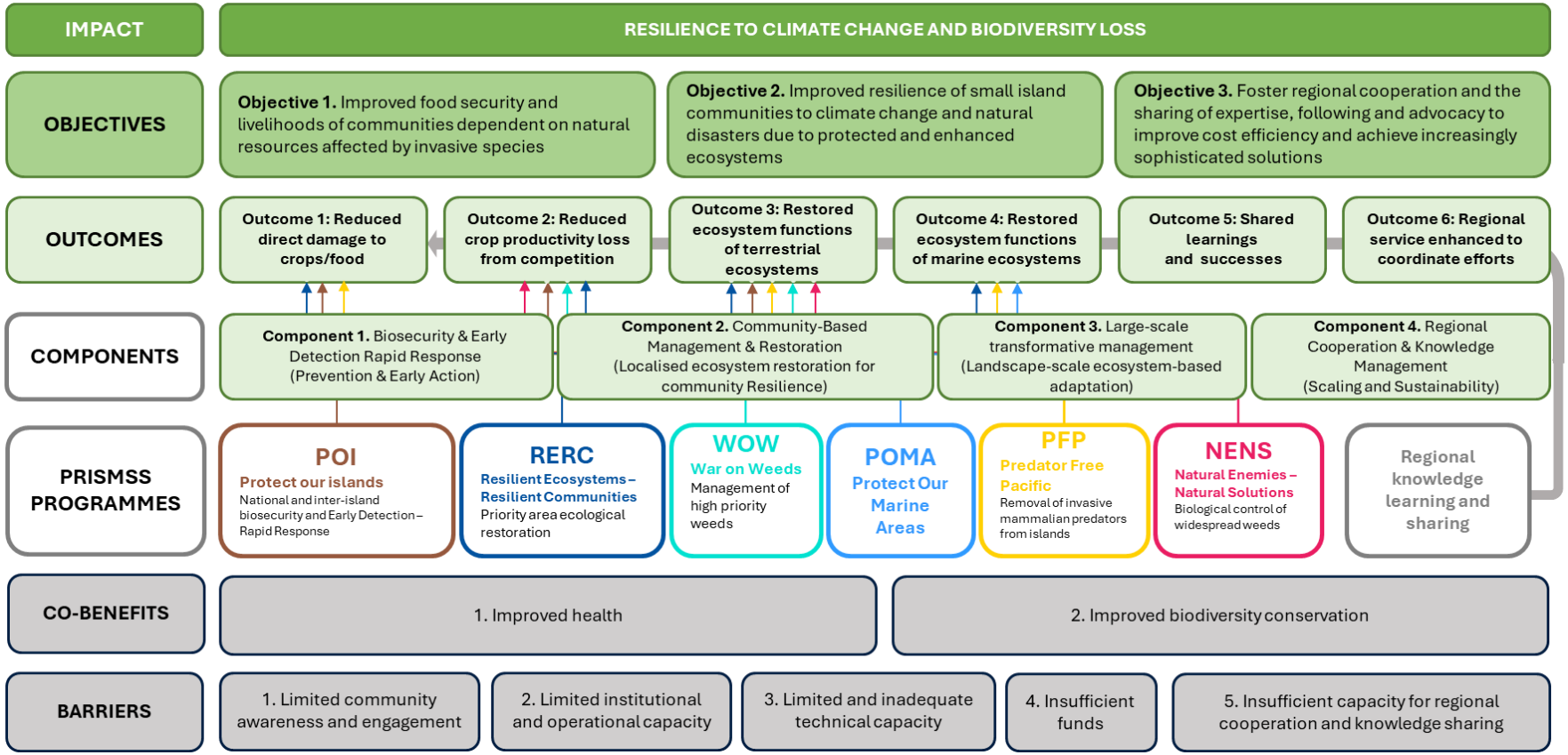

Figure 1 Theory of Change

The problem statement:

Climate change increases invasion pressure through more frequent disturbances (cyclones, droughts, marine heatwaves), changing environmental conditions favouring invasive species, and stressed ecosystems more vulnerable to invasion. Invasive species undermine climate adaptation by degrading water retention (drought resilience), destabilising soils (flood resilience), damaging coastal protection (storm resilience), and reducing food security (agricultural and fishery productivity). The climate-invasive feedback loop compounds vulnerability: each climate event creates invasion opportunities, invasives degrade ecosystem resilience, degraded ecosystems are more vulnerable to subsequent climate events, creating downward spiral.

Project intervention logic:

IF we prevent new climate-adapted invasive species from establishing through strengthened biosecurity and early detection rapid response (Component 1),

AND we restore ecosystem services essential for climate adaptation through community-based management of priority invasive species at terrestrial and marine sites (Component 2),

AND we achieve transformative, permanent ecosystem recovery through island-scale eradication and biological control for widespread climate-adapted weeds (Component 3),

AND we scale proven solutions regionally through knowledge management, technical coordination, and capacity building (Component 4),

THEN we will break the climate-invasive feedback loop, enabling ecosystems to provide essential adaptation services (water security, food security, coastal protection, livelihood resilience) even as climate change intensifies.

Assumptions:

1. Communities will participate voluntarily in project activities when FPIC processes ensure informed decision-making and tangible benefits are demonstrated
2. Biocontrol agents will establish and suppress target weeds based on proven success rates in similar Pacific contexts
3. Eradication operations will achieve success based on rigorous feasibility assessments and proven methodologies from 130+ successful Pacific operations
4. Regional coordination will deliver cost efficiencies and technical quality improvements based on existing PRISMSS experience
5. Government commitment to sustaining core functions post-project will be maintained through demonstrated success and integration into national planning frameworks

Ultimate Impact:

By project end (Year 7), communities across Tonga, Niue, and Tuvalu experience measurably improved climate resilience through: enhanced water security during droughts (native forests providing superior water retention, preventing contamination of water reserves by invasives); reduced flood and landslide risk during heavy rainfall (stabilised soils with extensive root networks); strengthened coastal protection during cyclones (restored coastal vegetation and healthy reefs reducing storm surge); improved food security (protected agricultural areas, protected natural food sources and productive fisheries); and sustained livelihoods (diversified income sources through project employment, restored natural resources supporting traditional livelihoods, reduced climate vulnerability enabling long-term planning). Evidence generated

through the project positions invasive species management as mainstream climate adaptation strategy, unlocking USD 80-150 million in additional climate finance (GCF proposals from Niue and Tonga) and enabling replication across 19 additional Pacific Island Countries through PRISMSS knowledge platforms.

Co-benefits:

Co-benefit 1 - Improved health: The removal of invasive mammalian predators directly contributes to reducing the incidence of vector-borne diseases, some of which can have extremely serious consequences on human health. Pacific Island communities are highly vulnerable to leptospirosis outbreaks, a bacterial infection most often carried by rodents, livestock and dogs and that can be fatal in some cases. In Niue, Tonga and Tuvalu where leptospirosis has been found on animals, climate change presents an additional threat as leptospirosis outbreaks have been linked to heavy rainfalls and flooding that favour its transmission to humans. Leptospirosis has been widely documented across Pacific Islands and linked to rodent reservoirs[lxii], underscoring the strong public-health co-benefits of invasive mammal control. Rodent control and piggery management have thus been identified as possible mitigation strategies for such disease.

Co-benefit 2 - Improved biodiversity conservation: The coordinated efforts of Components 1, 2 and 3 are expected to grant sizable benefits for the conservation and restoration of the native biodiversity of all three countries. In doing so, the project will directly contribute to advancing the objectives of the Kunming-Montreal Global Biodiversity Framework, under the Convention on Biodiversity, and more specifically its Target 6: Reduce the Introduction of Invasive Species by 50% and Minimise Their Impact.

In Niue, the project would benefit 175 species of vascular plants, 15 breeding bird species, 5 reptile species, 8 species of land crabs, 376 insect species, including 18 species of Indo-Pacific ants and one mammal. Marine biodiversity includes 70 coral genera, over 240 fish species, 2 species of marine turtles, whales, over 20 species of invertebrates including crabs, giant clams, and others. In Tonga, the project would support the conservation of more than 15 species of seabird and at least 5 landbirds of significance directly threatened by invasive rodents. In Tuvalu, just over 300 species have been recorded, of which about 65 are native species; the rest are introduced. Although as witnessed elsewhere, the Island nation of Tuvalu has been affected by Invasive species causing major threat to biodiversity.[lxiii]

Project Components and Financing:

Table 4 presents the relationships among project components, outcomes, outputs and countries in which activities would be executed, as well as the corresponding budgets.

Table 4 Project components, expected outcomes and outputs

Component	Expected Outcomes	Key Outputs	Amount (US$)
1. Biosecurity & Early Detection Rapid Response (EDRR) *(Prevention & Early Action)*	• Reduced IS establishment risk • Detection-to-response timeframes improved • National biosecurity systems strengthened	**1.1** Capacity Strengthening for National Quarantine and Inspection Services **1.2** National and Inter-Island Pathway Risk Assessments **1.3** Operationalization of Early Detection and Rapid Response (EDRR) Systems **1.4** Fostering Community-Based Biosecurity Awareness and Surveillance	Niue: $813,033 Tonga: $813,033 Tuvalu: $813,033 **Total: $2,439,098** *Outputs: $1,500,000* *Personnel: $939,098*
2. Community-Based Management & Restoration *(Localized ecosystem restoration for community Resilience)*	• Community IS control established • Ecosystem services at priority sites restored	**2.1** Ecological Restoration of Priority Terrestrial Sites **2.2** Management of High-Impact Invasive and Problematic Animals **2.3** Marine Invasive Species Early Detection and Rapid Response (EDRR) **2.4** Ecological restoration of priority reef ecosystems	Niue: $862,899 Tonga: $1,477,316 Tuvalu: $862,899 **Total: $3,203,115** *Outputs: $2,600,000* *Personnel: $603,115*
3. Large-Scale Transformative Management *(Landscape-scale ecosystem-based adaptation)*	• Ecosystem functions restored at scale • 8-10 islands predator-free • Recovery of Seabird populations on eradicated islands • 4-6 widespread weeds under permanent biocontrol	**3.1** Predator eradication operations on priority islands **3.2** Biological Control of Widespread Weeds	Niue: $1,358,690 Tonga: $5,350,521 Tuvalu: $4,942,914 **Total: $11,652,126** *Outputs: $9,300,000* *Personnel: $2,352,126*
4. Regional Cooperation & Knowledge Management *(Scaling & Sustainability)*	• Enhanced regional capacity for IS management • Mainstreaming of Pacific IS climate adaptation model • Sustainable financing mechanisms developed	**4.1** Knowledge Product Development and Dissemination **4.2** Fostering a Regional Community of Practice **4.3** Strengthening Regional Support Systems	*Regional component* **Total: $4,760,775** *Outputs: $720,000* *Personnel: $4,040,775*

Table 5 Project components, expected outcomes and outputs (2/2)

	Amount (US$)		
SUB-TOTALS:	**Niue**	**Tonga**	**Tuvalu**
	$4,621,547	$9,227,795	$8,205,772
	Components: $22,055,115		
	Of which: *Outputs: $14,120,000* *Personnel: $7,935,115*		
5. Project Execution Cost	**$2,451,000**		
6. Total Project Cost	**$24,506,115**		
7. Project Cycle Management Fee (Implementing Entity)	**$2,450,511**		
AMOUNT OF FINANCING REQUESTED	**$26,956,626**		

Projected Calendar:

Indicate the dates of the following milestones for the proposed project

Table 5 Milestones and expected dates

Milestones	Expected Dates
Start of Project Implementation	January 2027
Mid-term Review (if planned)	July 2029
Project Closing	December 2031
Terminal Evaluation	March 2034

PART II: PROJECT JUSTIFICATION

A. Describe the project components, particularly focusing on the concrete adaptation activities, how these activities would contribute to climate resilience, and how they would build added value through the regional approach, compared to implementing similar activities in each country individually. For the case of a programme, show how the combination of individual projects would contribute to the overall increase in resilience.

The project addresses the climate-IS nexus across the full invasion curve, leveraging proven PRISMSS methodologies and recent implementation successes. The three first components of the project correspond to management approaches that are specific to different types of priority invasives, and that are adapted to different stages of invasion[lxiv]. The last component is dedicated to learning and sharing, both between Niue, Tonga and Tuvalu and more broadly with other Pacific Countries and territories. The four components are deeply interconnected, each reinforcing the others to create a resilient and sustainable system. The entire project is designed for delivery through the established and proven methodologies of the Pacific Regional Invasive Species Management Support Service (PRISMSS), ensuring that interventions are guided by regional best practice, scientific rigor, and a deep understanding of the Pacific context. This section provides a detailed description of each component, the concrete activities to be undertaken, their direct contribution to climate resilience, and the indispensable value of the regional approach.

Component 1: Biosecurity & Early Detection Rapid Response (EDRR)

This component establishes robust biosecurity systems, which serves as the essential first line of defence against new invasive species and as an insurance policy for all other project investments. Prevention is universally recognised as the most cost-effective approach to invasive species management. By strengthening quarantine capacity, updating pathway risk assessments, and building rapid response capabilities, this component aims to stop new invasive species from establishing in the first place. This is a direct climate adaptation action, as it prevents the introduction of species that would otherwise exploit ecosystem disturbances caused by future cyclones, droughts, and other climate shocks and that would exacerbate adverse climate impacts. Without this preventive shield, the hard-won gains from eradication work would be under constant threat of being undermined by reinvasion, while restoration gains would be threatened by impacts of new invasives. Component 1 is country-led and regionally supported: national biosecurity authorities define priority pathways and needs, while PRISMSS convenes technical partners to standardise procedures, provide training and equipment. The philosophy of this component is to create a multi-layered defence system that operates at the international border, between islands within a country, and, crucially, within communities themselves, fostering a shared "biosecurity culture" that is the only truly effective long-term deterrent. By strengthening this shield, the project directly mitigates future adaptation deficits and ensures the long-term resilience of the participating nations. To translate this strategic vision into on-the-ground reality, Component 1 will execute a series of targeted, interconnected outputs.

Output 1.1: Capacity Strengthening for National Quarantine and Inspection Services
This output addresses a critical gap consistently identified: the need to enhance the capacity of the biosecurity officers operating at main country entry points. Currently, the quarantine services in Niue, Tonga, and Tuvalu are primarily oriented towards traditional agricultural and public health threats, with limited resources, training, and legislative mandate to have all capacity to address

species that pose a threat to biodiversity and overall ecosystem resilience. This project will provide targeted, in-depth training for national quarantine officers across the three countries, an intervention designed to significantly uplift the region's human resource base in this critical field. The training curriculum will be developed and delivered in partnership with regionally recognised biosecurity experts at the Pacific Community (SPC), broadening the officers' expertise to include the identification and interception of challenging invasive groups relevant to conservation and climate adaptation, such as invasive ants, reptiles, marine pests, and specific weed seeds. This training will be complemented by the provision of essential, practical, and sustainable equipment. Where needed, the project will also support minor refurbishments of existing quarantine facilities to ensure they meet basic operational standards for the secure handling of intercepted materials.

Output 1.2: Implementation of National and Inter-Island Pathway Risk Assessments
A key challenge for any resource-limited nation is the effective prioritisation of its surveillance efforts. It is impossible to monitor every potential entry point with equal vigilance. This activity will therefore fund technical experts to work collaboratively with national counterparts to conduct systematic and updated pathway risk assessments for each country. The methodology will be based on established international best practices but will be explicitly tailored to the Pacific context. The analysis will differentiate between international pathways, such as container shipping routes, airline corridors, and private yacht traffic, and the often-neglected but critically important inter-island pathways. In archipelagic nations like Tonga and Tuvalu, domestic transport via government ferries and private boats represents one of the highest risks for spreading invasive species from infested main islands to previously pristine outer islands, which are often the most important refuges for biodiversity and the most reliant on intact ecosystems for food security. The resulting assessments will provide a clear, evidence-based roadmap for governments to focus their limited financial and human resources on the highest-risk pathways, making their biosecurity efforts far more efficient and effective. These assessments will be living documents, designed to be updated every five years or after any major change in trade or transport patterns.

Output 1.3: Operationalisation of Early Detection and Rapid Response Systems
While all three countries have Early Detection and Rapid Response (EDRR) plans in place or under development, they would often require additional resources and trained personnel to be fully functional in the case of an incursion event. EDDR plans are operational protocols that allow swift response in the case a species like a mongoose, a cane toad, a foreign snake, or a highly invasive ant is detected. They will outline the immediate containment actions, the appropriate eradication methods, and the necessary communication strategy, ensuring an immediate and effective response. This project will bridge the critical gap between plan and practice, ensuring species-specific contingency plans for highest-risk potential invaders are operational for pathways identified in Output 1.2. To do so, training will be provided to the Rapid Response Teams identified in each country’s EDRR plan, bringing together key designated staff from Environment, Agriculture, Police, and key community groups. This training will be complemented by the provision of essential and practical EDRR equipment biosecurity, such as species-specific traps for surveillance and interception at high-risk sites (ports and airports), and mobile inspection kits that enable effective checks at inter-island ferry terminals and remote wharves. The project deliberately avoids complex systems that are difficult to maintain in remote island contexts.

Output 1.4: Fostering Community-Based Biosecurity Awareness and Surveillance
This output is founded on the principle that formal government systems alone are insufficient to monitor and manage hundreds of kilometres of coastline and countless informal points of entry. Effective biosecurity requires the active participation of an informed and engaged public. This activity recognises that communities are the true eyes and ears of the biosecurity system. This

builds on successful models such as the 2025 Vava'u POI Festival in Tonga[lxv], where community engagement through traditional plays, skits, and youth group activities led to the voluntary certification of local boats as "rat-free", this project will support the design and rollout of country-specific awareness campaigns. These campaigns will move beyond generic posters and brochures to develop targeted communication materials for specific, high-risk audiences, such as boat operators, importers, tourism operators, and women's groups who transport goods between islands. By empowering communities in priority villages across the three countries with knowledge and a clear, simple reporting mechanism, this activity will build a powerful, decentralised surveillance network that is essential for long-term biosecurity success and resilience.

Component 2: Community-Based Management & Restoration

Component 2 addresses the tangible, on-the-ground reality of ecosystem degradation caused by invasive species that are already established. While Component 1 builds a shield against future threats, Component 2 empowers local communities to restore the ecological damage in places that are of the highest value to their daily livelihoods, food security, and cultural identity. This component therefore mobilises communities as the primary agents of ecosystem restoration, building local capacity while delivering immediate adaptation benefits. Niue, Tonga, and Tuvalu facing similar invasive species and ecosystem threats and sharing similarities in terms of local governance and cultural practices, provides a rationale for a coordinated design of community-based management approaches tailored to pacific island contexts. This regional consistency in practices also favours cross-learning and exchanges of experiences to tackle shared challenges.

This component is delivered through the integrated application of the PRISMSS Resilient Ecosystems - Resilient Communities (RERC), War on Weeds (WOW), and Protect Our Marine Areas (POMA) programmes. Their approach is designed to build the social capital and local institutional capacity that is fundamental to sustaining the project's outcomes long after its completion, thereby creating a legacy of empowered and resilient communities.

Output 2.1: Ecological Restoration of Priority Terrestrial Sites
This output will implement a systematic restoration framework on several priority sites across Niue, Tonga and Tuvalu, following a scientifically grounded methodology ensures that restoration is not a superficial, one-off event but an enduring and persistent process that leads to self-sustaining ecological recovery through the management of several priority invasive species. This Ecosystem-Resilient Communities restoration approach has been developed and refined by PRISMSS partners through extensive, hands-on experience at over 100 sites across the Pacific. It combines the management of mammalian predators, weeds and other priority invasives, such as yellow crazy ants, at priority sites to accelerate the recovery of its ecosystem functions, which can also be supported by the replanting of native trees. The management of mammalian predators is conducted by setting up a network of traps, that allow to maintain the populations of invasive predators under a threshold that limits their impact. For weed management, the four-phase approach typically implemented is composed of: (1) Initial Control: intensive manual and, where appropriate, chemical control of dominant invasive weeds, (2) Follow-up Control: systematic treatment of the inevitable regrowth from seeds and roots over a 12–18-month period, (3) Seedbank Exhaustion: longer-term, lower-intensity management over 3-4 years to progressively deplete the invasive seedbank in the soil, to preventing large-scale reinvasion, and (4) Community Stewardship: transition to a long-term community protection and maintenance phase, where local institutions take over the management of the restored site. The component will establish community nurseries managed with production capacity, based on local demand assessments and restoration area requirements, in which women's groups could play a central

role. While relying on a similar “Resilient Ecosystems – Resilient Communities” approach, these activities will target priority sites identified in all three countries.

In Niue, the project will target areas of the Huvalu Forest Conservation Area, which covers approximately 5,400 hectares of the main forest ecosystem of the country. Huvalu has suffered severe degradation from invasive vines, particularly following Cyclone Heta as documented in post-cyclone assessments and is also degraded by a high concentration of feral pigs that exacerbate soil disturbance and root mat loss. Working on managing priority invasives on units aims to foster the recovery of native forest ecosystem. The anticipated adaptation benefits include improved slope stability and reduced landslide risk during cyclones, increased soil moisture retention during droughts, and improved resilience of agroforestry to rainfall variability.

In Tonga, the component addresses the challenge of managing invasive species across multiple islands with diverse ecosystems. On Tongatapu, the project will target Toloa Rainforest Reserve, which is used to raise awareness about environmental conservation by nearby schools. Several sites would also be targeted in Vava’u and in parts of the Eua National Park, where they play a key role to maintain soil stability and fertility in surrounding areas, while having a strong potential for nature-based tourism.

Tuvalu faces unique restoration challenges due to its fragile atoll environment and limited land area. This project component focuses on the protection and restoration of degraded islands and Pulaka pit agriculture, which has been heavily impacted by the invasive Singapore Daisy and sea water intrusion. The restoration employs approaches adapted to atoll conditions including mechanical removal using methods that minimize disturbance to shallow atoll soils; biological suppression through establishment of shade-providing native species; and community labour systems drawing on traditional cooperative work practices. Through these integrated approaches, Tuvalu aims to protect its vulnerable atoll ecosystem and enhance local food security.

Output 2.2: Management of High-Impact Invasive Animals
This output will target the management of high impact invasive animal species that are a common threat to the livelihoods of the communities in Niue, Tonga and Tuvalu. The focus of this activity will be the management of pigs. While having a central role for food security in all three countries, pigs can also have dramatic impact on ecosystem and crops if not managed properly. In Niue and Tonga, implementing management practices that prevent damage on ecosystems and agriculture while safeguarding this central source of food is a challenge the projects seek to address, building on the knowledge and know-how of Tuvaluan communities.

In Niue, one of the greatest barriers to achieving island-wide ecosystem resilience is the widespread damage caused by free-ranging domestic pigs to both forests and agriculture. This project will pioneer a critical social innovation by working collaboratively with communities in Niue's 14 villages to co-design and implement socially acceptable containment mechanisms for these pigs. This may involve providing materials for fencing, establishing community-managed pig enclosures, and developing local by-laws. This is an essential precursor to any future large-scale eradication effort and represents a major step forward in resolving a long-standing conflict between cultural practices and conservation goals.

In Tonga, the project will support the adoption of similar domestic pig management containment mechanism that management of invasive pigs, in particular on small islands in the Ha’apai island group where they will be a precursor to other mammalian predator eradications to be carried out in Component 3 of the project. In Tonga, the focus will also be on suppressing feral pig

populations in Tonga within the protected areas of 'Eua National Park, using a combination of traditional knowledge on pig behaviour and modern trapping techniques to protect the park's unique endemic flora from their destructive rooting and browsing.

In Tuvalu, a key priority identified directly by the community during consultations is the management of Cane Toads. These amphibians contaminate the rainwater collection cisterns, which are vital sources of drinking water for local communities. The issue is further compounded by saline intrusion into freshwater lenses, reducing the availability of clean groundwater, and by climate-induced droughts, which increase reliance on harvested rainwater. To address this, the project will support community-led surveillance and manual removal campaigns to help control cane toad populations, particularly around critical freshwater sources on at least four islands**.** This approach emphasises local participation**,** capacity building, and the protection of essential water resources against invasive species impacts. While cane toads are not present in Tonga and Niue, it represents a significant challenge in numerous other Pacific Island countries. The successful management of Cane Toads on atolls, would therefore be example of success that could be replicated elsewhere.

Output 2.3: Marine Invasive Species Early Detection and Rapid Response (EDRR)
Output 2.3 addresses the new and critical frontier of marine invasive species through the PRISMSS POMA programme. Warmer ocean temperatures are creating more favourable conditions for outbreaks of invasive species that can devastate coral reefs, the most important natural defence for these island nations. The project will develop in each of the country, able to provide a rapid response to potential outbreaks from priority marine invasive species to protect coral reefs and their ecosystem functions for the resilience of coastal communities. In order to do so, the activity will include (i) initial surveys to document distribution and abundance of target species, (ii) early detection guidance, based on scientific observation and local resources, (iii) the formalisation of EDRR plans detailing the roles and responsibilities, including for community-based monitoring protocols, and potential punctual removal actions (iv) capacity building of governmental and civil society actors and (v) procurement of equipment to local partners.

While this innovative approach will follow similar steps and processes, the marine invasives targeted in each country will vary to address local priorities. In Niue, the project will focus on the corallivorous *Drupella* snails. Drupella snail outbreaks following the 2019-2020 marine heatwave were documented by the Niue Department of Environment, preying on recovering corals and tipping the ecosystem into a state of permanent degradation. It will build on the ongoing actions of the local NGO *Niue in Blue.* In Tonga and Tuvalu, the focus will be on addressing the threat of invasive algae in coastal and nearshore marine environments. Warmer waters can fuel the rapid growth of these algae, which can smother coral reefs and seagrass beds that are vital for supporting local fisheries and marine biodiversity. The activities supporting this output will equip local fishers and community members, particularly women who have extensive knowledge of nearshore ecosystems, with the skills to identify, monitor and report algal blooms, enabling a rapid response to protect these critical marine habitats. In all three countries, the EDRR systems will also target Crown-of-Thorns starfish (*Acanthaster planci*) that can experience population outbreaks that can damage coral reef functioning.

Output 2.4: Ecological restoration of priority reef ecosystems
This output is designed to complement the management of marine invasive species by actively supporting local civil society organisations in the undertaking of coral gardening on priority marine sites in Niue, Tonga and Tuvalu. This underwater restoration technique allows to accelerate the recovery of coral reefs, also enabling to select heat-resistant species of coral that are more susceptible to survive to climate induced changes. This approach concretely consists in 5 steps.

First, small, healthy coral fragments are collected from existing colonies (Step 1. Fragmentation). These fragments are then attached to underwater structures in a protected area, or in land-based nurseries, to grow and mature, which provides a safe environment free from threats like predators, pollution, and damage (Step 2. Nursery). Corals are monitored and cared for in the nursery, receiving nutrients and light, allowing them to grow faster than they would on the reef (Step 3. Nurturing). Once the corals are large and resilient enough, they can be out planted and attached to a degraded reef using methods like eco-friendly cement or clips (Step 4: transplantation). Finally, the health and growth of the restored reef are monitored over time (Step 5: Monitoring).

By doing so, the project aims to accelerate the regeneration of coral reefs that provide both a protective barrier and an ecosystem that is host to a very diverse biodiversity and a critical precursor for sustainable fisheries.

Component 3: Large-scale transformative management

While the first two components build defences and restore localised priority areas, this component is designed to deliver permanent, landscape-scale ecological transformation. It targets widespread invasive species which impacts are so pervasive that they need to be addressed through high-impact, high-return interventions. These actions require significant upfront investment but deliver compounding adaptation benefits that grow stronger over time, creating self-sustaining, resilient ecosystems. This component will be delivered through two of PRISMSS's programmes: Predator Free Pacific (PFP) and Natural Enemies - Natural Solutions (NENS).

Output 3.1: Predator Eradication Operations on Priority Islands
The project will undertake the complete removal of invasive mammalian predators, primarily rats, from a portfolio of 8-10 priority islands. The approach employs methods proven in Pacific conditions, relying on a combination of ground-based baiting grids for smaller islands, and aerial application for larger or complex islands. In occurrences where pig populations are present on islands, they need to be removed from to ensure they don’t consume the bait and reduce their availability for rodents. This can be done by ensuring domestic pigs are kept in fenced pens and by removing feral pigs pig relying on trapping and hunting operations. The operation procedure is based on over 130 successful Pacific operations documented in the Database of Island Invasive Species Eradications and comprises strong social and environmental safeguards measures detailed later in the concept note. Post-operational biosecurity is established, in coordination with Component 1 of the project, before baiting begins and continues for at least two years, with community guardians trained and equipped to detect and respond to potential reinvasions.

The selection of these islands is not arbitrary. It focuses on inhabited islands and surrounding islets, to maximise concrete adaptation outcomes for small island communities. This choice also aims to contribute to the ongoing effort to ramp up the regional capacity to carry out operations of growing complexity thanks to more innovative protocols and technologies, as the target islands are host to approximately 200 people while recent operations on inhabited islands in the Pacific target islands counting with around 50-100 residents. The innovation for the region will contribute to the scaling up of this type of operations, opening the way for even more impactful projects in the region. The selection is also based on rigorous feasibility assessments using criteria established by PRISMSS to ensure each operation has the highest possible chance of success.

The pre-identified islands in Tonga and Tuvalu hence share a similar profile, to favour cross learning and experience sharing across the two countries. In Tonga, the project will target inhabited islands in the Ha'apai group. In Tuvalu, the project will complete rat eradication from

remaining Nukufetau motu, building on the successful 2024 operation documented by Island Conservation[lxvi]. The activities for this output also aim include the visit of observer from Niue, which has pledged to eradicate rodents from the whole country by 2030 and would benefit from the experience of operations in Tonga and Tuvalu.

The concrete adaptation outcomes of such operations are far reaching as they allow to permanently suppress the adverse impacts of invasive mammalian predators and restore fundamental ecological processes that have been broken for centuries. As explained in the context section of the concept note, not only such operations reduce damage on crops and natural resources but also allow decimated seabird populations to rebound, transporting vast quantities of marine-derived nutrients back to the islands in the form of guano. This guano enriches the depleted island soils and also washes onto the surrounding reefs, providing the essential nutrients that help corals survive and recover from climate-induced bleaching events[lxvii]. This direct ecological link between a predator-free island and a more resilient coral reef is one of the most powerful examples of ecosystem-based adaptation.

Output 3.2: Classical Biological Control of Widespread Weeds
This output implements the PRISMSS Natural Enemies-Natural Solutions approach, following protocols established through decades of Pacific biocontrol programs documented by Landcare Research New Zealand. For invasive plants that cover vast areas, manual or chemical control is often financially unsustainable and logistically impossible. This activity provides a permanent, cost-effective, and environmentally specific solution by introducing a natural enemy from the weed's native range that feeds exclusively on the target plant. This process is governed by stringent international scientific and safety protocols (FAO's ISPM 3) to ensure that any introduced agent is safe and poses no threat to native species or crops.

The project will take a strategic, two-pronged approach to deliver biocontrol for 4-6 priority weeds, that are identified through national NISSAPs and site-based diagnostics.

First, it will implement "repeat programmes" by facilitating the transfer of biocontrol agents that have already been proven safe and effective in the Pacific. Pre-identified candidates for repeat programmes that match countries priorities would target:

- Singapore Daisy (NU, TO and TU), for which a gall mite has demonstrated effective control in climates similar to the target countries
- Air Potato (TO), for which a leaf beetle (Lilioceris cheni), introduced to Niue in November 2024, shows establishment success
- African Tulip (TO), for which a beetle has achieved documented suppression in Cook Islands as reported in biocontrol assessment studies
- Taro Vine (TO), for which a lace-bug should be introduced in Niue early 2026 that showed promising results during laboratory tests.
- Tithonia (NU), for which a beetle has shown promising results.

Secondly, the project would support research for biological control agents for Leucaena trees that are a priority invasive in all three countries and for which new agents suitable for atoll conditions has been a gap identified in regional biocontrol strategies.

The delivery of this activity would include agent discovery and testing, to be conducted by PRISMSS partners with expertise in Pacific weed biocontrol, with climate considerations integrated to ensure that agent efficacy remains robust under projected temperature and rainfall regimes. The establishment or strengthening of national rearing facilities to produce sufficient

agents for strategic releases could also be integrated to the project to accelerate the deployment of biocontrol solutions and build local capacities.

The contribution of this activity to climate resilience is profound and transformative. Biological control provides what is effectively a permanent "vaccination" for the landscape against a specific invasive weed. It allows native, climate-resilient vegetation to recover across entire watersheds, enhancing their ability to regulate water flow and resist future disturbances. Once established, biocontrol offers a highly cost-effective and self-sustaining means to reduce invasive pressure, enhancing the persistence of adaptation benefits without ongoing high labour or chemical inputs.

The regional added value of this component is indispensable; indeed, these activities are largely unfeasible without a regional approach. The scientific research and rigorous host-specificity testing required to develop a single new biocontrol agent are prohibitively expensive[lxviii]; by sharing this cost across the three participating countries, each country gains access to this transformative technology for a fraction of the price. Similarly, the technical expertise and specialised equipment required for island eradications are scarce and expensive. The PRISMSS "roving expert" model allows a single expert team to be deployed sequentially across the countries, dramatically reducing costs and ensuring that each operation benefits from the lessons learned in the last.

Component 4: Regional Cooperation & Knowledge Management

The final component of the project serves as the engine for efficiency, scaling, and long-term sustainability addressing the capacity constraints documented in Pacific Island vulnerability assessments. It ensures that the project's impact is not confined to the three target countries but is amplified across the entire Pacific region. It achieves this by investing in the core coordinating and capacity-building functions of the PRISMSS service, transforming the project from a set of national activities into a strategic investment in regional public goods. This component ensures that the knowledge, innovations, and capacity generated by the project become a permanent legacy for the Pacific.

Output 4.1: Knowledge Product Development and Dissemination
This output is dedicated to capturing and sharing the valuable lessons learned from the project. The project will systematically document the methodologies, challenges, successes, and cost-benefit analyses from every major intervention. This information will be translated into a suite of practical and accessible knowledge products. The project will fund the creation such products, including technical "how-to" guides for practitioners (e.g., "A Guide to Community-Based Pig Management in the Pacific"); policy briefs for government decision-makers; and engaging case studies and short videos for community audiences.

The enhancement of PRISMSS knowledge systems builds on existing platforms. The Battler Resource Base, established as the Pacific's invasive species knowledge repository, will be expanded with technical products from this project including protocols validated through implementation, manuals translated into local languages, and templates adapted from proven approaches. The PRISMSS Navigator enhancement addresses gaps identified in regional information management assessments. These systems enable knowledge transfer documented to reduce implementation costs through avoided trial-and-error. The documentation of Traditional Ecological Knowledge addresses the loss of indigenous knowledge identified as a critical gap in Pacific environmental assessments. Working with protocols established through regional

consultations and following international best practice for indigenous knowledge documentation, the project will record traditional indicators and management practices.

Output 4.2: Fostering a Regional Community of Practice
This activity will foster a vibrant community of practice for invasive species management. The project will support a variety of mechanisms for practitioners to learn from one another, recognising that peer-to-peer exchange is one of the most effective forms of capacity building. The regional training activity builds on the Pacific Invasives Learning Network (PILN) established in 2005 as the region's premier forum bringing together managers, technical experts, and community leaders from across the Pacific to share expertise and build professional networks. Support for network meetings, which have successfully brought together practitioners from across the Pacific as documented in meeting reports, provides forums for technical exchange. Targeted technical exchanges address specific capacity gaps identified through national assessments, with south-south cooperation proven more effective than external technical assistance in Pacific contexts. The project will provide support for at least two biennial meetings of the PILN and also support more targeted technical exchanges and South-South learning opportunities. This will allow, for example, a team from Tonga to visit Niue to learn about their pig management innovations firsthand, or for biosecurity officers from Tuvalu to receive on-the-job mentoring at a larger port facility in Tonga.

Output 4.3: Strengthening Regional Support Systems and Policy Integration
This output invests in the core technical expertise of PRISMSS, ensuring its long-term sustainability. The project will fund a portion of the time of the regional technical leads (the "roving experts") and programme coordinators. This ensures that their world-class expertise is available to guide the implementation of this project and to provide on-demand technical advice and support to all 22 Pacific Island Countries and Territories. These experts will also work with the national governments of Niue, Tonga, and Tuvalu to mainstream invasive species management into broader national planning processes, such as National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), and national budgets. This policy integration is critical for ensuring the financial and institutional sustainability of invasive species management beyond the life of the project. This activity will also explore and develop innovative sustainable financing mechanisms, such as biosecurity levies or payments for ecosystem services, to create long-term domestic revenue streams for this critical work.

The contribution of this component to climate resilience is that of a multiplier. It takes the successful adaptation solutions that are validated and refined in Niue, Tonga, and Tuvalu, such as community-based biosecurity or socially acceptable pig management and creates the systems to scale them across the entire Pacific, a region of nations facing homogenous climate threats. By codifying and sharing the methodology for a successful intervention, this component dramatically reduces the cost and time it takes for other countries to adopt these solutions and accelerates the pace of adaptation across the region. The regional added value is the very essence of this component. It transforms a time-bound project into a permanent enhancement of the region's collective capacity. It ensures that the project's greatest legacy is not just restored islands, but a stronger, more knowledgeable, and more collaborative network of Pacific people equipped to protect their homes and heritage in the face of a changing climate. The systems established will continue delivering adaptation benefits beyond project completion, creating a long-term regional architecture for managing threats to Pacific resilience.

B. Describe how the project would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.

In the context of Pacific Small Island Developing States, where financial and human resources are acutely constrained, the innovative solutions that are integrated in the project's design are grounded in innovation, pioneering several approaches that represent a significant leap forward for ecosystem-based adaptation in the region. Rather than the pursuit of the pursuit of unproven, high-cost technologies, this pioneering of new applications, methodologies, and social processes that make adaptation more effective, efficient, and sustainable. The innovations are not isolated novelties but are systemically integrated into the project's design to address specific, long-standing barriers to resilience. They can be understood across three interconnected domains: ecological and methodological, technological, and social and institutional innovation.

Ecological and Methodological Innovation

The project's most significant innovations lie in its approach to restoring ecological processes at a transformative scale. A central methodological innovation is the application of predator eradication techniques on permanently inhabited islands. While the technical aspects of rodent eradication have been proven on over 130 islands in the Pacific, most of them uninhabited, this project will be among the first in the region undertake this work on islands with significant resident populations, such as Kotu in Tonga's Ha'apai group (approx. 200 residents) and the main motu of Nukufetau in Tuvalu (approx. 250 residents). Building on the experience of the rodent eradication from Palmerston (50 residents) in the Cook Islands, and larger operations in other regions of the world, this project represents a frontier in eradication practice in the Pacific. The innovation is not merely technical but deeply social and methodological, requiring a far more complex and patient process of community engagement, securing Free, Prior, and Informed Consent (FPIC), and developing meticulous operational plans to ensure the complete safety of residents, their domestic animals, and their food and water supplies. Success in this endeavour will provide valuable experience on the application of a proven, socially vetted methodology that unlocks the possibility of restoring ecosystem resilience on hundreds of other inhabited islands across the Pacific. In particular, it will represent a significant milestone for the country-wide rodent eradication pledged by Niue, for which a GCF-funded project is under development. By doing this, it will lay the ground for scaling-up of predator eradication as a tool to enhance the climate resilience of coral reef ecosystems.

Secondly, the project pioneers the development and deployment of new climate-adapted biological control agents. The innovation here is twofold. Firstly, it mobilises a regional cost-sharing model for the research and development of new biocontrol agents for shared, high-priority weeds like Leucaena and the Singapore Daisy. This institutional innovation makes this powerful but expensive technology accessible to small island states. Secondly, the project ambitions to increase the local content for the delivery of biocontrol projects, by building local capacities and supporting the refurbishment of quarantine buildings where required. It will therefore allow to accelerate the deployment of biocontrol programmes, while investing in local capacities that will enhance the ownership of such programmes and their cost-efficiency.

Finally, the project will pioneer an Early Detection-Rapid Response system dedicated to tackling outbreaks of marine invasive species. First of its kind in the Pacific, this EDRR system will develop a science-based methodology to identify precursor phenomena of algal blooms and *Drupella* outbreaks, allowing to deploy rapid response to nip the exponential growth of marine invasives in

the bud. Both the science that will inform the EDRR system and rapid response methods will represent a new tool to manage marine invasive outbreaks, to be replicated in the region.

Technological Innovation

The project's approach to technology is guided by a principle of practical and sustainable application. It deliberately avoids complex, high-maintenance technologies in favour of robust, cost-effective tools that are proven to work in remote island contexts. A key technological innovation will be the deployment of solar-powered remote sensing stations for biosecurity monitoring. As discussed in technical consultations, these systems, which typically consist of a camera trap linked to a simple SMS or satellite messaging service, provide a low-cost, low-maintenance solution for 24/7 surveillance of critical sites. They will be deployed at unmanned entry points on remote outer islands and on newly eradicated islands to provide an early warning system for any potential reinvasion by rats or other species. This represents a significant and practical upgrade to the region's EDRR and post-eradication biosecurity capacity, extending the reach of monitoring far beyond what is possible with limited human resources.

Social and Institutional Innovation

Perhaps the most groundbreaking innovations of the project are social and institutional. The project will pilot a co-designed, community-led approach to resolving the long-standing challenge of domestic pig management in Niue and Tonga. This issue is a primary barrier to ecosystem restoration on the island, but it is deeply embedded in cultural and livelihood practices. Rather than imposing a top-down technical solution, this project will facilitate a participatory process with Tonga and Niue's communities to co-design and implement socially and culturally acceptable containment systems. This process of social engineering, finding a solution that works for both people and the environment, is a profound innovation. If successful, it will create a replicable model for resolving similar human-wildlife conflicts across the entire Pacific. A similar social and institutional innovative approach will also be designed for the management of Cane toads in Tuvalu, to ensure the management can be sustained effectively over time.

Building on this participatory ethos, the project will scale up the community-driven biosecurity model successfully demonstrated. The innovation here is the shift from a traditional, top-down regulatory and enforcement model of biosecurity to a bottom-up model rooted in community ownership and cultural pride. By using culturally resonant forms of communication like plays and songs, and by empowering local leaders to champion the cause, this approach fosters a genuine "biosecurity culture" where communities become the primary agents of prevention. This is a more sustainable and ultimately more effective model for archipelagic nations where formal government capacity will always be limited.

Finally, the project will innovate in its systematic and ethical integration of Gender Equality, Disability, and Social Inclusion (GEDSI) and Traditional Knowledge (TK). The innovation is not simply the inclusion of these considerations, but the development of specific, practical methodologies to ensure they are at the core of the project's design and implementation. This includes the development and use of a dedicated GEDSI and Traditional Knowledge framework, pioneered by PRISMSS, to guide field staff in the respectful and consent-based documentation and application of TK. It also includes the application of gender budgeting and the co-design of project activities with women's groups and disabled persons' organisations to ensure that roles are accessible, benefits are equitable, and the project actively works to transform, rather than reinforce, existing social inequities. Consultation of representatives have allowed to pre-identify potential implementation partners such as Niue Women’s Council, Niue Fitikanai association,

Tonga's Lavame'a Ta'e'iloa Disabled People Association, the Fusi Alofa Association (Disabled Persons Organisation) and Gender, Youth and Health government departments in Tuvalu.

C. Describe how the project would provide economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project would avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The project is designed to deliver transformative and enduring benefits across economic, social, and environmental dimensions. The interventions are deliberately targeted to address the specific vulnerabilities of the participating communities in Niue, Tonga, and Tuvalu, with a foundational commitment to ensuring that benefits flow equitably to the most vulnerable groups, including women, youth, persons with disabilities, and residents of remote outer islands. The project's design is guided by a "do no harm" principle, with a comprehensive framework for avoiding and mitigating potential negative impacts in full compliance with the Environmental and Social Policy of the Adaptation Fund and SPREP's Environmental and Social Management Policy.

Economic Benefits

The project will generate significant economic benefits by restoring and protecting the natural capital that underpins the economies of these island nations. The primary economic benefit will be the enhancement of agricultural productivity and food security. Invasive species are a major constraint on agricultural production in all three countries. The removal of invasive rats, which are known to cause significant damage to staple crops like coconut, taro, and breadfruit, and the control of invasive weeds like Singapore Daisy, which smothers the traditional pulaka pits of Tuvalu, will lead to direct and measurable increases in crop yields. This will enhance the food security of farming households, reduce their expenditure on imported food, and increase their resilience to the food supply chain disruptions that frequently follow climate-related disasters.

The project will also create direct employment and livelihood opportunities. The implementation of restoration activities under Component 2 will create paid positions for community members, providing a vital source of income, particularly in outer island communities with limited formal employment. The project will also invest in building specialised local capacity, training national quarantine officers, biocontrol technicians, and EDRR team members, creating a cohort of skilled environmental professionals. Furthermore, the establishment of community-run native plant nurseries, will create small-scale enterprises that can generate income streams beyond the project period by supplying plants for local landscaping and future restoration initiatives.

Finally, the project represents a highly cost-effective investment in disaster risk reduction and the protection of national economic assets. As established by international evidence, every dollar invested in biosecurity and early detection saves an estimated ten to fifteen dollars in future control costs and economic damages. By preventing the establishment of new invasive species, this project protects the foundational assets of the tourism and fisheries sectors, healthy coral reefs, pristine forests, and unique biodiversity, from irreversible harm. The restoration of natural coastal ecosystems, such as healthy reefs and intact coastal forests, provides storm surge protection at a fraction of the cost of engineered solutions like seawalls, while delivering a multitude of valuable co-benefits.

Social Benefits

The project is built on a foundation of social inclusion, with specific mechanisms to ensure that benefits are shared equitably and that the project empowers the most vulnerable members of society. A central pillar of the social benefits is the targeted support for vulnerable groups and a commitment to gender mainstreaming. A Gender Equality, Disability, and Social Inclusion (GEDSI) analysis has been conducted, revealing the differentiated impacts of invasive species. Consultations with women's councils, youth departments and disabled persons' organisations in Niue, Tonga and Tuvalu highlighted that women often bear a greater burden from the degradation of natural resources, as they are primarily responsible for collecting freshwater (which can be contaminated by feral pigs), tending food gardens (which are overrun by weeds), and sourcing traditional medicines (which are outcompeted by invasive plants).

The project directly responds to these findings with proactive solutions. In response, the project commits to at least 35% women's participation across relevant activities, co-designs schedules and roles with women's and youth groups, and creates accessible, tailored roles for persons with disabilities so that they can participate meaningfully. Consultations with DPOs in Tonga (Lavame'a Ta'e'iloa) and Tuvalu (Fusi Alofa Association) identified specific tasks that persons with disabilities can and want to do, such as nursery work, biocontrol rearing, data entry, simple monitoring and awareness activities. Project design therefore includes paid, low-mobility roles in community restoration, insectaries and monitoring teams, so that persons with disabilities can benefit from cash-for-work and longer-term livelihood opportunities without needing to undertake heavy field labour.

The project will also deliver significant health and wellbeing benefits. The eradication of rats, which are known vectors for diseases such as leptospirosis, will directly reduce public health risks. The restoration of native forests will improve the quality and reliability of freshwater sources, a critical benefit in a region facing increasing drought stress. The enhanced productivity of food gardens and fisheries will improve nutrition and the availability of diverse, healthy local foods.

Beyond these direct benefits, the project is expected to strengthen community cohesion and social capital. The collaborative nature of the restoration and biosecurity activities will bring community members together to work towards a shared goal. The project will strengthen the capacity of local community organisations, from village councils to women's groups, by providing them with resources, training and a central role in project governance, building on the organisations and initiatives identified through the in-country consultations. In Niue, for example, consultations with the Project Management Coordination Unit, Niue Council of Women and the Fitikanai Association highlighted existing initiatives such as the Pandanus project and Women in Maritime programme, which the project will use as entry points for mobilisation, co-design of restoration activities and long-term community ownership. The revival of traditional resource management practices and the integration of Traditional Knowledge will reinforce cultural identity and intergenerational connections.

Environmental Benefits

The environmental benefits of the project are profound and will secure the ecological foundation for long-term climate resilience. The primary environmental benefit is the conservation of unique Pacific biodiversity. The project will bring several thousand hectares of critical terrestrial and marine habitat under improved management, directly protecting endemic and threatened species from the primary driver of their decline. These include iconic species such as the Tongan Whistler (Hengahenga), the Polynesian Megapode, and flying foxes in Tonga; the unique coconut crab (uga) and endemic land snails of Niue; and the globally significant seabird colonies and marine

turtle nesting sites of Tuvalu. The successful eradication of predators from 8-10 islands will create secure permanent refuges for these species, pulling them back from the brink of extinction.

Beyond the protection of individual species, the project will achieve the recovery of fundamental ecosystem functions and processes. The removal of invasive species will trigger the natural regeneration of native forests. The recovery of bird populations on predator-free islands will re-establish the critical ecological processes of pollination and seed dispersal, which are essential for the long-term health and dynamism of the forests. Most critically, the project will restore the vital nutrient cycling between land and sea. The recovery of seabird colonies will reinstate the flow of guano from the islands to the surrounding reefs, a process that has been scientifically proven to enrich the marine ecosystem and enhance the resilience of corals to climate change.

Ultimately, these biodiversity and ecosystem function benefits translate directly into enhanced climate resilience. The restoration of healthy, multi-layered native forests will increase their capacity to act as natural sponges and thereby building resilience to both drought and extreme rainfall events. The recovery of intact coastal vegetation and healthy coral reefs will provide enhanced natural protection against storm surge and coastal erosion, with healthy reefs capable of reducing wave energy by up to 97%. This restoration of natural infrastructure is one of the most effective and sustainable forms of climate adaptation for these vulnerable island nations.

Compliance with the Adaptation Fund's Environmental and Social Policy

The project is fully committed to complying with the Environmental and Social Policy (ESP) of the Adaptation Fund and is designed to uphold the highest standards of environmental and social responsibility. A thorough environmental and social screening of all project activities has been conducted against the Fund's 15 ESP principles, and the project has been preliminarily classified as Category B. This classification indicates that while some activities may have potential adverse impacts, these are expected to be small-scale, site-specific, reversible, and readily manageable through the application of proven mitigation measures.

A comprehensive Environmental and Social Management Plan (ESMP) will be developed during the full proposal stage to detail the specific actions that will be taken to avoid, minimise, and mitigate any potential negative impacts. The project's approach to safeguards is proactive and is built on several key pillars. All activities that could potentially affect community lands, resources, or livelihoods will be subject to a robust process of Free, Prior, and Informed Consent (FPIC), conducted through culturally appropriate, traditional decision-making processes. The project will establish a multi-tiered and accessible Grievance Redress Mechanism (GRM), to ensure that any concerns raised by community members can be addressed swiftly and transparently.

Any use of chemical agents, such as rodenticides for eradication operations or herbicides for weed control, will be strictly managed in accordance with the World Health Organisation (WHO) and Food and Agriculture Organisation (FAO) guidelines, as well as the requirements of the Stockholm Convention. Only the least toxic and most target-specific products will be used, and all staff and community members involved will receive comprehensive training in safe handling, application, and disposal, including the mandatory use of Personal Protective Equipment (PPE). Finally, the project's adaptive management approach, informed by continuous monitoring of its environmental and social performance, will ensure that any unforeseen negative impacts can be quickly identified and addressed. This diligent adherence to the ESP ensures that the project's interventions will be implemented in a manner that is not only effective but also responsible, equitable, and sustainable.

D. Describe or provide an analysis of the cost-effectiveness of the proposed project and explain how the regional approach would support cost-effectiveness.

The proposed project represents a highly cost-effective investment in climate resilience, delivering durable, population-wide adaptation outcomes for approximately 115 000 people across Niue, Tonga and Tuvalu[lxix]. Its total cost of USD 26.6 million equates to an investment of USD 231 per person reached, well below the regional adaptation benchmark of USD 300–500 per beneficiary[lxx],[lxxi]. The project's efficiency derives from three interlinked features: (i) permanent, low-maintenance solutions such as eradication and biological control; (ii) multi-sectoral benefits from single investments (water, coastal protection, food security); and (iii) regional cooperation that shares technical capacity and eliminates duplication.

Every USD 1 invested in biosecurity and early detection avoids USD 10–15 in future control costs[lxxii]. Preventive action eliminates recurrent management expenditure, while eradication removes annual control costs of USD 50 000–100 000 per site[lxxiii]. Biological-control agents provide benefit–cost ratios of 10:1 to >100:1 over 20–30 years[lxxiv]. Eradication operations typically cost USD 0.5–1 million per island, with post-eradication maintenance < USD 20 000 per year (< 5 % of initial cost)[lxxv]. Independent assessments of PRISMSS and other Pacific regional delivery mechanisms confirm that regional implementation yields approximately 30–40 % cost savings compared with single-country approaches, through shared procurement, pooled technical teams and streamlined fiduciary systems[lxxvi] [lxxvii]. Across components, the integrated portfolio achieves ecosystem and livelihood resilience at 30–40 % lower cost than isolated national efforts.

Implementing this project through PRISMSS delivers substantial efficiency gains while creating regional public goods unachievable by individual countries. Developing biocontrol solutions nationally costs USD 0.5–1 million per target weed; regional collaboration reduces this to USD 167 000–333 000 per country (≈ 67 % saving). Shared "roving-expert" teams and specialised equipment cut per-island operational costs by 40–60 %, while bulk procurement and shipping add a further ~25 % saving[lxxviii]. Beyond financial efficiency, coordinated regional delivery strengthens biosecurity and ecosystem connectivity across borders. Harmonised early-detection and rapid response (EDRR) systems prevent re-invasion between neighbouring islands, protecting national investments and reducing collective risk[lxxix]. The regional framework also supports joint development of new management methodologies, such as marine EDRR protocols or domestic-pig management models, ensuring innovation costs are shared and standards remain consistent.

Supporting PRISMSS Component 4 (Regional Cooperation & Knowledge Management) is central to this efficiency model. By consolidating training, monitoring systems and knowledge platforms (e.g. Battler Resource Base, Pacific Invasives Navigator), the component avoids duplication, builds regional institutional memory and accelerates technology transfer to other Pacific SIDS. Secondary regional advantages include enhanced biosecurity resilience that reduces the spread of invasive species and the co-development of new adaptation practices relevant beyond the three target countries.

Ultimately, PRISMSS provides a regional multiplier effect, reducing costs, raising standards and embedding lasting capacity across multiple Pacific nations. This integrated model transforms limited national resources into a coordinated, scalable investment that delivers measurable ecosystem and livelihood resilience at the lowest feasible cost.

E. Describe how the project is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist. If applicable, please refer to relevant regional plans and strategies where they exist.

This project is not a standalone intervention but is deeply embedded within and serves as a direct implementation vehicle for the core environmental, climate resilience, and sustainable development strategies of Niue, Tonga, and Tuvalu. The project is a direct response to the priorities identified by the countries themselves, providing the essential, on-the-ground actions required to operationalise the high-level goals articulated in their key national policies. The strategic alignment is multi-layered, ensuring that the project is not only consistent with but is a fundamental enabler of national and regional ambitions. The following table summarises this deep strategic alignment, followed by a brief narrative.

Table 6 Project Alignment with Key National Strategies

Project Component	Tonga	Niue	Tuvalu
1. Biosecurity & Early Detection Rapid Response (EDRR)	NISSAP: Implements biosecurity & EDRR objectives. JNAP2: Strengthens resilience of ports & transport.	NISSAP: Addresses key biosecurity pathways and upholds national biosecurity goals.	NISSAP: Implements Theme C1 (Biosecurity). NAPA: Reduces risk of new pests impacting food/health.
2. Community-Based Management & Restoration	JNAP2: Delivers on EbA & resilient marine ecosystems. NDC: Contributes to land restoration goals.	JNAP: Strengthens natural assets (Huvalu Forest) & community resilience. NNSP: Implements Environment pillar.	NAPA: Enhances food security (pulaka pits) & coastal protection. Te Kete: Protects "atoll endowments."
3. Large-Scale Transformative Management	NISSAP: Executes mandate for control & eradication. NBSAP: Protects endemic species & key habitats from IS threats.	NISSAP: Targets priority species with innovative solutions. NBSAP: Restores biodiversity in priority conservation areas.	NISSAP: Implements Theme C2 (Management). NBSAP: Secures atoll biodiversity and ecosystem function.
Overall Project Alignment	NEMS/NBSAP: Provides the primary mechanism to manage the single greatest driver of biodiversity loss, a core	NBSAP: Implements national environmental management priorities by restoring degraded ecosystems and	NEMS/NBSAP: Fulfils national mandate to protect fragile atoll ecosystems from the

	objective of both strategies.	protecting unique biodiversity.	primary threat to their integrity and biodiversity.

The project's design is not merely consistent with these national policies; it is the functional bridge between their strategic ambitions and tangible, resilient outcomes. The alignment is evident across four key thematic areas:

1. *Direct Implementation of Invasive Species Policy:* The project's four-component structure is a direct operationalisation of each country's National Invasive Species Strategy and Action Plan (NISSAP). It mirrors the logic of the full invasion curve, a best-practice management principle that is central to the NISSAPs of all three nations. Component 1 (Biosecurity & EDRR) directly implements the NISSAPs' objectives related to prevention and border control. Component 2 (Community-Based Management & Restoration) executes the mandate for managing invasive species at priority local sites. Component 3 (Large-Scale Transformative Management) provides the mechanism to achieve the NISSAPs' most ambitious goals for the eradication and biological control of established, widespread pests. It provides the critical funding and technical methodologies to execute the precise actions that the countries have already identified and prioritised in these foundational strategic documents.

2. *A Foundational Pillar for Climate & Disaster Resilience:* This project is an enabling investment for achieving the broader goals of each country's primary climate and disaster resilience frameworks: the Joint National Action Plans (JNAPs) for Tonga and Niue, and the National Adaptation Programme of Action (NAPA) and the Te Kete National Strategy for Tuvalu. These strategies depend on healthy, functioning ecosystems for food security, coastal protection, and resilient livelihoods. They recognise that intact forests are essential for water security, that healthy reefs are the first line of defence against storm surge, and that productive agricultural landscapes are the basis of food security. As the primary driver of ecosystem degradation in the Pacific, invasive species (IS) represent a critical, cross-cutting threat that systematically undermines these national objectives. By managing IS, this project secures the ecological foundation upon which all other climate adaptation and disaster risk reduction efforts, from water infrastructure projects to agricultural support programmes, are built. It is not an alternative to these other efforts, but a prerequisite for their long-term success and sustainability.

3. *Core Contribution to National Environmental Goals:* The project is fundamental to achieving the conservation targets of each nation's National Biodiversity Strategy and Action Plan (NBSAP) and the sustainable development vision of their National Environment Management Strategies (NEMS). Managing IS widely recognised as the most critical intervention for protecting endemic species and halting biodiversity loss in the Pacific. The specific activities of the project, such as restoring the Huvalu Forest in Niue, suppressing feral pigs in Tonga's Eua National Park, and eradicating rats from Tuvalu's atolls to protect seabird colonies, are direct, measurable contributions to fulfilling national and global biodiversity commitments, including Target 6 of the Kunming-Montreal Global Biodiversity Framework, to which all three countries are signatories.

4. *Cross-cutting contribution to various National Strategies:* Consultations with sector ministries have also confirmed that the project directly supports their own strategic priorities. In Tonga, the Ministry of Forestry and the Department of Quarantine under the Ministry of Agriculture, Food and Forests highlighted how planned feral pig control, weed management and strengthened inter-island biosecurity help deliver their national programmes on sustainable forest management, plant and animal health and safe trade.

In Tuvalu, the Departments of Fisheries, Agriculture, Health and Tourism underlined that rat eradication on key islets, improved marine biosecurity and community restoration activities are aligned with sector plans for food security, public health and nature-based tourism development. For Niue, consultations with the NOW Trust and the Project Management Coordination Unit indicated that forest restoration and invasive species control in Huvalu and coastal areas advance national objectives for biodiversity conservation, climate-resilient livelihoods and sustainable ocean-based development. Together, these inputs demonstrate that the project is not only consistent with NISSAPs, JNAPs and NBSAPs, but also operationalises the goals of forestry, quarantine, fisheries, agriculture, health and tourism sectors in each country.

Finally, these nationally grounded actions are amplified through coherence with regional frameworks like the Guiding Framework for Invasive Species Management in the Pacific endorsed by all Pacific Island Countries and Territories in 2023. It operationalises the principles of the Framework for Resilient Development in the Pacific (FRDP) by integrating climate change adaptation and disaster risk reduction through ecosystem-based approaches. It is also a direct contribution to the strategic priorities of the SPREP Strategic Plan. This multi-layered alignment from the local to the national, regional, and global levels, ensures the project is a low-risk, high-impact investment that is fully owned by the participating countries and is positioned to deliver lasting and meaningful results for a more resilient Pacific.

F. Describe how the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

National Technical Standards Compliance

Environmental Assessment

The project will adhere to the environmental assessment laws of each participating country, ensuring all necessary environmental reviews and approvals are obtained before activities commence. In Tonga, for example, the Environmental Impact Assessment Act 2003 requires that any major project likely to affect the environment undergo an EIA and receive approval from the authorities. Similarly, in Tuvalu the project will comply with the Environment Protection Act 2008, which sets out requirements for assessing and mitigating environmental impacts, and in Niue it will follow the provisions of the Environment Act 2003. In practical terms, this means the project will work closely with national environment agencies to screen proposed interventions, prepare any required Environmental Impact Assessment reports, and implement mitigation measures so that all activities meet the standards set by these laws. By doing so, the project not only stays in legal compliance but also ensures that potential environmental impacts are identified and managed in line with national norms.

For Tonga, other relevant national regulations, namely the Birds and Fish Preservation Act 1974 (Amended), the Parks and Reserve Act 1976, the Animal Diseases Act 1988 (Amended 2002), the Plant Quarantine Act, Vol. 4 1988 and Plant Quarantine Regulation 1995, the Noxious Weeds Act 1988, Terrestrial and Fisheries (Conservation and Management) Regulation 1944, Pesticides Act 2002), Environment Management Act 2010. The project will also consider the Biosecurity Bill currently under development, which will aim to harmonise Tonga's legislation with the one applied in the rest of the region.

In Niue, the project is aligned with the Environment Act 2015, which is the principal environment legislation for the country, with extensive provisions for environmental protection, including environmental impact assessment, and allows for the prescription of protected areas, plants, and animals. Activities of the project will also abide by the Village Councils Act 2016, which defines how the 14 Village councils are involved in biodiversity conservation and invasive species work. Additional technical regulations relevant to the project are the Niue Biosecurity Act (2016), Dogs act (1996), Domestic Fishing Regulation (1996), Pesticides Act (1991), Pig Control Act (1998) and Wildlife Act (1972).

Tuvalu has established several key legislative frameworks to guide the protection of its biodiversity and the management of invasive species. The Environment Protection Act (2008) serves as the cornerstone of environmental legislation in Tuvalu. It provides for the protection, conservation, and sustainable use of native biodiversity, and supporting environmental impact assessment and regulated management of protected areas. The Biosecurity Act (2017) establishes comprehensive measures for biosecurity at all national ports of entry, giving powers to prevent the entry and spread of invasive species, pests, and diseases that threaten the environment, agriculture, fisheries, and public health. Complementing these are the Animal Disease Act (2007) and the Plant Protection Act (2007), which reinforce measures to safeguard agricultural productivity and ecological health through strengthened disease and pest control mechanisms. The NISSAP also references the Waste Operations and Services Act (2009) and associated regulations, which aim to reduce the risk of biological invasions through waste management systems and the proper handling of imported materials.

Chemical Management

Where the project involves the use of pesticides or other chemical agents (for example, rodenticides for invasive rodent control or herbicides for weed management), it will strictly observe both national regulations and international safety guidelines for chemicals. This includes adhering to the Rotterdam Convention guidelines on the import and use of certain hazardous chemicals, which helps ensure informed consent and safe handling for any restricted substances. The project will comply with each country's national pesticide regulations, meaning only legally approved pesticides will be procured and used, and all handling, application, and disposal of chemicals will follow the protocols required by national law (such as licensing of applicators, application in approved areas and quantities, and proper storage). Furthermore, the project will follow World Health Organization (WHO) safety standards for rodenticide use, to protect both human health and the environment. All staff and community members involved in chemical use will be trained in these safety procedures – for instance, using personal protective equipment, applying baits in ways that minimize exposure to non-target animals and people, and following clear emergency response plans for any accidental spillage or poisoning. By aligning with these chemical management standards, the project will effectively manage and mitigate risks associated with pesticide use, ensuring that pest control objectives are met without causing undue harm to people or ecosystems.

Biosecurity Measures

Strong biosecurity protocols will be integrated into the project's activities to prevent the introduction or spread of invasive species as an unintended byproduct of intervention. The project will operate under the guidance of each country's National Plant Protection Organisation (NPPO) protocols and other biosecurity regulations. This means that any movement of plant materials, soil, or equipment between islands or countries will be carefully controlled and inspected. For example, quarantine checks will be enforced for gear and supplies moving to sensitive sites to ensure no seeds, insects, or other organisms hitchhike along. If the project involves importing any biological control agents or other living organisms (such as natural predators or parasites for

invasive species control), it will only proceed after securing the necessary import permits and following all quarantine requirements. The project will use certified quarantine facilities that meet national standards to house and study any imported biocontrol agents prior to release – ensuring they are held in contained, bio secure conditions for the required period. By complying with these quarantine facility standards and permit conditions, the project guards against accidental cross-border transfer of pests or diseases. In essence, rigorous biosecurity measures at every step will ensure that while we address existing invasive species, we are not creating pathways for new invasions or other biosecurity hazards. This approach aligns with national and regional biosecurity best practices, protecting the fragile island ecosystems involved in the project.

International Technical Standards and Best Practices

Biological Control

Should the project pursue *classical biological control* as a strategy (for instance, releasing a beneficial insect or pathogen to control an invasive pest or weed), it will do so in alignment with internationally recognised standards to ensure this intervention is safe and effective. Specifically, the project will adhere to the Food and Agriculture Organisation's International Standard for Phytosanitary Measures No. 3 (ISPM 3), which provides guidelines for the safe export, shipment, import and release of biological control agents and other beneficial organisms. In compliance with ISPM 3 and national regulations, a comprehensive Import Risk Analysis will be conducted before any new biocontrol agent is introduced. This risk analysis examines the potential impacts on the environment and agriculture, ensuring that the agent will target only the intended invasive species and pose minimal risk to non-target species and human health.

Moreover, the project will implement rigorous host-specificity testing for any prospective biocontrol organisms. Following international best practice, the candidate control agent will be studied in a certified quarantine facility for a minimum of 12 months (or longer as needed), during which it will be exposed to 50 or more non-target species (such as indigenous plants or insects that are taxonomically or ecologically related to the invasive species). This prolonged testing period allows scientists to observe whether the biocontrol agent could unintentionally attack or affect species other than the target invasive. Only if the agent is proven to be highly host-specific (i.e. it significantly prefers or survives only on the target pest) and safe, will the project consider releasing it into the environment. Additionally, any proposal to introduce a biocontrol organism will be vetted through a regional expert panel review before release. This panel, comprised of invasive species specialists, entomologists/plant pathologists, and regional biosecurity experts, will independently review the evidence from the host-range tests and risk analysis. Their approval is an extra layer of assurance that all scientific and safety considerations have been addressed in accordance with regional agreements and protocols. By following these international standards for biological control, the project ensures due diligence is exercised, lowering the risk of unintended consequences and increasing the likelihood of a successful and environmentally safe biocontrol intervention.

Eradication Operations

For invasive species eradication operations (such as the removal of rats from small islands, eradication of invasive feral animals, or elimination of invasive weeds in restoration sites), the project will follow established global and regional best practice guidelines to maximise success and minimise any adverse impacts. Key among these are the IUCN Guidelines for Invasive Species Eradication, which set out principles for responsible invasive species management – including the need for thorough planning, scientific grounding of methodologies, ethical considerations (like animal welfare and impacts on ecosystems), and robust monitoring and evaluation. In line with IUCN guidance, the project will ensure that eradication campaigns are

based on feasibility studies and follow a “do no harm” approach where non-target species and broader ecosystem health are concerned.

Additionally, the operational protocols developed by leading conservation organisations will be used as benchmarks. The project will incorporate Island Conservation’s Best Practice Protocols for island invasive eradications, given that Island Conservation (an international NGO) has extensive experience and documented methods for successful rodent, feral cat, and other invasive vertebrate eradications on islands worldwide. These protocols cover everything from baiting strategies and bait station grid design to team safety, community engagement during eradication, and contingency planning to prevent project failure or reinvasion. By using such tried-and-tested methodologies, the project benefits from lessons learned in other eradication efforts and adopts techniques proven to work under field conditions.

Moreover, the project will adhere to region-specific guidance, notably the Pacific Regional Guidelines for Rodent Eradication, when undertaking any rodent control or eradication in the Pacific island context. Pacific islands present unique challenges (for example, many have dense crab populations that eat bait, or climates where bait degrades quickly, etc.), and the regional guidelines compile best practices tailored for these conditions. They recommend strategies such as conducting at least two rounds of bait application spaced appropriately, careful calculation of bait quantities to ensure every invasive rodent has access to a lethal dose, and timing operations to avoid cyclone seasons or periods when non-target species might be most vulnerable. By following the Pacific guidelines, the project’s rodent eradication activities will be designed with local ecological conditions in mind, thereby improving their likelihood of success and reducing risks of failure. Across all eradication operations, the project will also integrate robust monitoring and biosecurity follow-ups – for instance, checking that the target invasive species has indeed been eradicated and setting up biosecurity surveillance to detect and prevent any reinvasion. This comprehensive adherence to international and regional eradication standards will help ensure that the invasive species removal efforts under the project are safe, ethical, and lasting.

Compliance with Adaptation Fund Environmental and Social Policy

In addition to meeting the above technical standards, the project is fully committed to complying with the Environmental and Social Policy (ESP) of the Adaptation Fund. This compliance is being achieved through a thorough safeguards approach embedded in project design. An environmental and social screening of all project activities has already been carried out against the Adaptation Fund’s 15 ESP principles. The screening identified potential risks and ensured that appropriate mitigation measures are planned for any issues that could arise under each principle. As a result of this process, the project has been preliminarily classified as Category B, indicating that while some activities may have potentially adverse environmental or social impacts, these impacts are expected to be small-scale, site-specific, reversible, and readily mitigated (in contrast to Category A projects that have more significant risks).

To manage these risks in line with the AF’s ESP, the project will develop and implement an Environmental and Social Management Plan (ESMP) during the full proposal stage. The ESMP will detail specific actions to avoid, minimize, or mitigate any negative impacts and will assign responsibilities and resources for monitoring compliance throughout implementation. For example, if an activity risks impacting a natural habitat or an endangered species, the ESMP will include measures to adjust the activity timing or method to avoid harm, or to actively restore habitats. If there are social risks, such as temporary restrictions on resource use for local communities during an eradication campaign, the ESMP will outline how the project will obtain Free, Prior, and Informed Consent (FPIC) from affected communities, ensure fair access to benefits, and provide grievance mechanisms. The project will also comply with all relevant

national labour and safety laws for project workers, and integrate Gender Equity and Disability Inclusion actions consistent with the ESP's principles.

By following the Adaptation Fund's ESP, the project guarantees that its interventions not only achieve their environmental objectives but do so in a manner that upholds human rights, promotes gender equality and social inclusion, and protects the well-being of communities and ecosystems. Regular monitoring and reporting will be undertaken to document ESP compliance, and any emerging issues will be addressed promptly in coordination with the Adaptation Fund. This diligent adherence to the ESP, alongside compliance with national laws and international standards, ensures that the project's implementation is responsible, transparent, and sustainable from both environmental and social perspectives.

G. Describe if there is duplication of project with other funding sources, if any.

There is no duplication of this project with other funding sources. Instead, this Adaptation Fund (AF) project is the central catalyst within a strategic, sequenced, and complementary climate finance architecture designed to build lasting resilience in the Pacific. It fills a critical operational gap between past foundational work and future large-scale investments.

The specific roles and relationships are as follows:

1. The Foundation:

MISCCAP (2020-2024)
Managing Invasive Species for Climate Change Adaptation in the Pacific is underway, funded by New Zealand's Ministry of Foreign Affairs and Trade (MFAT), to allow Pacific Island Countries and Territories (PICTs) to take stronger action against invasive species and thereby build resilience to climate change. Invasive species make ecosystems and communities more vulnerable to natural disasters and the impacts of climate change.

GEF-6 (2019-2025) Regional Invasives Project (Completed)
The GEF-6 built foundational national capacity, technical skills, and policy frameworks, including the development of National Invasive Species Strategy and Action Plans (NISSAPs) in both Tonga and Niue. The project created the enabling environment and this AF project now leverages that foundation for scaled-up, concrete operational delivery.

PRISMSS Restoring Island Resilience (2023-2026)
This involves stepping up on the ground action on each of the PRISMSS programme across the Pacific and mainstreaming invasive species management as climate adaptation solution, including through the support of development of AF and GCF projects.

2. The Institutional Framework:

GEF-8 Project (In Development)
The forthcoming GEF-8 project is specifically designed for the institutionalisation of invasive species work within government bodies. Its primary objective is to build permanent, sustainable national capacity so that local institutions can maintain the benefits of larger projects over the long term. This AF project will implement large-scale field activities and build community capacity, while the GEF-8 project works in parallel to ensure government structures are strengthened to sustain these efforts beyond the project lifecycle.

3. The Catalyst:

This Adaptation Fund Project (The Proposal)
This AF project is the essential bridge to transformational change. As explicitly stated in the GCF concept notes, this project will "ramp up technical and institutional capacities and pave the way for the larger activities designed for the GCF national project". It focuses on:

- Deploying proven, community-led adaptation actions.
- Strengthening biosecurity and Early Detection/Rapid Response (EDRR) systems.
- Pioneering innovative applications, methodologies and social processes to deliver larger, more effective, efficient, and sustainable ecosystem restoration
- De-risking larger investments by establishing methodologies and community buy-in.

4. The Transformation:

Green Climate Fund (GCF) Projects (In Development)
Two large-scale, national GCF projects titled "Restoring island ecosystem services for climate resilience" are being developed for Niue (USD 43.6M GCF funding request) and Tonga. These projects will finance the most ambitious, capital-intensive components of the long-term vision.

The GCF proposals for both Niue and Tonga explicitly list this AF project as a direct co-financing partner. The AF outputs are designed to start first, providing the essential groundwork that makes the transformational GCF investments viable. Specific synergies include:

- *POI:* strengthening biosecurity is a prerequisite to the removal of mammalian predators (logic of preserving investment by preventing reintroductions). National biosecurity in Niue and interisland biosecurity in Tonga.
- *PFP in Niue:* The AF project will build the necessary precursor for pig management in Niue and provide additional experience on eradication operations on inhabited islands in Tonga and Tuvalu, while the GCF project will finance the subsequent country-wide removal of all mammalian predators.
- *Marine Sector (POMA):* This AF project finances the foundational local EDRR capacity for marine invasives like Drupella snails (in Niue) and invasive algae (in Tonga). Based on this prerequisite for the GCF projects, this project will fund the deployment of innovative technological solutions like remote-operated removal devices for landscape-scale management.
- *NENS*: This AF project strengthened the in-country capacity to implement biological control solutions (rearing facilities, capacity building, etc). While the regional AF project focuses mostly on weeds that are a priority for the three countries, for which they can mutualise efforts, the national GCF will target weeds that are country specific priorities.

This tiered approach ensures that each funding source is used for its most strategic purpose, creating a powerful, coordinated effort that is far more impactful than any single project could be alone.

H. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

Component 4 focuses on learning and knowledge management and aims to maximise regional and global impact. Knowledge is generated through systematic documentation of all interventions,

cost-benefit analyses for each activity type, integration of Traditional Ecological Knowledge (TEK) using ethical protocols, and by capturing success factors and lessons learned.

There are a number of knowledge sharing mechanisms that support this initiative to amplify global adaptation knowledge, which are comprised of (i) regional platforms, (ii) capacity building, (iii) global dissemination and (iv) adaptative management.

Regional platforms such as the Battler Resource Base and the Pacific Invasives Learning Network provide essential technical infrastructure and knowledge exchange for effective invasive species management in the Pacific region. These platforms house a growing body of technical guides, best practice case studies, and serve as hubs for communicating project 'success stories' to practitioners across multiple countries. By supporting targeted meetings and maintaining a library of regionally relevant resources, these platforms enable rapid dissemination of innovations and consolidate lessons learned, ensuring that new project sites and countries can leverage proven methodologies and avoid common implementation challenges.

Capacity building is at the heart of sustainable regional restoration, manifested through activities like regional training events, the annual Pacific Invasive Resilience Forum, and South-South exchanges. These initiatives empower practitioners at all levels, government, NGO, and community, by enhancing technical proficiency and nurturing peer-to-peer learning. Regional training ensures a standardized approach, while South-South exchanges facilitate direct transfer of context-specific skills between island nations facing similar ecological threats. Together, they promote a culture of continuous learning, local leadership, and adaptation of best practice to diverse Pacific contexts.

Global dissemination activities, including presentations at UNFCCC COP side events, IUCN World Conservation Congresses, and knowledge exchanges among Small Island States, raise the profile of Pacific restoration work at the international level. Publishing peer-reviewed research and engaging global networks enhances the visibility of Pacific-led solutions, attracting advocacy, partnerships, and external investment to the region. Such outreach also ensures that restoration successes and challenges in the Pacific contribute to, and benefit from, a broader global dialogue around ecosystem resilience and climate adaptation.

Adaptive management is supported through structured processes such as quarterly learning reviews, after-action assessments, real-time strategy adjustments, and feedback loops. This adaptive approach ensures that project implementation remains dynamic, responsive to emerging evidence, and able to capitalise on both successes and setbacks. By institutionalising regular reflection and feedback, the project delivers incremental improvements in practice and maximises its climate resilience outcomes, sustaining project benefits long after funding concludes. The Monitoring and Evaluation System is designed to track the delivery of outputs and strengthens adaptive management.

I. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The consultative process for this project combines regional invasive species planning with dedicated national, sectoral and GEDSI-focused engagement, in line with the Adaptation Fund's Environmental and Social Policy. Building on collaboration under the GEF-6 Regional Invasive

Project (2019–2025) and PRISMSS "Restoring Island Resilience" (2023–2026), the project design draws on updated National Invasive Species Strategy and Action Plans (NISSAPs) prepared through national consultations in Tonga (August 2021), Niue (November 2022) and Tuvalu (July–October 2023), as well as regional dialogue at the 6th Pacific Invasives Learning Network meeting (August 2024) and the GEF-6 Regional Invasives meeting (June 2025). Between September and November 2025, targeted consultations were conducted in Niue, Tonga and Tuvalu with National Invasive Species Coordinators, sector ministries, PRISMSS programme leads, marine biosecurity experts, local government, community representatives and GEDSI stakeholders, as summarised in Table 7, ensuring that the four components and their outputs reflect national priorities, feasible delivery pathways and robust safeguards.

Table 7 Number of stakeholders consulted

Stakeholder group	Number of stakeholders
PRISMSS Technical Leads	6
National Invasive Species Coordinators	3
National Ministry Representatives	13
Local Government/Community Representatives	3
GEDSI Community & Ministry Representatives	11 (6 unique)
Total	**28**

National Invasive Species Coordinators

National and PRISMSS consultations from 5–16 September 2025 with Huggard Tongatule (Niue), Viliami Hakaumotu (Tonga) and Sam Panapa (Tuvalu) focused on aligning proposed activities with NISSAP, NAP/JNAP and NBSAP priorities and confirming that operations respect customary governance and free, prior and informed consent (FPIC) requirements. These consultations provided country-specific feasibility and readiness analysis, listed top-priority invasive species, highlighted enforcement and inter-island movement gaps and mapped institutional roles and reporting opportunities, directly shaping Components 1–3.

National ministries and sector agencies

Thirteen ministry representatives from environment, agriculture, fisheries, tourism, waste and forestry agencies participated in in-country sectoral meetings that explained how invasive species affect food security, reefs, health, tourism and youth, and identified integration opportunities with existing programmes and sector budgets. In Tonga, follow-up discussions with the Ministry of Agriculture, Forestry and Quarantine and forestry leadership further detailed the five national invasive species programmes (predator-free islands, site restoration, weed management, biosecurity and natural enemies), clarified agency mandates and underscored the need for a dedicated national officer and for all activities to respect seasonal cultural indicators and sacred/taboo forests.

PRISMSS technical leads and regional experts

Six PRISMSS technical leads and partner specialists (POI, RERC, WOW, PFP, NENS and POMA/NIWA) provided regional technical guidance on the full invasion curve, including pathway risk assessments, monitoring systems, early detection/rapid response protocols, eradication feasibility and biocontrol pipelines and regulatory requirements. These meetings validated the scientific and operational feasibility of proposed interventions, specified cost-effective marine surveillance and early detection options, and established standards for monitoring, rapid response and data sharing consistent with PRISMSS methodologies and regional best practice, ensuring

that country-led priorities are delivered through proven regional tools and roving technical expertise.

Local government, communities and civil society

Local government and community representatives, including village councils, island councils and traditional authorities, shared traditional ecological knowledge, described livelihood dependencies and culturally important areas, clarified FPIC expectations and local decision-making processes, and outlined labour availability and language needs. Additional consultations with schools, environmental clubs, local NGOs, women's associations, cultural and faith-based groups and Women in Maritime highlighted youth education and intergenerational knowledge opportunities, offered platforms for long-term participation and identified livelihood, eco-tourism, awareness and cultural integration opportunities that informed site selection, labour models, benefit-sharing and sustainability and community-ownership strategies.

GEDSI and traditional knowledge stakeholders

Eleven GEDSI community and ministry representatives, alongside the PRISMSS GEDSI and Traditional Knowledge Coordinator, analysed gendered and social impacts of invasive species and climate change, documented women- and youth-led initiatives, and identified training, accessibility and communication needs. A dedicated consultation with William Young (PRISMSS GEDSI/TK Coordinator) and a stand-alone GEDSI Analysis Report for Tuvalu prepared by Sam Panapa synthesised inputs from health, youth, gender departments and disabled persons' organisations, highlighting issues such as women's double burden, barriers to participation for persons with disabilities and under-representation of women and elders in decision-making, and recommending inclusive consultation, flexible scheduling, capacity building and stronger coordination between environment and social ministries; these recommendations have been integrated into the Tuvalu design, the regional GEDSI approach and gender-responsive budgeting and safeguards across all components.

Direct inputs from local government bodies, island councils, traditional authorities, women's groups, youth groups and community-based organisations across the three countries are summarised in Annex A.

J. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

The proposed project represents the cost of adapting to climate change by enabling landscape-scale invasive species management that national and private budgets cannot finance. Tonga, Niue, and Tuvalu remain highly vulnerable to climate-induced disasters such as cyclones and droughts, with limited fiscal space to undertake one-off eradications and biosecurity upgrades. Past projects have built institutional capacity and proven technical feasibility, but without external support, government budgets are insufficient to scale up these interventions and unlock their adaptation potential.

Baseline Scenario (Without AF Investment): In the baseline scenario, countries continue current management: limited, reactive invasive species management focused on highest-priority threats only; minimal biosecurity capacity unable to prevent new invasions; no capacity for large-scale transformative interventions (island eradications, biocontrol development); community-based restoration limited to small sites with short-term project funding; and fragmented efforts lacking regional coordination. This results in: continued ecosystem degradation reducing climate resilience; progressive expansion of climate-adapted invasive species exploiting every future

disturbance; compounding adaptation deficit as ecosystem services essential for drought, flood, and storm resilience decline; perpetual management costs without permanent solutions; and limited evidence base preventing access to larger climate finance.

Adaptation Scenario (With AF Investment): The adaptation scenario delivers comprehensive biosecurity preventing new climate-adapted invasions; permanent ecosystem transformation through eradication and biocontrol eliminating ongoing control costs; restored ecosystem services providing water security, food security, coastal protection, and livelihood resilience; and community capacity and ownership ensuring sustained stewardship beyond project period.

Full cost of adaptation reasoning: The activities that support the outputs of the project have been designed so that they can deliver concrete adaptation outcomes without additional funding from other donors. The improvement of biosecurity frameworks (Component 1) will in themselves reduce the risk of new introductions of invasive species. Outputs contributing to community-based management and restoration (Component 2) are designed to achieve a strengthening of local capacities that contribute to long lasting improvement of the adaptative capacity of communities, such as the implementation of a functional EDRR framework to manage marine invasive species outbreaks or the establishment of domestic pig management practices. Finally, the landscape-scale management solutions are designed to achieve permanent results in the timeframe of the project, through the eradication of mammalian predators from islands and the release of biocontrol agents. The larger future investments that the project seeks to unlock, such as the two GCF-funded projects in Tonga and Niue, are designed to build on the experience of the AF project. However, the latter can achieve its outcomes independently to such additional funding.

Cost Rationale: By financing the removal of priority invasive species, the implementation of biocontrol programmes and the enhancement of biosecurity frameworks, the Adaptation Fund covers the cost required to secure long-term resilience benefits, which will reduce future pressures on constrained development or disaster-recovery budgets. This investment allows a shift from a baseline scenario (limited, reactive management) to an adaptation scenario (comprehensive, transformative management) and delivers permanent benefits vastly exceeding baseline through prevented invasions that would otherwise degrade ecosystems indefinitely; permanent ecosystem transformation eliminating perpetual control costs; and scaled regional approach achieving 25-67% cost savings impossible through independent country efforts.

K. Describe how the sustainability of the project outcomes has been taken into account when designing the project.

The project's sustainability strategy is built on four interconnected dimensions, institutional, financial, environmental, and social, that together ensure adaptation benefits continue long after the seven-year implementation period. The approach is designed to create self-reinforcing systems rather than dependency on external funding, embedding capacities, financing mechanisms, and community ownership that will endure beyond project closure.

Institutional sustainability will be achieved by leveraging and strengthening the permanent Pacific Regional Invasive Species Management Support Service (PRISMSS), which provides a long-term regional mechanism for technical expertise, capacity retention, and knowledge sharing. By the third year of implementation, all project activities will be fully aligned with the existing national operational plans and budgetary frameworks of Tonga, Niue, and Tuvalu, ensuring that interventions directly contribute to national priorities and can be integrated into ongoing government work programmes. The linkage of the project activities with existing initiatives

undertaken by national government, mapped out during consultations, will also contribute sustain conservation efforts. An example of such initiatives is the one million tree planting programme in Tonga or the Women in maritime in Niue. A structured capacity retention strategy will support the transition of project coordinators into government positions and train over thirty young professionals to serve as the next generation of invasive species managers. This ensures that technical capacity and institutional memory remain embedded within the national systems of each participating country.

Financial sustainability is underpinned by prioritising interventions with minimal recurring costs, such as one-time island eradications and the establishment of self-sustaining biological control agents that require little ongoing maintenance. Long-term financing will be secured by integrating operational costs into national budgets and establishing innovative financing mechanisms, such as Conservation Trust Funds and biosecurity levies on international arrivals, to ensure continuous support for invasive species management after project completion. In-country consultations allowed to identify synergies with existing sustainable financing scheme. The Niue Ocean Wide (NOW) Trust, for instance, has started to deliver grants through the Village Resource Management Advisory Committee (RMAC) to support resource and environment management. While of limited scale (20,000 NZD), such grants could be harnessed to sustain community-based efforts, and preserve restoration benefits secured by the project.

Environmental sustainability is achieved through the restoration of fundamental ecological processes such as seed dispersal and natural regeneration, enabling ecosystems to become self-sustaining once invasive species are removed. These interventions are designed to enhance the natural resilience of ecosystems to future climate impacts, for example, increasing forest water retention to mitigate drought impacts and strengthening coastal vegetation to buffer storm surges and sea-level rise. They would also improve coral reef resilient by restoring nutrient flows and managing coral-feeding invasive species.

Social sustainability is embedded through deep community ownership and participation. The project promotes co-management arrangements that integrate activities into traditional governance and resource management systems, ensuring that local institutions and customs remain central to long-term stewardship. Collaboration with local civil society organisations will be critical for mobilising communities and strengthening the presence of local actors who will continue to play key roles in managing and monitoring restored ecosystems. The association Niue in Blue, for instance, has been a partner of the local government for the management of marine invasive species and plays a key role in raising awareness about the importance of healthy reefs. Collaboration with such local NGOs have also proven instrumental for the monitoring of projects' outcomes, as they have been carrying ecosystem monitoring consistently over time which is critical to assess the benefits of ecosystem restoration. Through the in-country consultations described in Annex A, the project has pre-identified a core group of civil-society partners – including Niue Ocean Wide (NOW) Trust, the Niue Council of Women and Fitikanai Association, village councils and school environmental clubs, as well as programmes such as Women in Maritime – whose ongoing initiatives (e.g. the Pandanus project in Niue and existing community monitoring of reefs and forests) will be used as entry points for awareness, restoration and long-term ecosystem monitoring. In Vava'u for instance, SPREP has a long track record of working with the Vava'u Environmental Protection Association (VEPA), which has facilitated the mobilization of local communities and has contributed to the success of previous projects. Collaboration with local NGOs such as VEPA has also proven instrumental for the monitoring of project outcomes, as they have been carrying ecosystem monitoring consistently over time which is critical to assess the benefits of ecosystem restoration.

Traditional Ecological Knowledge (TEK) will be documented and incorporated into project methodologies, following Free, Prior and Informed Consent (FPIC) protocols to safeguard cultural integrity and community rights. The project will also engage the next generation through the integration of invasive species management modules into school curricula and the establishment of Youth Ranger programmes, fostering environmental awareness and leadership among young people who will sustain the conservation outcomes over time.

Together, these four dimensions form a comprehensive sustainability framework that anchors technical, financial, ecological, and social capacities within local and national systems, ensuring that adaptation and biodiversity benefits are maintained and expanded well beyond the project's lifespan.

L. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project.

Environmental and Social Safeguards Methodology

With respect to Environmental and Social Safeguards (ESS), this Project is developing an Environmental and Social Management System (ESMS) as per the Adaptation Fund's Environmental and Social Safeguard Policy. The ESMS will contain an ESS Screening, ESS Impact Assessment, and ESS Management/Monitoring Measures. These ESS outputs will be further supported by a full FPIC process with Project communities (see Stakeholder Engagement Plan for an overview of the process), a Grievance Redress Mechanism, chemical use safety procedures (as required), and a GEDSI Action Plan (see Annex D).

The Project activities have been screened using an Environmental and Social Safeguards Screening Procedure. To facilitate this Screening, an Environmental and Social Safeguard Risk Screening Questionnaire has been developed for all 15 Adaptation Fund Environmental and Social Principles (see Annex C). The Questionnaire has been specifically developed for this Project and ensures that each activity is thoroughly analysed against each Principle in order to determine the potential environmental and social risks.

When a Project activity triggers an ESS Risk using the Screening Questionnaire, the corresponding ESS Risk is added to the Screening Procedure and allocated a score for Impact and Likelihood. These two scores are then used to assess the Significance of the ESS Risk: A (high), B (moderate), C (low). Proposed Management Measures are then set forth for each risk.

Environmental and Social Safeguards Analysis

This Project's overall risk rating is Category B. Category B ESS Risks are defined as having potentially adverse impacts that are less significant, site-specific, reversible, and readily mitigated as compared to Category A ESS Risks. Category B Projects will require a scoped Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP), which will be designed at the Project Proposal stage or during the first year of project implementation. The full version of the ESS Screening Procedure can be provided upon request.

The overall Category B ESS Risk rating is based on the following ESS Principles that have a Category B ESS Risk rating.

- Principle 1: Compliance with the Law
- Principle 2: Access and Equity
- Principle 3: Marginalized and Vulnerable Groups
- Principle 4: Human Rights
- Principle 5: Gender Equality and Women's Empowerment
- Principle 6: Core Labour Rights
- Principle 7: Indigenous Peoples
- Principle 8: Involuntary Resettlement
- Principle 11: Climate Change
- Principle 13: Public Health
- Principle 15: Lands and Soil Conservation

The following Principles have Category C ESS Risk rating:

- Principle 9: Protection of Natural Habitats
- Principle 10: Conservation of Biological Diversity
- Principle 14: Physical and Cultural Heritage

No Principles were assessed as having Category A ESS Risks.

The most important risks that have been identified are as follows:

Access restrictions: Community stakeholders may be temporarily restricted from accessing resources essential to their livelihoods, nutritional needs, or cultural ceremonies during the eradication of invasive species. Some examples include crabs, turtles, and seabirds.

Free, Prior, and Informed Consent (FPIC): Ensuring FPIC for all communities whose land, rights, resources, livelihoods, or cultural heritage are affected by the Project activities will be imperative to ensure that communities understand and consent to the Project activities. FPIC is particularly challenging for this Project given the remote location of many of the Project communities. Furthermore, community participation, and thus consent, will be essential to ensure the effectiveness and sustainability of the Project activities.

Inclusion: Ensuring the inclusion of all community members, particularly women, persons with disabilities, youth, and marginalised people in the design and implementation of the Project activities will be an essential element of the Project. To this end, the FPIC process will be used as an opportunity to engage with these groups and co-design activities that ensure the needs of these groups are integrated into the Project activities. In many communities, reaching marginalised groups is challenging due to the lack of organisation of these groups, because they live in remote areas, or due to social mores.

Impacts on Land, Soil, and Public Health: Pesticide and herbicide use as well as land clearing could lead to erosion and reduced coastal protection. Rat eradication and cane toad control measures could also adversely impact soil, water quality, or non-target species. Lastly, rat bait utilises toxic chemicals that could adversely impact humans, particularly children and non-target animals.

Climate Change: The rise of sea levels as well as severe weather events may adversely impact the effectiveness of Project activities if they are not considered in the design of the activity.

Environmental and Social Safeguards Management Measures

Robust FPIC Process: The Project will ensure that communities understand the Project activities and are given the time needed to utilise their decision-making process when consenting to all, some, or none of the Project activities. Particular attention will focus on ensuring communities understand the risks of the Project activities, have the opportunity to provide Traditional Knowledge when co-designing the activities, support the Project team with mapping sacred/cultural sites, and advise on mitigation measures for potential risks.

Respect Customary Land Rights: All land and islets are governed by customary law. Thus, ensuring informed consent from landowners and the Kaupule (island council) will be mandatory prior to Project implementation and will help to secure community support for the implementation and sustainability of the Project activities.

International Protocols for Pesticides and Herbicides: The Project will use evidence-based methods to ensure baiting protocols, herbicides, and pesticides are in line with the Stockholm Convention, FAO Guidelines, WHO Guidelines, and national and international norms. These standards have supported other PFP operations on +130 Pacific islands.

Proactive Inclusive Engagement: During the FPIC and Community Stakeholder Engagement process the Project team will ensure that it engages directly with women's groups, youth groups, persons with disabilities (or their representatives), and other marginalized groups. Focus group discussions will be used to ensure these groups have been engaged in the Project design and have opportunities to assist with Project implementation.

Lastly, an essential element of ESS is identifying co-benefits for the Project communities. Some of the co-benefits that have been identified are as follows:

Improved Food Security: Reduced crop damage in pulaka pits, taro gardens, and breadfruit plantations will increase yields, as well as improved coconut productivity and healthier populations of coconut crabs, which are damaged and consumed by rats and pigs. Moreover, stronger fisheries and healthier reefs from seabird nutrient inputs will improve fish stocks, which will support livelihoods. This, in turn, will lower household food costs and boosts resilience.

Cash-for-work: Employing community members to support the implementation of the Project activities (bait station setup, monitoring, inter-island biosecurity patrols).

Eco-tourism and Conservation Jobs: Rat eradication will restore seabird colonies and biodiversity on offshore islets. This will provide an opportunity for eco-tourism activities such as birdwatching, guided tours, and cultural heritage visits.

Increased Social Cohesion and Behaviour Change: Involving the Project communities in the implementation of activities can increase social cohesion, as communities work together to achieve its sustainable conservation goals. Moreover, in similar projects across the region there is anecdotal evidence to suggest that this has increased awareness regarding the importance of sustainable environmental practices and thus has catalysed behaviour change, particularly amongst youth.

PART III: IMPLEMENTATION ARRANGEMENTS

Discussions have been engaged by the Secretariat of the Pacific Regional Environment Programme (SPREP) with United Nations Environment Programme (UNEP) to assess their interest in being the implementing entity for the project. SPREP will act as executing entity of the project, through its Invasive Species teams within the Biodiversity Conservation Programme.

Coordination at the national level will include national environment ministries as national executing entities, respectively Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications for Tonga, Department of Environment for Niue and Department of Environment of Tuvalu. Quarterly meetings will be the basis for coordination of activities at the national level, with additional ad hoc meetings held as required also incorporating other national partners (Conservation International Tonga, etc.). At the regional level, technical coordination meetings will take place every 6 months with PRISMSS partners: Bioeconomy Science Institute (Manaaki Whenua – Landcare Research), Birdlife International, Department of Conservation of New Zealand, Earth Science New Zealand, Island Conservation and the Pacific Community (SPC).

Demonstrate how the project aligns with the Results Framework of the Adaptation Fund.

The project is explicitly aligned with Outcomes 2, 3, 4, 5 and 6 of the Adaptation Fund Strategic Results Framework, as summarised in Table 6. The first two components focus on reducing crop damage and restoring terrestrial and marine ecosystems, thereby contributing to increased ecosystem resilience and improved food security and livelihoods for climate-vulnerable communities (AF Outcomes 2, 3 and 4). The third component strengthens regional services, knowledge products and coordination mechanisms, contributing to institutional capacity building and the adoption of innovative adaptation practices, tools and technologies consistent with AF Outcomes 5 and 6.

Table 8 Alignment to Results Framework of Adaptation Fund[2]

[2] Adaptation Fund Board. (2025, April 10-11). *Update to the Adaptation Fund Strategic Results Framework (AFB/B.44/11)*. Adaptation Fund.

Project Objective(s)[3]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Objective 1: Improved food security and livelihoods of communities dependent on natural resources affected by invasive species	Percentage reduction in crop productivity loss from invasive species competition Number of people with improved livelihood opportunities (disaggregated by gender)	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Indicator 6.1: People adopting improved and/or new climate-resilient livelihood practices [# of people, disaggregated by gender] Core Indicator 6.2: Households with increased income, or avoided decrease in income [# of households, disaggregated	(No allocation required at objective level)
Objective 2: Improved resilience of small island communities to climate change and natural disasters due to protected and enhanced ecosystems	Percentage improvement in native forest regeneration indicators Percentage improvement in coral reef health indicators Number of islands declared predator-free with seabird population recovery	Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress.	Indicator 5: Ecosystems and natural resources brought under protection, restoration, or improved management in response to climate variability and change [# of hectares, disaggregated by land, marine, coastal, and cultural heritage area]	
Objective 3: Foster regional cooperation and the sharing of expertise, following and advocacy to improve cost efficiency and achieve increasingly sophisticated solutions	Number of regional knowledge products and resources developed Number of Pacific countries accessing project-generated resources	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	Indicator 2: Institutions with strengthened capacity to understand and better address climate risks and resilience [# of institutions, disaggregated by scale and sector]	
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Outcome 1: Reduced direct damage to crops/food	Number of community members trained in EDRR (disaggregated by gender) Percentage reduction in crop/food damage Number of households with improved food security	Output 1.2: Targeted population groups covered by warning and advisory services for climate-related hazards and threats Output 6.1: Targeted individual and community livelihood strategies	Indicator 1.2.1: Early warning systems established or improved [# of systems, disaggregated by hazard and scale] Indicator 6.1.1: People receiving targeted support for new and/or improved	**$ 5,369,661.40** Component 1 | Outputs 1.1, 1.2 and 1.3 Component 2 | Output 2.1 and 2.2

[3] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

		strengthened in relation to climate change impacts, including variability	livelihoods to manage climate risk [# of people, disaggregated by gender and by type of support]	Component 3 | Output 3.1
Outcome 2: Reduced crop productivity loss from competition	Percentage reduction in productivity losses from invasive weeds Hectares of crop systems protected from priority weeds	Output 6.1: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	Indicator 6.1.1: People receiving targeted support for new and/or improved livelihoods to manage climate risk [# of people, disaggregated by gender and by type of support]	**$ 2,763,675.53** Component 1 | Outputs 1.1, 1.2 and 1.3 Component 2 | Output 2.1 Component 3 | Output 3.2
Outcome 3: Restored ecosystem functions of terrestrial ecosystems	Hectares of terrestrial ecosystems restored or under improved management Percentage improvement in native forest regeneration indicators Number of community members participating in ecosystem restoration (disaggregated by gender)	Output 5.1: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	Indicator 5.1.1: Ecosystems and natural resources targeted by activities to improve protection, restoration, and/or management [# of resources, by type]	**$ 4,212,566.62** Component 2 | Output 2.1 Component 3 | Output 3.1 and 3.2
Outcome 4: Restored ecosystem functions of marine ecosystems	Percentage improvement in coral reef health Number of islands predator-free with seabird recovery Number of marine invasive outbreaks detected and suppressed Number of trained community marine monitors	Output 5.1: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability Indicator	5.1.1: Ecosystems and natural resources targeted by activities to improve protection, restoration, and/or management [# of resources, by type]	**$ 4,623,222.38** Component 2 | Output 2.3 and 2.4 Component 3 | Output 3.1 and 3.2

Outcome 5: Shared learnings and successes	Number of knowledge products developed (>25) Number of countries accessing resources (>15) Number of participants in regional exchanges / community of practice events	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1: Climate resilience knowledge products and/or tools developed and shared with stakeholders [# of products/tools]	**$ 655,822.44** Component 1 | Output 1.4 Component 4 | Output 4.1
Outcome 6: Regional service enhanced to coordinate efforts	Number of regional coordination mechanisms functioning Number of multi-country biosecurity protocols operational Number of policies/plans integrating climate-informed IS management Number of institutions with strengthened capacity (local & regional)	Output 7.1: Improved integration of climate resilience strategies into country development plans	7.1.1: Policies, strategies, and/or plans developed or adjusted to integrate climate risk considerations [# of policies, strategies, and/or plans, disaggregated by scale]	**$ 4,430,165.63** Component 4 | Output 4.2 and 4.3

PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[lxxx]

Mr. Sione Akauola, Chief Executive Officer, Ministry responsible for Environment (MEIDECC)	Date*: (Month, day, year)*
Ms. Peleni Talagi Secretary to Government Office of The Secretary Of Government	Date*: (Month, day, year)*
Dr. Tufoua Panapa Secretary to Government.	Date*: (Month, day, year)*

B. Implementing Entity certification[4]

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (……list here…..) and subject to the approval by the Adaptation Fund Board, commit to implementing the project in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project.	
Name & Signature Implementing Entity Coordinator	
Date: *(Month, Day, Year)*	Tel. and email:
Project Contact Person:	
Tel. And Email:	

[4] NB. SPREP is currently still indicated as Implementing Entity, subject to change upon UNEP agreement to take on the IE role for this project.

PRIME MINISTER

23rd December 2025

Sefanaia Nawadra
Director General
Secretariat of the Pacific Regional Environmental Programme
APIA
Samoa

Fakaalofa lahi atu Director General,

Re: Confirmation of Support for the development of project concept notes for Niue

I am pleased to express our strong support for the regional project concept developed for submission to the **Adaptation Fund (AF)** aimed at advancing invasive species management and strengthening climate resilience in Niue, Tonga and Tuvalu.

Niue has committed to being one of the first island nations in the world to attempt to manage invasive at a large landscape/seascape scale to restore the resilience of its ecosystems and communities to the increasing impacts of climate change and could also help enhance Niue's premium ecotourism brand, boost ecotourism opportunities, and support sustainable economic growth. Invasive species continue to pose a significant threat to Niue's biodiversity, food security, ecosystems, and community livelihoods. Strengthened action in this area is essential to safeguard our natural heritage and reduce the vulnerability of our communities to climate-related risks.

The Adaptation Fund presents a critical opportunity to mobilize the resources needed to scale up these efforts in alignment with national priorities. We fully endorse this project concept that builds on ongoing work, supports resilient ecosystems, and enhances national capacity to prevent, control, and manage invasive species. We believe that this coordinated, well-designed proposal will significantly contribute to achieving Niue's climate adaptation goals and the long-term sustainability of its environment.

We greatly appreciate the leadership of your office in prioritizing this important work and welcome continued partnership as this concept is developed and refined for submission.

Sincerely,

Hon Dalton Emani Makamau Tagelagi
PRIME MINISTER OF NIUE
AND GREEN CLIMATE FUND NATIONAL DESIGNATED AUTHORITY

PRIME MINISTER
NIUE

Office of the Prime Minister, PO Box 27, Alofi, NIUE
Telephone: + (683) 4200, Email: niue.premier@gov.nu

MINISTRY OF METEOROLOGY, ENERGY,
INFORMATION, DISASTER MANAGEMENT,
ENVIRONMENT, CLIMATE CHANGE AND
COMMUNICATIONS (MEIDECC)

NUKU'ALOFA, TONGA

24 February 2025

Sefanaia Nawadra
Director General
Secretariat of the Pacific Regional Environment Programme
APIA
Samoa

Malo e lelei Sefanaia

Re: Confirmation of Support for the development of project concepts to the Adaptation Fund and Green Climate Fund to advance invasive species activities in Tonga

I am writing on behalf of the Government of the Kingdom of Tonga to confirm its support for SPREP through the Pacific Regional Invasive Species Management Support Service (PRISMSS) to develop invasive species management focused concepts. This support will enable us and SPREP to engage consultants' services to develop project concepts with the Adaptation Fund and the Green Climate Fund, a crucial step in our efforts to manage invasive species in Tonga.

Tonga's commitment to being one of the first island nations in the world to manage invasive species at a large landscape/seascape scale and securing funding through above mentioned avenues is a significant step closer to achieving our commitments. This endeavor aims to restore the resilience of our ecosystems and communities to the increasing impacts of climate change. It also holds the potential to create new ecotourism opportunities and support sustainable economic growth.

We are eagerly looking forward to the opportunity to collaborate with SPREP and the Invasives Team to progress the above-mentioned concepts.

Yours sincerely

MINISTRY OF METEOROLOGY, ENERGY, INFORMATION, DISASTER MANAGEMENT, ENVIRONMENT, CLIMATE CHANGE & COMMUNICATIONS
MEIDECC TONGA

.....
Mr. Sione 'Akauola
CEO for MEIDECC

Cc: Ms. Luisa Malolo, Director of Climate Change
Ms. Lupe Matoto, Director of Environment

TUVALU GOVERNMENT
OFFICE OF THE PRIME MINISTER
Secretary to Government's Office
Private Mail Bag, Vaiaku, Funafuti, TUVALU
Phone: +688 20815 extension 3014 or 3011
Mobile: 688 7115622
Email: tufoua.panapa@gov.tv

27-November-2025

Mr Sefania Nawadra
Director General
Secretariat of the Pacific Regional Environment Programme

Subject: Confirmation of support for the development of the project concept to the Adaptation Fund to advance invasive species activities for climate resilience in Tuvalu

Dear Sir,

In my capacity as the designated authority for the Adaptation Fund in Tuvalu, I confirm that the above regional project proposal is in accordance with the government's national priorities for implementing adaptation activities to reduce the adverse impacts and risks posed by climate change in Tuvalu.

Accordingly, I am writing to express our strong support for the above project concept, for submission to the Adaptation Fund. Through the Tuvalu Ministry of Home Affairs, Climate Change and Environment, this project will allow Tuvalu to build synergies, support cost-effectiveness, enhance technical cooperation with Niue and Tonga on common challenges, and amplify the project's impacts across the Pacific region.

Yours sincerely,

Dr. Tufoua Panapa – Secretary to Government.

End notes

[i] Niue's resident population was 1,564 during the 2022 census (Department of Foreign Affairs and Trade. (n.d.). Niue country brief. Retrieved online here. The population in Tonga was 104,175 in 2024 (Data Commons. (n.d.). Tonga. Retrieved online here. Tuvalu had a total population of 9,646 people (World Bank. (2024). Tuvalu – World Bank Data. Retrieved online here).

[ii] Intergovernmental Panel on Climate Change. (2022). Climate Change 2022: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, B. Rama). Cambridge University Press. Retrieved online here.

[iii] SPREP (2020), Niue State of the Environment (2019). Available online here.

[iv] Zhang F, Jia X, Lin Z, Jiang Y and Qu M (2024), The outbreak of Drupella snails and its catastrophic effects on coral reefs: a comprehensive review.

[v] Australian Bureau of Meteorology and CSIRO (2011) Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports. Available here.

[vi] Pacific Climate Change Centre (2024) Regional Climate Reports.

[vii] Secretariat of the Pacific Regional Environment Programme (SPREP). (2022, August 18). Workshop prioritises invasive weed targets for natural enemies in Samoa. Available online here.

[viii] Government of Tuvalu (2012). National Climate and Socio-Economic Reports.

[ix] Hughes, T. et al. (2018). Global warming and recurrent mass bleaching of corals. Nature.

[x] Zhang, F., Jia, X., Lin, Z., Jiang, Y., Qu, M. (2024) The outbreak of Drupella snails and its catastrophic effects on coral reefs: a comprehensive review. Frontiers in Marine Science, 10. 10.3389/fmars.2023.1290001

[xi] World Bank (2025) Climate Change Knowledge Portal. Available online: https://climateknowledgeportal.worldbank.org/

[xii] World Bank (2025) Climate Change Knowledge Portal. Available at https://climateknowledgeportal.worldbank.org/

[xiii] World Bank (2021) Climate Risk Country Profile - Tonga

[xiv] World Bank (2025) Climate Change Knowledge Portal. Available at https://climateknowledgeportal.worldbank.org/

[xv] These figures encompass significant uncertainty related to the current state of science for projections of changes in the Antarctic ice sheet. What is certain is that the South Pacific Convergence Zone (SPCZ), where Niue is located, is an SLR hotspot presenting greater impacts than the global average due to a greater increase in water temperatures.

[xvi] SPC (2023) Tuvalu Coastal Adaptation Project Inundation Model. Available at https://opm.gem.spc.int/tcap/risk

[xvii] Australian Bureau of Meteorology and CSIRO (2011) Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports. Available at https://www.pacificclimatechangescience.org/

[xviii] World Bank (2021) Climate Risk Country Profile - Tonga

[xix] World Bank (n.d.) Cyclone Pam Infographic. Available at online here.

[xx] World Bank (2021) Climate Risk Country Profile - Tuvalu

[xxi] PRIF (2013) Climate Change Profile – Niue.

[xxii] World Bank (2021) Climate Risk Country Profile - Tonga

[xxiii] Australian Bureau of Meteorology and CSIRO (2011) Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports. Available at https://www.pacificclimatechangescience.org/

[xxiv] World Bank (2021) Climate Risk Country Profile - Tonga

[xxv] World Bank (2021) Climate Risk Country Profile - Tuvalu

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Annex A: Stakeholder Consultations

This annex documents the comprehensive stakeholder engagement process undertaken during concept note development, including technical consultations with SPREP PRISMSS programme leads, gender and social inclusion experts, regional partners, national invasive species coordinators and representatives from ministries and communities with relevant connections to the project. These consultations directly informed project design, component selection, budget allocation, and safeguard considerations. Table 1 provides a summary of the consulted stakeholders and outlines how each type of stakeholder contributes to the project development.

Summary of consulted stakeholders

***Table 1* – PRISMSS Technical Leads**
Consultations carried online from 5 to 16 September 2025

No.	Name	Organization and role
1	David Moverley	SPREP- Invasive Species Adviser and Technical Lead for RERC
2	Josef Pisi Saddler	SPREP – Invasive Species Officer and Technical Lead for WOW
3	Dominic Saddler	SPREP – PRISMSS Manager and Technical Lead for POI
4	Lynley Hayes	New Zealand Bioeconomy Science Institute - Technical Lead for NENS
5	Richard Griffith	Island Conservation - Technical Lead for PFP
6	Kimberley Seaward	Earth Sciences NZ – NIWA - Technical Lead for POMA

Contributions to project design: Identified priority invasive species and feasible control options; designed pathway risk assessments, monitoring systems and EDRR protocols; clarified biocontrol pipelines and regulatory requirements; defined island selection and baiting methods; and aligned activities with PRISMSS workflows, shaping the structure and technical realism of Components 1–3 and demonstrating regional added value. For marine components, they specified feasible surveillance protocols and recommended the use of tools such as the SPREP marine biosecurity toolkit; Shared lessons from Pacific eradication and biocontrol programmes: advised on feasibility, risks and mitigation for eradications; and articulated regional transformational impacts, strengthening the proposal's credibility, technical justification and regional learning and coordination dimensions.

***Table 2* – National Invasive Species Coordinators (NISCs)**
Consultations carried online 12–20 September 2025 (country-specific consultations).

No.	Name	Organization and role
1	Huggard Tongatule	Niue National Invasive Species Coordinator
2	Viliami Hakaumotu	Tonga National Invasive Species Coordinator
3	Sam Panapa	Tuvalu National Invasive Species Coordinator

Contributions to project design: Provided country-specific feasibility and readiness analysis; listed top-priority invasive species; highlighted enforcement gaps and inter-island movement risks; mapped institutional roles and reporting opportunities; and flagged logistical constraints on outer islands, ensuring strong national alignment and tailoring of Components 1–3.

***Table 3* – National Ministry Representatives**
Consultations facilitated in-country by NISCs and SPREP staff, from August to October 2025 (sectoral meetings and written inputs)

No.	Name	Organization and role	Country
1	Brendon Pasisi	Niue Ocean Wide (NOW) Trust	Niue
2	Aue M. Kolapa	Project Management Coordination Unit	Niue
3	Adorra Misikea	Department of Environment, Maritime Division	Niue
4	Dan [Surname]	Project Management Coordination Unit	Niue
5	Milan [Surname]	Project Management Coordination Unit	Niue
6	Siutoni Tupou	Ministry of Agriculture, Food and Forests – Quarantine Division	Tonga
7	Susan Tuitavake-Moala	Ministry of Agriculture, Food and Forests – Senior Forestry Officer in the Forestry Department	Tonga
8	Haemuli	Director of the Forestry Department	Tonga
9	Fulitua Tealei	Fisheries Department	Tuvalu
10	Semisi Tonga	Agriculture Department	Tuvalu
11	Emely Panapa	Environment Department	Tuvalu
12	Suialofa Eliuta	Waste Department	Tuvalu
13	Tepola Esekia	Tourism Department	Tuvalu

Contributions to project design: Explained how invasive species affect food security, reefs, health, tourism and youth; identified integration opportunities with existing programmes; committed sector resources; and specified policy and legislative updates needed for biosecurity and environmental management. Marine and fisheries agencies also clarified current gaps in marine invasive species data in NISSAPs, the need to clarify institutional responsibility for marine biosecurity, and priorities for including marine threats and response thresholds in future policy updates.

Table 4 **– Provincial, Local Government and Community Representatives**
Consultations facilitated in-country by NISCs and SPREP staff, from August to October 2025 (sectoral meetings and written inputs)

No.	Name	Organization and role	Country
1	Sionetasi Pucehetoa	Liku Village Council	Niue
2	Colin JTUAIA	HKT Men's Council	Niue
3	Kaupule	Kaupule	Tuvalu

Contributions to project design: Shared TEK; described impacts on livelihoods, cultural sites and food systems; clarified FPIC expectations and local decision-making; outlined labour availability; and identified participation barriers and language needs, guiding FPIC planning, culturally appropriate engagement, and community-led restoration and monitoring under Components 2 and 3. There was also focus on inclusion of people with disabilities in all phases of emergency management.

Table 5 **– GEDSI Community and Ministry Representatives**
Consultations facilitated in-country by NISCs and SPREP staff, from August to October 2025 (sectoral meetings and written inputs)

No.	Name	Organization and role	Country
1	Dan [Surname]	Project Management Coordination Unit	Niue
2	Milan [Surname]	Project Management Coordination Unit	Niue
3	Colin JTUAIA	HKT Men's Council	Niue
4	Celina Etialcia	Niue Women's Council	Niue
5	Lofa Misa	Niue Fitikanai Association	Niue

6	Rhema Misa	Lavame'a Ta'e'iloa Disabled People Association Incorporated	Tonga
7	Vine Sosene	Health Department	Tuvalu
8	Taotao Lagafaoa	Youth Department	Tuvalu
9	Marion Faleasiu	Fusi Alofa Association (Disabled Persons Organization)	Tuvalu
10	Kuing Polland	Gender Department	Tuvalu
11	Kaupule	Kaupule	Tuvalu

Contributions to project design: Analysed gendered and social impacts; documented women- and youth-led initiatives; identified training and communication needs; and recommended GEDSI-sensitive indicators and grievance mechanisms, leading to inclusive labour models, gender-responsive budgeting and safeguards across all components.

Other consultations:

Stakeholder Type	Stakeholders	Date(s) of Consultation	Contribution to Project
Schools, NGOs, Civil Society and Traditional Organisations	Schools, environmental clubs, local NGOs, women's associations, cultural and faith-based groups, Women in Maritime	October–November 2025 (NGO roundtables, school engagement planning)	Highlighted youth education and intergenerational knowledge opportunities; offered platforms for long-term participation; and identified livelihood, eco-tourism, awareness and cultural integration opportunities, informing sustainability planning and community ownership models.

CONSULTATION OUTCOMES AND DESIGN INTEGRATION

Component design requirements

Based on the most recent multi-level consultations with technical leads, National Invasive Species Coordinators (NISCs), national ministries, GEDSI representatives and community stakeholders in Niue, Tonga and Tuvalu, the updated project design incorporates the following cross-cutting refinements:

- Community-centric approaches that ensure meaningful participation of women, youth and vulnerable groups in surveillance, restoration and decision-making.
- Technology-enhanced efficiency through tools such as pathway risk assessments, digital monitoring and improved reporting systems.
- Regional coordination optimisation by aligning with PRISMSS workflows and other Pacific invasive species partnerships.
- Cultural integration protocols that respect traditional ecological knowledge (TEK), sacred sites and local governance practices.
- Inclusive economic opportunities through community-based roles in eradication, restoration, monitoring and related livelihood activities.

Integration into project design

Consultation outcomes directly informed the components structure, including the choice of management approaches for different types and stages of invasions, the emphasis on community-based restoration and socially acceptable animal management, and the focus on permanent, high-return interventions for widespread weeds and mammalian predators. The entire package is designed for delivery through proven PRISMSS methodologies (POI, RERC, WOW, POMA, PFP and NENS), ensuring that country-

led priorities are implemented using regionally validated tools and roving technical expertise, and that successful models from Niue, Tonga and Tuvalu can be scaled across the wider Pacific.

The project's four components form an integrated package: Component 1 strengthens biosecurity and early detection–rapid response systems as the first line of defence; Component 2 empowers communities to manage established terrestrial and marine invasives and restore priority sites; Component 3 delivers large-scale transformative interventions such as predator eradication and classical biocontrol; and Component 4 underpins regional cooperation, knowledge management and policy integration so lessons are shared within and beyond Niue, Tonga and Tuvalu.

This stakeholder consultation process ensures the concept note reflects genuine community needs, technical feasibility, and regional coordination opportunities whilst establishing strong foundations for inclusive, culturally appropriate implementation.

Minutes of consultations

PRISMSS TECHNICAL PROGRAMME CONSULTATIONS

Meeting Minutes: Protect Our Islands (POI) Consultation

Date: 5 September 2025

Participants:

- Dominic Sadler - PRISMSS Manager
- Louis Thiercelin - PRISMSS Project Development Coordinator
- David Levy - ClimateABILITY Safeguards Specialist
- Amanda Amjadali - ClimateABILITY Director

Purpose: To gather inputs on the Protect Our Islands (POI) component for the Adaptation Fund Concept Note, focusing on biosecurity, early detection/rapid response (EDRR), and community surveillance in Niue, Tonga, and Tuvalu.

Key Discussion Points

Pathway Risk Assessment

- Risk is concentrated around ports, airports, and inter-island transport
- Example: Nauru flights from Brisbane illustrate how narrow entry points allow targeted surveillance
- Inter-island biosecurity is the greatest gap for Tonga and Tuvalu; outer islands remain highly vulnerable
- Vectors include construction equipment and gendered trade flows (e.g. women's groups moving goods)

Quarantine Operations & Equipment

- National quarantine teams exist but mandates are mostly agriculture/fisheries
- Gaps include invasive species integration, monitoring systems, and affordable equipment
- Detector dogs and X-ray systems are effective but expensive; low-cost traps and baits are more realistic
- Legislative reform is needed in some countries to empower quarantine officers to inspect and enforce

Community Surveillance

- Communities are essential for EDRR: farmers, fishers, paddling clubs, and youth groups detect change first
- Awareness campaigns (e.g. plays, skits, rat-free boat competitions at the Vava'u Festival) raise understanding and ownership
- Reporting systems (hotlines, apps) need to be simple and widely known

Rapid Response Protocols

- Responses must be species-specific (weeds vs mammals)
- Example: mongoose caught in Tonga after targeted traps were provided
- Top 10 priority species lists should be developed per country to guide preparedness

Country-Specific Highlights

- Niue: Beveridge Reef yacht traffic a key pathway; inspections at Niue before departure critical

- Tonga: 2025 Vava'u POI Festival showed community enthusiasm but also gaps in awareness (boats prepared for safety gear but not biosecurity). Next step: tailored communications materials and scaling of rat-free certification
- Tuvalu: Biosecurity Act 2017 provides a framework; EDRR endorsed, but equipment and training still needed. Outer island boats are a persistent weak link; behavioural change is key

Alignment with Concept Note

Dominic's inputs reinforce Component 1 (POI - Biosecurity & EDRR): pathway risk assessments, monitoring stations, community surveillance, quarantine training, rat-free certification, rapid response protocols, plus regional value-add through coordination with Navigator, Battler, and SPC networks.

Meeting Minutes: GEDSI & Traditional Knowledge Consultation

Date: 5 September 2025

Participants:

- William Young - PRISMSS GEDSI & Traditional Knowledge Coordinator
- Louis Thiercelin - PRISMSS Project Development Coordinator
- David Levy - ClimateABILITY Safeguards Specialist
- Amanda Amjadali - ClimateABILITY Director

Purpose: To gather inputs on Gender Equality, Disability and Social Inclusion (GEDSI) and Traditional Ecological Knowledge (TEK) across Niue, Tonga, and Tuvalu for integration into the Adaptation Fund Concept Note.

Key Discussion Points

GEDSI Engagement Structures

Participation varies by country:

- Tonga: Village officers (Kolo) coordinate under the King's authority; youth are central; women's participation context-specific; persons with disabilities often excluded unless explicitly invited
- Niue: Councils of elders are strong; women are vocal and lead coordination
- Tuvalu: Elders' councils dominate; youth and women contribute but disability inclusion remains limited

Traditional Knowledge (TEK):

- TEK informs site selection and protection of culturally important species and areas (totemic species, taboo forests, medicinal plants)
- Some TEK is merged with religion (e.g. Tonga sacred forests)
- William is developing toolkits and indicators for field staff to capture TEK during consultations
- Non-verbal cultural practices (songs, dances, stories) often contain ecological knowledge but are difficult to document
- Climate change and invasives undermine TEK transmission (e.g. vines preventing intercropping in Niue, medicinal plants lost in Tonga)

Gendered Impacts of Invasives & Climate Change:

- Women face greater burdens: collecting water disrupted by pigs/weeds, food gardens lost, added care work
- Persons with disabilities disproportionately affected (e.g. rats damaging wheelchairs, invasive vines restricting mobility)
- Climate change increases invasive spread into gardens, sacred sites, and burial grounds

- Traditional healers (often women) lose resources as invasive plants displace medicinal species

Opportunities for Inclusion & Livelihoods

- Women, youth, and PWD can participate in: weed warrior teams, monitoring, restoration nurseries, storytelling/documentation, and eco-tourism (reef monitoring, coral planting, guided walks)
- Gender budgeting and family dialogues can reduce women's double burden
- Community-based rearing of biocontrol agents could be inclusive and income-generating

Alignment with Concept Note

William's inputs reinforce Component 2 (Localised Management) community participation and Component 4 (Regional Cooperation) GEDSI mainstreaming, plus safeguards integration with FPIC, gender budgeting, and culturally appropriate communication across all components.

Meeting Minutes: NENS/Biocontrol Consultation

Date: 11 September 2025

Participants:

- Lynley Hayes - NENS Technical Lead, Manaaki Whenua
- Louis Thiercelin - PRISMSS Project Development Coordinator
- David Levy - ClimateABILITY Safeguards Specialist
- Amanda Amjadali - ClimateABILITY Director

Purpose: To define feasible, safe, and regionally coherent biological control (NENS) options for priority invasive weeds in Niue, Tonga, and Tuvalu, including agent pipelines, testing/approval pathways, rearing needs, deployment/monitoring, and how to embed GEDSI/TEK and safeguards.

Key Discussion Points

Priority Weeds & Candidate Agents

- Common/prioritised across all three: Singapore daisy (Wedelia) - gall mite expected to be ready for deployment as project starts; scope for supporting colony rearing

Country-specific priorities raised:

- Niue: Taro vine (top priority), tithonia (wild sunflower) - tithonia beetle used successfully elsewhere could be relevant for Niue only
- Tonga: Ivy gourd flagged; mile-a-minute has a known agent but likely not climatically suited (requires cool/wet); further development could be a GCF track
- Tuvalu: Leucaena is a top issue (also present in Niue; unclear in Tonga) - need new natural enemy research for Pacific atoll conditions

Safety & Host-Specificity Testing

- International standard protocols (FAO-style): test close relatives/chemical cousins of target plant to bound host range
- No release until host-specificity shows narrow host range and regulators approve

Regulatory Approvals

- Import Risk Assessment (IRA) dossiers required in each country (cabinet/committee sign-offs vary by jurisdiction)
- Precedents help (e.g., Niue's recent approvals; Tuvalu's Biosecurity Act 2017)

- No informal cross-border sharing of live agents; all movement via approved quarantine channels (NZ/AU) to avoid parasites/disease contamination

Rearing & Capacity

- Tonga has some infrastructure/entomology capacity
- Niue and Tuvalu: minimal facilities; rearing has been done in shade houses/offices but need upgrades
- Proposal to refurbish existing derelict buildings for small insectaries; staff time is a constraint - more insects released = faster impact
- Inclusive workforce models are feasible: PWD, youth, women can be trained for rearing, husbandry, and simple monitoring tasks

Monitoring (5-10 years)

Pacific-appropriate approach: keep it simple, consistent and long-term:

- Record baseline extent/severity + photos; revisit regularly to track agent presence and weed suppression
- Some weeds respond within 1-2 years (esp. aquatic/weedy vines); long-lived trees take longer (cohorts age out)
- Budget should include travel time to outer islands and time for community-assisted monitoring

Social, Livelihoods & Trade-offs

- Early dialogues on trade-offs (e.g., ivy gourd as pig fodder; leucaena as firewood/shade). Provide alternatives (native species/replanting) so communities don't lose utility
- Emphasise that risks of inaction (growing weed dominance, storm hazards from brittle invasive trees, and human/animal health issues) are higher than controlled biocontrol

Country-Specific Highlights

- Niue: Advance taro vine biocontrol; consider tithonia beetle; leverage existing approval pathways; insectary refurbishment needed
- Tonga: Prioritise ivy gourd; re-examine cordia once new evidence emerges; mile-a-minute agent likely unsuitable now - defer to R&D track
- Tuvalu: Leucaena a top priority; outer-island logistics are significant - plan boat transport, protective cages, and packaging protocols for live agents

Alignment with Concept Note

Lynley's inputs reinforce and sharpen Component 3 (Large-Scale Management - NENS Biocontrol): clear country pipelines, host-specificity/IRA steps, insectary upgrades, inclusive rearing/monitoring, and regional coordination for standards not agent swapping. Also informs Component 2 community roles and Component 4 regional protocols.

Meeting Minutes: PRISMSS Consultation with Viliame (Tonga PRISMSS Coordinator)

Date: 15 September 2025

Participants:

- Viliame - PRISMSS Coordinator, Tonga
- David Levy - ClimateABILITY Safeguards

1. Purpose of Meeting

To gather Tonga-specific inputs for the Adaptation Fund Concept Note (PRISMSS), focusing on invasive species management, national alignment, community engagement, and safeguards.

2. Key Discussion Points

Climate-IAS Nexus

- Climate change accelerates the spread of invasive species (e.g. weeds across Tonga)
- Invasives undermine food security, freshwater security, and coastal protection
- Priority species include red rats, feral pigs, cats, and invasive weeds (African tulip, Solanum torvum)

National Strategies & Policies

- Invasive species addressed under the National Invasive Species Strategy and Action Plan (NISSAP) and National Biodiversity Strategy and Action Plan (NBSAP)
- Prioritisation lists for species incorporated in both strategies
- Key challenge is limited funding and human resources; enforcement gaps exist

Current Activities

- Predator eradications undertaken on several islands
- Weed control ongoing (e.g. chemical treatment, natural enemies)
- Five main national programmes: predator-free islands, site restoration, weed management, biosecurity, and use of natural enemies/solutions
- Technical advice available, but scaling depends on funding

Alignment with AF Project

- AF support requested to sustain and expand the five programmes
- Funding needed for activities and to appoint a dedicated national officer
- Integration with existing national strategies and SPREP reporting mechanisms

Communities & Sites

Key impacted communities/sites:

- Vava'u islands
- Tupou College forest (Tongatapu - last remaining native forest)
- Ha'apai group (two islands recently eradicated)
    - Communities depend heavily on fishing, forests, and reefs for livelihoods
    - Benefits of interventions: restored ecosystems, improved marine life, seabird return, climate resilience

Community Engagement & FPIC

- All activities require community approval; otherwise risk of government/political pushback
- Process: consultation → consent → implementation → follow-up training (esp. biosecurity)
- Communities provide labour (rat eradication, weed removal), and awareness raising is continuous
- Women, youth, and PWD have been actively engaged in weed warrior teams and restoration work

Risks & Safeguards

- Minimal risks; eradication bait poses temporary restrictions:

    - No coconut crab harvesting for 6 months
    - No dogs/children on eradication islands
- Communities briefed in detail to ensure safety and understanding

Traditional Knowledge & Cultural Practices

- Seasonal/traditional indicators guide safe timing for interventions (moon phases, rainy/dry season)
- Sacred/taboo forests are respected; one key site is Tupou College forest

Biosecurity & Pathways

- Inter-island boats are the main invasion pathway (over 1,000 vessels)
- Awareness and cooperation with boat owners critical ("Clean Boat" initiative)
- Legislative frameworks exist but enforcement is weak; stronger implementation needed

NGOs & Partners

- Active collaboration with youth groups, women's groups, and Civil Society Forum of Tonga
- Partnerships support awareness and implementation at community level

Sustainability

- Long-term sustainability requires continued donor/government funding
- Government contributions limited at present; donor partnerships (AF, GCF, etc.) essential
- Staff and training support requested to sustain momentum

Replication Potential

- Opportunities for replication in Niua islands and additional outer islands

3. Safeguards & Community Issues

- FPIC: Communities hold final approval authority; project design must respect this
- Social Inclusion: Women, youth, and PWD actively included; no barriers noted
- Cultural Sites: Activities avoid/respect sacred forests and culturally important areas
- Health & Safety: Clear communication of eradication bait restrictions; risks well-managed

4. Alignment with CN

Viliame's inputs reinforce:

- Component 1 (POI - Biosecurity & EDRR): boat pathway management, awareness, enforcement
- Component 2 (Localised Management): site-based eradication, community participation, use of traditional knowledge
- Component 3 (Large-Scale Management - Biocontrol): weed control with natural enemies, monitoring
- Component 4 (Regional Cooperation): alignment with PRISMSS programmes, SPREP reporting

<u>Meeting Minutes: PRISMSS Consultation with National Invasive Species Coordinator (Tuvalu)</u>

Date: 12 September 2025

Participants:

- Sam Panapa, National Invasive Species Coordinator, Tuvalu
- Louis, David, Amanda

1. Purpose of Meeting

To gather inputs from Tuvalu's National Invasive Species Coordinator on key invasive species challenges, their intersection with climate change, community and policy impacts, and opportunities for alignment with the Adaptation Fund Concept Note (PRISMSS).

2. Key Discussion Points

Climate-IAS Nexus

- Invasive species are exacerbated by climate change (drought, cyclones, saltwater intrusion)
- Workbooks prepared with the Department of Agriculture (GEF-6 era, previously led by Brian May and Bella) identified three top priorities: rats, cane toads, and feral dogs
- Rats damage biodiversity and food crops; cane toads, introduced for pest control, now threaten native amphibians and kill wildlife/domestic animals through toxic skin; feral dogs attack poultry, pigs, and ducks, and have become a public safety issue (e.g., crossing the airfield in Funafuti)
- Veterinary services exist but lack funds for medicines and equipment (spaying/castration), leaving dog management under-resourced

Policy Alignment & Integration

- Invasive species threats are reflected directly and indirectly in Tuvalu's NAP, JNAP, and NISSAP, as they undermine ecosystems, resilience, and community safety. Addressing them therefore directly advances adaptation priorities
- Gaps are mainly enforcement and operational capacity:
    - Biosecurity: outbreaks occur more on outer islands due to limited reach of extension officers
    - Enforcement is stronger on Funafuti but weak across remote islands
    - Gaps also exist in cultural safeguards, gender/social inclusion, and FPIC
- Opportunities exist to integrate results into NDC, SDG, and CBD reporting, but capacity and tools are limited

Community & Livelihood Impacts

Communities impacted:

- Rats: all nine islands
- Cane toads: four islands; urgent priority to stop spread to Niulakita
- Dogs: major issue in Funafuti (roaming packs), plus five other islands (Nanumea, Nui, Nukufetau, and others). Some islands control dog populations via local bylaws

Ecosystem dependence:

- Forest/coastal: coconuts critical for food, building, and handicrafts; rat damage reduces yields
- Pulaka pits: already threatened by saltwater intrusion and pigs; invasives worsen losses
- Reefs/lagoons: communities rely on fish and offshore islets; rats controlled at two conservation sites

NENS & biocontrol:

- Coconut scale detected on Nanumaga, spreading to Vaitupu. Biocontrol agents from NZ released, with mixed establishment success (better on Vaitupu; weak on Nanumaga). Plan is to collect and redistribute from successful sites

Livelihood benefits:

- Short-term: cash-for-work during eradication and monitoring
- Long-term: improved food security, livestock protection, eco-tourism, and cultural resilience
- Safeguards & Inclusion
- Risks: rodenticide or biocontrol could pose temporary safety issues (e.g., bait restrictions), but risks are manageable with strong community communication
- Cultural practices: tabu/sacred sites must be respected; approvals from Kaupule (island councils) required
- Communities already included in design and implementation through consultations; youth and women's groups participate in weed warrior teams and restoration
- Civil society: Kaupule councils are key partners; NGOs and community organisations can support monitoring and awareness
- Barriers: cultural hierarchies and resource gaps can limit women's/PWD participation, but inclusive design and tailored awareness can overcome these

Technical & Component-Specific Inputs

Component 1 (Biosecurity & EDRR):

- Highest-risk pathway = inter-island boats (Funafuti wharf, small boats)
- Needs: dedicated quarantine/inspection facilities, wash-down stations, pest-proof vessels, and legislative reinforcement under the Biosecurity Act

Component 2 (Community Management):

- Kaupule (island councils) are key partners; six members including agriculture representatives

Component 3 (Large-Scale Eradication/Biocontrol):

- Politically/technically feasible sites = isolated islets around Funafuti, where rat eradications have already taken place
- National approvals required under the Biosecurity Act for biocontrol testing and release

Component 4 (Regional Cooperation):

- Priorities: technical manuals and SOPs for rat eradication, digital monitoring tools (GPS-based), awareness materials (posters, leaflets in Tuvaluan), and exchange of case studies/lessons from other Pacific countries
- Training: hands-on workshops on eradication, bait use, cane toad control (traps ineffective; need baits), and strengthened biosecurity/quarantine training

Sustainability & Scaling

Sustainability measures:

- Integration of invasive species into government budgets (Home Affairs, Fisheries, Agriculture)
- Embedding invasive species management into Kaupule workplans and local government structures
- Capacity building of staff and NGOs to maintain SOPs and digital monitoring tools
- Revenue generation through eco-tourism and livelihoods linked to restoration
- Marine measures: ballast water spraying, drones for monitoring marine invasives (as local staff are not divers)

Replication potential: interest in applying lessons to other outer islands and across Pacific small island states

3. Safeguards & Community Issues

- FPIC required via Kaupule approvals
- No activities to take place without community consent
- Community awareness critical to mitigate risks (bait use, temporary harvesting restrictions)
- Inclusion of women, youth, and PWD seen as essential for project credibility and sustainability

4. Alignment with CN

Inputs reinforce:

- Component 1: strengthening inter-island biosecurity and EDRR
- Component 2: community-led weed warrior and restoration campaigns
- Component 3: biocontrol and predator eradications on targeted islets
- Component 4: regional training, manuals, and knowledge exchange

Meeting Minutes: B.2: PFP Technical Lead - Richard Griffiths (Island Conservation)

Date: 16 September 2025

Participants:

- Richard Griffiths - PFP Technical Lead, Island Conservation
- Louis Thiercelin - PRISMSS Project Development Coordinator
- David Levy - ClimateABILITY Safeguards Specialist
- Amanda Amjadali - ClimateABILITY Director

Country-Specific Context Questions:

Tonga: "Which Ha'apai or Vava'u islands should be prioritized for the next phase? What lessons from previous operations that took place in Tonga can be applied?"

> My thoughts are that it should include 1-3 small inhabited islands e.g. Kotu in the Ha'apai Group where invasive species removal will have a clear and direct benefit on livelihoods and support adaptation.

Tuvalu: "With six motu in Nukufetau and Funafuti now rat-free and showing coconut crab recovery, which outer island motu should be prioritized based on ecological value and operational feasibility?"

> Within Tuvalu Nukufetau should remain the priority as there is still significant work to do there. There are both inhabited and uninhabited motu that form part of Nukufetau that could be included. Removal of rats from all remaining motu within Nukufetau has been costed at $2.4M USD but matching funding is likely.

How would the definition of target islands in Tonga and Tuvalu contribute to the overarching regional rationale of the AF project?

> Invasive species undermine community's ability to adapt to climate change at most if not all sites.

Technical Implementation Questions:

What technical feasibility assessments determine island suitability for eradication operations?

An eradication project must meet the following criteria to be considered feasible:

> 1. The benefits of the project must outweigh the costs
>
> 2. The project is socially acceptable to the community involved
>
> 3. All individuals of the target species can be put at risk by the eradication technique(s)
>
> 4. Target species populations can be removed at a rate exceeding their rate of increase at all densities

5. The probability of the target pests re-establishing is manageable to near zero
6. The project meets all legal and statutory requirements
7. The necessary resources to complete the project are available and can be deployed

What bait delivery methods (ground-based, aerial) are appropriate for different island sizes, topography, and non-target species considerations?

For rodents, islands less than 20 ha with readily accessible terrain lend are most cost efficiently completed as ground based operations. Aerial methods both drone or helicopter are considered when the scale of the island or the terrain are such that a ground-based operation would be difficult or too costly. Note that residential areas are almost always excluded from aerial application and are completed using ground based methods (bait stations or hand broadcast).

Environmental and Social Safeguards Questions:

Are there communities living in the areas where the invasive species management activities are being implemented?

Yes, a number of the targeted sites are inhabited

If the communities are not living in these areas, do they utilize the resources in these areas?

Yes, a number of the targeted sites are used for the harvesting of natural resources

Could communities be impacted by invasive species management?

Yes, for example mitigation measures to protect human health include moratoriums on the harvesting of some resources such as land crabs. Domestic stock might need to be temporarily removed from an island. Management of food waste during a project's implementation also requires changes to day to day life.

What direct benefits will the communities obtain as a result of the project activities?

1. Increased food security
2. Reduced reliance on imports
3. Reduced risk of certain diseases
4. Training and education
5. Short and potentially long-term employment
6. Recovery of ecosystem processes and services e.g. soil productivity, reef building

What role do women, youth, and vulnerable groups currently play in managing invasive species, and how can their contributions be strengthened?

Women are often a key food provider for their household so stand to benefit from improved agricultural conditions and natural resource availability. Women are often in the position of managing health issues within their communities so stand to benefit from improved health outcomes. Youth are obvious

candidates for employment and training. Other vulnerable groups stand to benefit as a consequence of the outcomes stated above.

6 Strategic Questions for the PFP Component

1. Regional Rationale: How can we best frame the choice of target islands in Tonga and Tuvalu so that AF reviewers see a strong regional rationale?

Tuvalu is very vulnerable, so we want low lying and vulnerable islands where communities are dependent on the natural resources. The NRs are impacted by IS by making an intervention like removing rats you'll have a positive impact on climate resilience, health etc. Those connections are real. Where we've worked it's been transformative.

In Tuvalu we've been working for 3 years and we started small uninhabited for the most part which were simple. We have now proved the concept and proven a precedent. Now move to islands more complex. Through MFAT will remove rats from Niulukita, it has 30 ppl. Nikuafatu is next in terms of atolls, it has 600 ppl and it is nicely divided into different islands where work can be done and sustained as long as ppl reduce the rats being reintroduced.

Tonga IN Kotu in Haipai (200 ppl) it's low lying its got badly hit by the Tsunami a number of years ago but they still have the community there. Working there will support other work going on in Tonga i.e. Futa (volcanic islands). Kotu access Tofua to grow Kava. Supporting work in Kotu but benefit surrounding islands for biosecurity islands. GIZ climate initiative on Tofua that this work will be synergistic with.

2. Feasibility & Risks: From your experience, what are the most common reasons eradication projects fail in the Pacific, and what mitigation measures should we highlight?

The record of success is high between 85-90% on rodent eradication. It will be higher again for other invasives like feral pigs and cats. The reasons for failure are not perfectly understood. Rats are breeding all the time, there are more of them etc. They have additional risks we follow best practice that has been designed for Islands. That continues over time and we learn everytime and we learn from failures. The success rates getting better. In terms of working with inhabited islands It's more complex. You need to invest time with the community upfront so they are fully prepared for the work to be done etc. That the risks are well managed during implementation and that they are willing and bought into the project to sustain it.

3. Innovation vs. Realism: The proposal includes innovations like drone baiting and AI detection. Which of these are realistic at the concept stage?

You can include the use of drones to target rodents, we are starting to replicate that on a broader scale. We do use cameras etc. The real innovation the shift from working in uninhabited places to working with communities to remove IS from populated islands. NZ is in the thick of that with their predator free pacific. To build up to Niue, you have to demonstrate it on other islands. This work supports what needs to be supported on Niue. That's the real innovation.

4. One Key Lesson: If there's one lesson from past island eradications that you'd insist we capture in the proposal to give donors confidence, what would it be?

There are many but the key lesson for me is that you can transform an island by removing IS. You can transform it not just for the indigenous biodiversity which is absolutely hammered but it changes life for the communities. They don't realise you can get rid of rats from an island and you learn to live with them and just come to accept the impact. When you get rid of them it's revolutionary (Palmerston island in cooks). It's transformative and permanent. You benefit into the future.

You have to eliminate the source of food for rats, so you need the community to. We need specific activities to build mitigation measures. We have talked about including some pre-work. Niue wants to remove feral pigs so it needs to sort out its domestic pig management i.e. 3 sided pig pens that need to have a 4th wall. We should include work to socialise and improve the management of domestic pigs etc. then the GCF can do the more costly things.

Meeting Minutes: POMA (Protect Our Marine Areas) Technical Lead

Date: 15 October 2025

Participants:

- Kimberley Seaward – Principle Technician in Marine Ecology at Earth Sciences New Zealand
- David Levy - ClimateABILITY Safeguards Specialist
- Rachel Wood – Climate Adaptation and Mitigation

Technical Implementation Questions:

Focus of pre-identified interventions for AF Regional Project: *Marine surveillance protocols, detection technologies, community training systems*

What marine invasive species surveillance protocols are technically feasible and cost-effective in Pacific Island contexts?

This will be country dependant. Prevention is much more cost-effective to rapid response and management. In the marine realm eradications are extremely difficult without taking a scorched earth approach, and management quickly becomes very costly. The marine biosecurity toolkit outlines several options for introducing surveillance protocols, from prevention through ballast water risk assessments for arriving vessels and performing visual assessments from the water line for hull biofouling. The toolkit provides information on legalisation each country already has for implementing any of the recommended actions if badly fouled ships want to arrive.

Risk assessment criteria and recommended actions are provided in the toolkit. Factors limiting their uptake by the authorities include:

Personnel with the knowledge and time to undertake the tasks,

Availability of support if serious recommended actions need to be taken.

Practical surveillance involving regular surveys are technically feasible, depending on the location and the survey methods used. The survey in Tuvalu was performed by NIWA via freediving, however, we used extremely experienced and trained staff to perform the searches of the manmade structures in the port area in Funafuti and we would recommend that only experienced SCUBA divers did the same.

As for the shallow reef structures, these could be easily surveyed by local snorkellers, time and priorities are the main limiting factors. We suggested that biosecurity practices be incorporated into other biodiversity surveys if they occurred.

When in Tuvalu we discussed ways to get identifications of new to country species if required. This involved the use of the online tool iNaturalist as well as sending photos to us here at NIWA. The postal services from remote locations such as Tuvalu are limiting for fast turnaround of identifications, but with good clear images, preliminary identifications can be made.

What early detection technologies (visual surveys, environmental DNA sampling, community reporting apps) provide reliable results?

Although eDNA sampling metabarcoding and targeted gene sampling is progressing quickly, it relies heavily on available databases that contain accurate data on species identifications. Some work has been done in the Pacific to catalogue DNA data into global databases, such as the PacMAN project. However, first records still need morphological identification and their DNA still needs to be attributed to the correct species for future samples to be referred back to. Mis-identifying native species for biodiversity surveys is unlikely to have serious consequences, but in a biosecurity context a misidentification can be significant.

Other issues such as storage, shipping, sterilisation in the field, etc all make processing eDNA samples less reliable from extremely remote locations.

For this reason, visual surveys and community reporting apps are likely to be the most reliable in terms of detection and eventual identification of current and new species.

We want to add to the advancement of this technology in the Pacific, so along with the collection of samples in Tonga we intend to process them and lodge their sequences in global databases using the identifications provided by the expert taxonomists that will be organised as part of the identification process. This will start through MITS (Marine Invasives Taxonomic Service) in NZ, but we are hoping to develop a relationship with the University of the South Pacific to progress this for future local work.

The AI detection technology is also advancing quickly and is a space that we work in both in the freshwater and marine realm. We already have detection algorithms trained to specific species, hardware and various ways of capturing imagery for live detection results. Training imagery for detection of such a cryptic species such as Drupella would enhance these capabilities and this type of removal aspect is the next step. Currently we have ROV’s with arms that can remove certain species with manual driving, but we are looking at further automation options.

What community-based monitoring training programmes enable effective long-term marine surveillance?

In the past training has been very focussed on IMO ballast water and biofouling guidelines and protocols that involve full baseline port surveys and assessments of vessels in port environments and have been more focussed on department employees rather than community based. We regularly perform these activities here in NZ and the logistics, risk, training and equipment required is expensive and requires a lot of regular skills training, certification and long term maintenance. There are not many recorded examples of community training in the marine realm, as it has often been an overlooked area and deemed too hard. As part of the programme, we are going to be providing training through an NGO

in Tonga and government organisation representatives, there may be some participation in Tonga from special management area guardians, but currently we are not providing training to the general local communities.

If training was to be provided to the general community it would be very different to what we are intending to provide soon in Tonga. Generally, it's better to focus on a target audience such as recreational divers, fishers, marina operators (if they exist) etc. although we acknowledge that a large proportion of the community will be involved with the ocean directly in Pacific nations.

First start with raising awareness of biosecurity in general and set up ways to start reporting anything that is "out of the ordinary". That could be through whatever mechanism is most common, facebook messages, online reporting tools etc.

Lake monitoring in Wisconsin: https://www3.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/clmn/AIS.aspx

Ontario community science program: https://www.invasivespeciescentre.ca/take-action/community-science-program/

Programmes that have regular communications, information and advertising are the most effective for regular community involvement. They still need to be led by trained volunteers, NGO or government group to get community by in. Findings from USGS training found that online tutorials helped volunteers identify invasive plants and estimate percentage cover for measuring abundance, but hands on training was still essential.

Use of tools like iNaturalist and use of social media has shown to be very effective in reporting out of the ordinary species. A large number of the records on the NZ marine biosecurity Porthole are from records that were submitted through the NZ 0800 reporting system and some records from iNaturalist have been harvested and species identifications confirmed by expert taxonomists to be included in the NZ biosecurity Porthole to identify certain target species range extensions.

There is definitely documentation that submission via the public is an effective way of early detection. The detection of Caulerpa in NZ was originally through iNaturalist, then seen by a scientist from a different field that was then passed on to an algal expert for identification.

What rapid response protocols can effectively address marine invasive species outbreaks before population establishment?

The first part of a rapid response plan is understanding who has authority or responsibility for managing an incursion and the potential policy or legislation that authority would be working under. We have found in some areas that there seems to be confusion about who is responsible for marine biosecurity i.e. fisheries, environment, pollution, marine infrastructure departments.

Whether this is governmental or is community led, knowing who is in charge, where help can be sought and if funding is available, is important. Generally, there are four stages to a response which covers investigations, alert, operations and then stand-down/management phase.

Developing risk assessments and decision frameworks will determine the potential methods used to control or manage an incursion. The location and size of the outbreak will also determine the appropriate response.

The outcome and protocols will depend entirely on the species detected. During the initial investigation phase species should be identified, stakeholders and operators contacted to see cooperation to restrict potential movements of vectors and public made aware of the issues.

If the initial investigation determines that a high risk species is present that requires management, then it is likely that consultation with identified experts as well as community representatives take place to determine the best course of action. Actions are very specific to the species, management actions that need to take place for algae, mussels, soft corals or crustaceans are all very different.

Rapid response protocols are about outlining the decisions to get to a potential operations phase, and not all species can be managed. Evaluating the potential for that will be part of the process of developing the documents.

How should marine invasive species data be integrated into regional alert systems and coordinated response frameworks?

Deciding on a centralised data repository would be beneficial, including spatial layers, if possible, but at least location information.

Having predefined response protocols where multi agency coordination has already been defined.

Thresholds for response will be developed in the rapid response protocols, likely as part of the risk assessment component.

Automated notifications can be used; there are many ways that this can be achieved and the system should be one that is appropriate for the locale. E.g. sms, email, dashboards and websites, social media updates.

Very little information on marine invasive species are available in the National Invasive Species Strategy and Action plans for each country. These should be included in the next updates. Documentation needs to occur so information can be passed on.

What equipment specifications, maintenance requirements, and technical support enable community-based marine monitoring programmes?

For strictly community based monitoring programmes, we would only assume very simple sampling methods for marine invasive species if no scientific lead was present. I.e. snorkelling and or shore searching. This is the challenge between terrestrial and aquatic monitoring. Species identification and confirmation is of utmost importance for monitoring. If monitoring was being run through an NGO like VEPA in Tonga, we would expect to see support required for dive equipment, health and safety practices with sample preservation and species identification support.

Country-Specific Context Questions:

Niue: "Have Drupella snail densities above 0.6 individuals per square metre been observed on Niue's reefs? What community reporting systems and removal protocols would be most effective for this single-island context?"

Very little official information on the status of Drupella in Niue is available. In some locations numbers of 0.2 ind/m2 have been considered outbreak levels, but we are unsure if this is the case in Niue. Very little information on any marine invasive species in Niue at all, information could be found stating it’s a

pest but it was not included in the NISSAP and no information could be found on actual numbers to define what an outbreak could be.

Tonga: "Are invasive algae species like Kappaphycus affecting lagoons in Vava'u or Ha'apai? What early warning systems and community monitoring approaches would work best across multiple island groups?"

This is unclear yet, as we have not been and have had no reports of it being an issue. The only algal species reported to us that has reached pest status is Sargassum. Although Kappaphycus was introduced in the late 1980s, it appeared to be unsuccessful in its establishment. Supposedly an improved strain was introduced from Indonesia between 2013 and 2016, however, very few individuals remain as it dried out on harvest and many were destroyed in a cyclone.

Tuvalu: "Building on the 2024 marine invasive pilot activities, which lagoon areas show the highest marine pest problems and what monitoring protocols work best for outer atoll communities?"

We only surveyed locations on the inside of Funafuti. High risk areas, such as ports, marinas, yacht moorings or aquaculture facilities, or sometimes places where boats are cleaned in the water, away from busy boat traffic.

Environmental and Social Safeguards Questions

Are there communities living in the areas where the surveillance protocols activities are being implemented?

Yes, in some locations, no in others, some locations we have been asked to survey because they are high priority sites for aquaculture or food gathering.

If the communities are not living in these areas, do they utilize the resources in these areas?

Yes, it is likely.

Could communities be impacted by the surveillance protocols? For example, will they have limited access to resources, land, marine areas that they rely on for their nutritional needs or livelihoods during the activity implementation?

Surveillance protocols involve monitoring for invasive pests, generally this involves passive surveillance where the public report issues, or monitoring where people are looking for particular target species. No one will be excluded during surveillance, and if a high risk pest is discovered, then consultation is done with community representatives on the best way actions to ensure resources are not compromised.

Will the surveillance protocols utilize any organic or chemical products that could affect the community?

Unlikely, if for some reason a chemical option was used in a response, it would be something very localised and focussed that dissipates safely, such as high salt or chlorine concentrations.

Will the surveillance protocols involve the introduction of any organisms that could affect the community?

In the marine environment biocontrol with introduced organisms is not well documented. Hundreds of taxa can be present in small areas in the ocean, and so many species have not been identified yet. Testing the behaviour of new introduced organisms is extremely difficult when there is such a diverse ecosystem. It is not a path we would go down. In some cases, local natural predators densities have

been increased. For example, increasing sea urchin numbers to significantly graze back invasive seaweeds.

Could the surveillance protocols activities have adverse environmental effects?

Surveillance activities no, see below for response activities.

What direct benefits will the communities obtain as a result of the project activities?

Hopefully continued access to their marine resources, with knowledge of potential high risk pathways for introduction of marine invasive species. Abilities to detect, and identify a suite of high risk species, including targeted information specifically on Drupella and algal species and ways to respond to outbreaks.

What role do women, youth, and vulnerable groups currently play in managing invasive species, and how can their contributions be strengthened?

As we haven't been to Tonga or Niue yet, currently we are unsure of their current roles, but to us they play a vital role and we will look at ways to strengthen their contributions.

Could the invasive species management activities have any adverse environmental effects?

Response activities depend on so many factors and the outcomes of the risk analysis. Most likely answer is no, long term environmental effects of management actions I would also say no, if the worst were to happen and chemical or significant dredging was recommended as a management option, this would only be performed in consultation with communities and ways to mitigate the long term impacts would be agreed upon before going ahead.

Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Tuvalu

Sector Integration and Capacity Assessment Report
Prepared by: Sam Panapa
Date: 26 November 2025

1. Introduction

This report consolidates key findings and discussion points derived from the sector questionnaires conducted as part of the assessment on integration, resource capacity, and coordination mechanisms relevant to invasive species management in Tuvalu. It provides an overview of the current strengths, gaps, and opportunities across key sectors, and highlights the level of readiness for a coordinated national response.

The document serves as a guiding framework for the Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Tuvalu Project**,** supporting efforts to enhance resilience and safeguard ecosystems. It aims to strengthen collaboration among national ministries, island communities, traditional leaders, and development partners by promoting a unified approach to invasive species management.

Invasive species continue to pose significant threats to Tuvalu's biodiversity, food security, health, infrastructure, and overall community wellbeing. Addressing these challenges requires integrated action across terrestrial and marine environments, with strong alignment between national policies, institutional capacities, and community-based practices. This assessment supports that goal by identifying the roles, resource needs, and coordination pathways necessary to achieve effective, long-term invasive species management in Tuvalu.

2. Sector Integration Questions and Analysis

2.1 How do invasive species impact your ministry's strategic objectives?

Invasive species undermine strategic goals across multiple ministries:

- Environment Department: Loss of biodiversity, degradation of ecosystems, and reduced ecosystem services affect conservation and resilience goals.
- Fisheries Department: Marine invasives such as *Sargassum polycystum* and Crown-of-Thorns Starfish (COTS) damage coral reefs, disrupt marine food webs, and reduce fish stocks.
- Agriculture Department: Invasive weeds, pests, and plant diseases reduce crop yields, increase management costs, and threaten national food security.
- Health Department: Changes to ecosystems can increase vector species and disease risks, impacting community health.
- Tourism Department: Degraded coastlines, reefs, and landscapes reduce tourism potential and national revenue.
- Waste Department: Elevate public health risks, and create higher operational workloads.
- Youth Department: Threaten natural resources relied on by youth, create unsafe community spaces, and increase vulnerability to climate impacts

Overall, invasive species threaten Tuvalu's environmental sustainability, economic development, climate resilience, and community livelihoods.

2.2 What existing programmes could complement invasive species management activities?

Several national and regional programmes offer strong opportunities for alignment and support:

- Climate Change Adaptation and Resilience Initiatives: Including ecosystem-based adaptation (EbA), ecosystem restoration, and coastal protection.
- Biodiversity and Coastal Management Projects: Such as the Tuvalu Coastal Adaptation Project (TCAP).
- Agriculture and Food Security Initiatives: Promoting sustainable farming, integrated pest management, and resilient crops.
- Waste Management Programmes: Reducing pest breeding grounds and improving environmental hygiene.
- Education and Youth Programmes: Engaging schools, youth groups, and training institutions in awareness and monitoring.
- Regional Partnerships: Collaboration with SPREP, SPC, PRISMSS, Island Conservation, and other partners for technical assistance, training, and capacity-building.

Integrating invasive species activities into these initiatives promotes efficiency, maximises resources, and strengthens long-term sustainability.

2.3 What policy frameworks need updating to support invasive species management?

A number of national policy and legislative frameworks require review and strengthening to address emerging invasive species risks. Updates will ensure alignment with regional and international best practice and support a coordinated national response. Priority frameworks include:

- Environment Protection Act: Include explicit provisions for invasive species prevention, control, and eradication, with clear institutional responsibilities.
- Biosecurity Act: Strengthen enforcement powers, clarify roles and mandates, and enhance border surveillance, quarantine procedures, and rapid response systems.
- National Biodiversity Strategy and Action Plan (NBSAP): Update invasive species targets, indicators, and monitoring systems.
- Climate Change Policy: Integrate invasive species management as a key ecosystem and climate resilience measure.
- Falekaupule Act: Strengthen community governance roles in surveillance, enforcement, and awareness, empowering island communities to take active stewardship.
- Fisheries and Coastal Management Acts: Include provisions for monitoring and managing marine invasive species, including *Sargassum polycystum* and COTS.
- National Invasive Species Strategy & Action Plan (NISSAP): Strengthen coordination, surveillance systems, and integrated management approaches.
- Early Detection & Rapid Response (EDRR) Plan: Finalise and operationalise procedures, assigning clear responsibilities and resource mobilisation pathways.

These updates will support national commitments under the Convention on Biological Diversity (CBD), Pacific Regional Invasive Species Management Framework, and Pacific Invasives Partnership Strategy, while enhancing environmental resilience and sustainable development.

2.4 What inter-ministry coordination mechanisms are needed?

Effective coordination ensures shared responsibility and reduces duplication. Key mechanisms include:

1. National Invasive Species Taskforce (NIST):
   A multi-ministry platform led by the Department of Environment to coordinate national strategies, monitoring, and implementation.
2. Regular Inter-Ministerial Meetings:
   To align work plans, share progress, and jointly address challenges.
3. Shared Data and Information Systems:
   A national database tracking invasive species distribution, control actions, and performance indicators.
4. Joint Field Missions and Awareness Activities:
   Coordinated community outreach, school programmes, and island-based monitoring.
5. Integrated Capacity Building Programmes:
   Shared training for technical, operational, and leadership staff across ministries.

6. Mainstreaming into National Plans and Budgets:
   Ensuring invasive species actions are embedded across sectoral and national development plans.

3. Resource and Capacity Assessment

3.1 What staff, equipment, or budget resources can your ministry contribute?

Ministries can contribute the following:

- Environment Department: Technical officers, monitoring and sampling equipment (GPS, cameras, kits), and budget for coordination and awareness.
- Fisheries Department: Boats, fuel, diving gear, reef monitoring tools, and field personnel.
- Agriculture Department: Quarantine officers, field staff, transportation, monitoring tools, and budget allocations for surveillance and community awareness.
- Health Department: Public health communication channels and gender/social networks.
- Youth Department: Youth groups, and integration of awareness into community outreach.
- Tourism Department: Field staff to assist with monitoring visitor sites, awareness materials and promotional content.
- Waste Department: Staff, vehicles & bins, support community clean-ups,

Pooling these resources strengthens collective action, reduces duplication, and enhances overall cost-effectiveness.

3.2 What training needs exist for ministry staff?

Key capacity-building needs include:

- Biosecurity and quarantine operations
- Terrestrial and marine species identification
- Monitoring techniques and field data collection
- GIS mapping and data management
- Project planning, reporting, and coordination
- Community engagement and communications
- Leadership and inter-sector collaboration

3.3 How should progress be monitored from your sector perspective?

Monitoring should be aligned with each ministry's mandate:

- Environment: Ecosystem recovery, eradication success rates, and biodiversity improvements.
- Fisheries: Coral reef health, COTS trends, and fish stock assessments.
- Agriculture: Number of invasive species detected, response times, farmer reporting, and reduction in pest populations.
- Health: Tracking changes in disease vectors and related health indicators.
- Youth: Participation levels, outreach statistics, and improved knowledge among young people.

- Tourism: Help ensure that tourism assets remain attractive, safe, and environmentally healthy**,** supporting sustainable tourism growth
- Waste: Maintaining clean, healthy, and pest-free communities, reducing invasive species breeding grounds

The National Invasive Species Task Force (NIST) should consolidate all results into a national monitoring framework.

3.4 What would successful outcomes look like for your ministry?

Success indicators include:

- Environment: A functioning national invasive species programme and visibly restored ecosystems.
- Fisheries: Healthier coral reefs and increased fish abundance.
- Agriculture: Reduced crop damage, improved food security and overall biosecurity systems.
- Health: Lower disease risks linked to vector species.
- Youth: Actively engaged young people contributing to invasive species management and environmental resilience
- Tourism: Increased Visitor Numbers & Satisfaction, Improved Ecosystem Health at Key Destinations
- Waste: Reduced Spread of Waste-Driven Invasive Species, Improved National Cleanliness

Collectively, these results signal enhanced resilience, improved ecosystems, and a well-coordinated national response.

3.5 Are there specific training needs for women, youth, or vulnerable groups?

Yes. Inclusive training ensures broad participation and equitable benefits:

- Women: Leadership, restoration work, community engagement, and livelihood skills.
- Youth: Monitoring skills, digital data collection, and environmental stewardship.
- Persons with Disabilities (PWDs): Accessible training materials and adaptive support.
- Elders and Community Leaders: Mentorship roles and knowledge-sharing on traditional management.

This approach strengthens community ownership and long-term sustainability.

3.6 What gender or social inclusion strategies could be aligned with PRISMSS activities?

Key strategies include:

- Mainstreaming GEDSI across all project components.
- Ensuring balanced and meaningful participation in training and consultation processes.
- Using gender-sensitive communication materials and accessible venues.
- Strengthening partnerships with community groups:

- Documenting success stories and best practices led by women, youth, and vulnerable groups.

These strategies ensure inclusive project outcomes and strengthen national development priorities.

4. Recommendations

To enhance national coordination, capacity, and sustainability of invasive species management in Tuvalu, the following actions are recommended:

1. Establish or reactivate the National Invasive Species Taskforce (NIST).
2. Update priority policy frameworks to integrate invasive species management across sectors.
3. Ensure invasive species priorities are included in national and ministerial budgets.
4. Conduct regular capacity-building programmes for technical officers, women, youth, and vulnerable groups.
5. Develop a national monitoring and reporting system aligned with NISSAP and EDRR.
6. Strengthen regional partnerships with PRISMSS, SPREP, SPC, and Island Conservation to enhance technical and financial support.

5. Conclusion

Effective invasive species management depends on strong cooperation across ministries, island communities, and national partners. By aligning sector objectives, strengthening capacity, and integrating gender and social inclusion principles, Tuvalu can build a resilient and coordinated approach that safeguards its biodiversity and enhances community wellbeing.

Through this collaborative framework, the Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Tuvalu Project will make a significant contribution to Tuvalu's long-term environmental sustainability, climate resilience, and social development.

Consulted Stakeholders

No.	Name	Organisation	Email
1.	Vine Sosene	Health Department	sosene_v@gov.tv
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4.	Emely Panapa	Environment Dept	emely.panapa@gov.tv
5.	Suialofa Eliuta	Waste Dept	suialofaleliuta@gmail.com
6.	Taotao Lagafaoa	Youth Dept	taotaosophieui@gmail.com
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Received on 01.12.2025

Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Niue

Prepared by: Louis Thiercelin
Date: 9 December 2025

1. Introduction

This report consolidates key findings and discussion points derived from the sector questionnaires conducted as part of the assessment on integration, resource capacity, and coordination mechanisms relevant to invasive species management in Niue. It provides an overview of the current strengths, gaps, and opportunities across key sectors, and highlights the level of readiness for a coordinated national response.

The consultations have been carried out from the 1st to 4th of December in the context of an in-country visit of PRISMSS team members, at the occasion of a invasive-species focused workshop that featured the launch of the Restoring the Rock documentary. Following the screening of the documentary, which was attended by ministry and community representatives' questionnaires were circulated to key stakeholders to gather their feedback on the concept for the Regional Adaptation Fund Project Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Niue, Tonga and Tuvalu.

Account of contributors to this consultation can be found at the end of the document.

2. Sector Integration and Capacity Assessment

The questionnaire relative to sector integration and capacity assessment was administered to the following stakeholders present at the workshop:

Consulted Stakeholders

No.	Name	Organization	Function	Email
1.	Brendon Pasisi	Niue Ocean Wide (NOW) Trust	Manager and Director	TBD
2.	Aue M. Kolapa	Project Management Coordination Unit	TBD	TBD
3.	Adorra Misikea	Department of Environment, Maritime Division	Maritime Coordinator	TBD
4.	Carol Ewards	Niue Primary School	Principal	

Sector Integration Questions and Analysis

2.1 How do invasive species impact your ministry's strategic objectives?

Invasive species undermine strategic goals across multiple ministries:

- Niue Ocean Wide (NOW) Trust: Conservation and sustainable management of Ocean and Terrestrial space. Biodiversity loss objectives.
- Project Management Coordination Unit: Community and cultural objectives, strategies and plans.
- Department of Environment, Maritime Division: Invasive species can be released with ballast water of ships coming to ports.

2.2 What existing programmes could complement invasive species management activities?

Several national and regional programmes offer strong opportunities for alignment and support:

- Niue Ocean Wide (NOW) Trust: Village Resource Management Advisory Committee (RMAC) Village Grants to support resource and environment management plan implementation. Also Government-Community marine co-management arrangement (MSP).[1]
- Department of Environment, Maritime Division: Women in Maritime Programme

Governmental institutions also stated potential complementary contributions:

- Project Management Coordination Unit: Assistance for project planning and costing.
- Niue Primary School: School partnership for technical support

2.3 What policy frameworks need updating to support invasive species management?

A number of national policy and legislative frameworks require review and strengthening to address emerging invasive species risks. Updates will ensure alignment with regional and international best practice and support a coordinated national response. Priority frameworks include:

- Niue Ocean Wide (NOW) Trust: lack of regulation around the disposal of invasives
- Project Management Coordination Unit: Climate adaptation projects
- Department of Environment, Maritime Division: There is not much policy/legal frameworks for vessel-borne marine invasive species – not strengthened accordingly.

These updates will support national commitments under the Convention on Biological Diversity (CBD), Pacific Regional Invasive Species Management Framework, and Pacific Invasives Partnership Strategy, while enhancing environmental resilience and sustainable development.

2.4 What inter-ministry coordination mechanisms are needed?

Coordination needs identified by consulted stakeholders include:

- Niue Ocean Wide (NOW) Trust: Niue Ocean Wide (NOW) Trust: lack of regulation around the disposal of invasives
- Project Management Coordination Unit: stronger enforcement of coordination mechanisms
- Niue Primary School: More school programmes would always be welcome, as the school is extremely pleased with the relationship with the team of the Department of Environment.

Resource and Capacity Assessment

2.5 What staff, equipment, or budget resources can your ministry contribute?

Ministries and public institutions can contribute the following:

- Niue Ocean Wide (NOW) Trust: Trust grants. To date already 1 village has included invasive plant removal in grant proposal.

[1] NB. This initiative strengthens the co-management framework at the heart of the Niue Ocean Wide Initiative Public – Private Partnership, empowering communities to lead with cultural integrity and environmental stewardship. As the program enters its second year, the NOW Trust remains committed to supporting inclusive participation and village-driven action within the co-management arrangement with central government. The initiative supports RMACs as they turn local knowledge into lasting impact from sustainable tourism ventures to the revitalization and maintenance of culture and traditional practices. (cf. Online)

- Project Management Coordination Unit: Project management support
- Niue Primary School: Contribution through the knowledge passed on to students

2.6 What training needs exist for ministry staff?

Key capacity-building needs include:

- Niue Ocean Wide (NOW) Trust: N/A
- Project Management Coordination Unit: Procurement and compliance, as well as monitoring and evaluation.
- Niue Primary School: nothing identified

2.7 How should progress be monitored from your sector perspective?

- Niue Ocean Wide (NOW) Trust: Increased awareness and scale requirements.
- Project Management Coordination Unit: Progress monitoring should include qualitative indicators such as long-term changes, improved land stewardship and also include monthly or quarterly progress reports.
- Department of Environment, Maritime Division: More collaboration with DOE to address marine invasive species would be good progress

2.8 What would successful outcomes look like for your ministry?

Success indicators include:

- Niue Ocean Wide (NOW) Trust: Niue has done a lot of things over the last 15+ years but there are only a very limited number of measurable success (e.g. Lantana moth, that has successful biocontrol). Invasive species, although some action, are in a worse status now than ever before. Our action needs to be scaled up, so the measure of success is a reduction in cover or eradication.
- Project Management Coordination Unit: invasive species are managed and climate adaptation is improved.
- Department of Environment, Maritime Division: successfully establish a tailored program to address marine invasive species
- Niue Primary School: when students are aware and additional knowledge is gained

2.9 Are there any specific challenges or risks associated with the proposed activities that we should be aware of?

- Niue Ocean Wide (NOW) Trust: Collateral damage has to prevented, to avoid good species to be affected.
- Project Management Coordination Unit: resource constraints; environmental uncertainty

2.10 Are there specific training needs for women, youth, or vulnerable groups?

Specific training needs identified by consulted stakeholders are the following:

- Niue Ocean Wide (NOW) Trust: How to contain and manage invasive species. And prevent introduction and spread.
- Department of Environment, Maritime Division: Strong training need for women in maritime for the different key stakeholders that works closely with maritime

2.11 What gender or social inclusion strategies could be aligned with PRISMSS activities?

Key strategies identified by interviewed stakeholders include:

- Integrating all contributing groups to be part of the solution: contributing is for all ages and all genders
- Training workshops dedicated to the youth
- Linking the project with the “Women in Maritime” programme

2.12 How can we ensure the long-term sustainability of the project’s outcomes beyond the project lifespan:

- Niue Ocean Wide (NOW) Trust: Support NOW Trust of set up a CTF.
- Project Management Coordination Unit: Develop a long term sustainability framework
- Department of Environment, Maritime Division: further in-country consultations and follow-up visits
- Niue Primary School: This needs to be a government driven project so that funding is prioritised to ensure sustainability. Continued work with children so that awareness starts at an early age.

3. Gender Equality, Disability and Social Inclusion (GEDSI) Assessment

Extensive feedback on questions raised by the questionnaire relative to Gender Equality, Disability and Social Inclusion (GEDSI) was provided by staff from the Project Management Coordination Unit of the Government of Niue (Dan XXX and Milan XXX).

Other consulted participants that provided support to the project concept, include:

- Peter XXX, TMIC, role TBD
- Sionetasi Pucehetoa, Liku Village Council, role TBD
- Celina Etialcia, Women’s Council, role TBD
- Lofa Misa, Niue Fitikanai, role TBD

The association Niue Fitikanai showed interest to be associated to project implementation, with potential areas of cooperation being identified for restoration work (cf. attached annex).

3.1 To what extent are women, persons with disabilities, youth, elderly, and marginalized groups engaged in community activities?

- Project Management Coordination Unit: They are heavily engaged in community activities, right down to decision making. They are always included in every conversation about conservation and development activities.

3.2 Who in your community typically makes decisions about how natural resources are managed? Are women, youth, and persons with disabilities involved in these decisions?

- Project Management Coordination Unit: It is a village decision because when it comes to implementing, the whole village works.

What coordination mechanisms exist between environment and women's affairs/social development ministries?

- Project Management Coordination Unit: Good relationship between government agencies, private sector, NGO and SSI. One example is Niue Women Council working with FITIKANAI group.

Are there successful examples of women-led environmental initiatives that could be scaled up or connected to this project?

- Project Management Coordination Unit: Niue Council of Women work on the Pandanus project.

Are there existing coordination mechanisms between environment and women's affairs or social development ministries that this project could build upon?

- Project Management Coordination Unit: Through projects like the Small-Grants Project, Now the RMAC (cf. above) and government departments, Environment and PCU.

How do you assess the interest and desire of GEDSI communities to participate in conservation / development activities? And more specifically to project activities?

- Project Management Coordination Unit: Consultation workshops, how many people turn up is a good indicator.

What staff, equipment, or resources could your organisation contribute?

- Project Management Coordination Unit: Engage villages to lead the work, with support of the government

What are the most trusted and effective ways to share information with women in your community?

- Project Management Coordination Unit: Social media, email, village visits

Grievance Redress - If someone in the community has a complaint or a problem with a project, how is it usually resolved?

- Project Management Coordination Unit: Community members contact project coordinator directly to address the issue. If not resolved, It can be addressed to director level.

4. Conclusion

The consultation allowed to identify interest of in country stakeholders that could be integrated into the implementation of project activities, including:

- The Project Management Coordination Unit, for the coordination across government bodies and with civil society.
- The Niue Ocean Wide (NOW) Trust, which has started delivering grants to villages to improve support resource and environment management. The grants delivered by the NOW Trust being sustainably supported by the fund, they offer opportunities for ensuring the sustainability of project outcomes as they can fund activities over time.
- The Maritime Division of the Department of Environment, for activities related to marine invasive species
- Niue Women Council and Fitikanai association, for the implementation of restoration activities and the inclusion of women
- Niue Primary School, for activities relative to awareness and education of the youth

Further consultations with additional ministries in charge of fisheries, agriculture, tourism and biosecurity would however be useful to identify additional synergies.

The consultation also allowed to map out initiatives that can have synergies with the project in terms of gender inclusion, which include:

- Women in Maritime Programme, coordinated by the Maritime Division.
- Pandanus project, of the Niue Women Council

Consulted Stakeholders

No.	Name	Organization	Function	Email
1.	Brendon Pasisi	Niue Ocean Wide (NOW) Trust	Manager and Director	TBD
2.	Aue M. Kolapa	Project Management Coordination Unit	TBD	TBD
3.	Adorra Misikea	Department of Environment, Maritime Division	Maritime Coordinator	TBD
4.	Carol Ewards	Niue Primary School	Principal	
5.	Dan	Project Management Coordination Unit	TBD	TBD
6.	Milan	Project Management Coordination Unit	TBD	TBD
7.	Colin JTUAIA	HKT Men’s Council	TBD	TBD
8.	Peter	TMIC	TBD	TBD
9.	Sionetasi Pucehetoa	Liku Village Council	TBD	TBD
10.	Celina Etialcia	Women’s Council	TBD	TBD
11.	Lofa Misa	Niue Fitikanai	TBD	TBD

Received on 08.12.2025

Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Tuvalu

Gender Equality, Disability and Social Inclusion (GEDSI) Analysis Report

Prepared by: Sam Panapa

Date: 26th November 2025

1. Introduction

This report consolidates the key findings and discussion points derived from the sector questionnaires undertaken as part of the national assessment on sector integration, resource capacity, and coordination mechanisms for invasive species management in Tuvalu. It provides an overview of current strengths, gaps, and opportunities across ministries and identifies priority actions needed to strengthen a coordinated, multi-sector approach.

In addition, this Gender Equality, Disability and Social Inclusion (GEDSI) Analysis Report outlines how inclusive approaches are being integrated into the Invasive Species Management for Ecosystem-based Adaptation to Climate Change in Tuvalu Project. The GEDSI analysis examines the differentiated impacts of climate change and invasive species on various social groups and assesses how existing coordination mechanisms, institutional capacities, and community participation can be strengthened to ensure equitable project outcomes.

Integrating GEDSI principles is essential to ensuring that all members of the community, women, men, youth, elders, and persons with disabilities (PWDs), are able to actively participate in, contribute to, and benefit from invasive species management and conservation efforts. Inclusive participation enhances social resilience, strengthens biodiversity protection, and supports fair and sustainable development outcomes across the islands of Tuvalu.

By embedding GEDSI considerations throughout the project, Tuvalu can ensure that invasive species management efforts not only protect ecosystems but also contribute to improved wellbeing and strengthened community cohesion.

2. Differential Impacts of Climate Change and Invasive Species

Table 2 Differential Impacts of Climate Change and Invasive Species

Group	Climate Change Impacts	Invasive Species Impacts	Engagement in Community Activities
Women	Increased workloads in food, water, and caregiving; limited access to land and decision-making.	Reduced crop yields and fisheries affecting food security and income.	Active in projects but underrepresented in leadership roles.
Men	Economic pressure from declining fisheries and agriculture; migration for work.	Loss of income sources, need for livelihood diversification.	Often engaged in technical and operational roles.
Youth	Limited livelihood options; disrupted education; reduces socialisation and skills, migration for jobs.	Loss of resource-based employment; reduced interest in traditional work.	Active in awareness and volunteerism; need stronger engagement pathways.
Elderly	Health and mobility constraints; traditional	Dependence on affected resources;	Valued for local knowledge but not consistently included in decisions.

	knowledge challenged by change.	reduced ability to join eradication work.	
PWDs	Limited access to adaptation programs; higher risk during disasters.	Exclusion from control programs; reduced access to food and resources.	Low participation due to accessibility barriers; inclusion improving gradually.

Summary:
Women, youth, elderly, and PWDs are disproportionately affected by climate and ecological changes due to unequal access to resources and opportunities. Addressing these inequalities through inclusive planning is essential to ensure fair participation and sustainable project outcomes.

3. GEDSI in Conservation and Development Activities

3.1 Participation in Conservation and Development

- Women: Key contributors to waste management, gardening, and restoration but need stronger representation in leadership and decision-making.
- Men: Predominantly involved in technical and field-based work.
- Youth: Highly engaged in awareness and clean-up initiatives but require long-term training, traditional learning, and employment pathways.
- Elderly: Hold valuable traditional knowledge; inclusion in planning processes should be strengthened.
- PWDs: Often excluded due to accessibility challenges; targeted engagement is needed.

3.2 Coordination Between Environment and Women's Affairs/Social Development Ministries

- Collaboration occurs through inter-ministerial committees and gender mainstreaming requirements in environmental projects.
- Policies such as the National Gender Equality Policy and Climate Change Strategy promote cross-sector collaboration.
- Coordination challenges persist due to limited capacity and resources; regular joint planning meetings would improve synergy.

3.3 Women-Led Environmental Initiatives

- Successful examples include women-led waste management and recycling projects, mangrove restoration, the sustainable harvesting and weaving of pandanus leaves and community gardens.
- Regional programs such as Pacific Women Lead show that empowering women yields stronger conservation outcomes.
- Scaling up requires technical support, funding, and recognition of women's leadership in formal governance systems.

4 Youth Engagement Mechanisms

- Existing through school environment clubs, National Youth Council programs, and NGO initiatives.
- Youth enthusiasm is strong, but sustained engagement is hindered by limited funding and mentorship.
- Recommendations include establishing internships, linking schools with conservation projects, and supporting youth-led innovation.

4. Participation of GEDSI Communities in Project Activities

4.1 Assessing Interest and Desire to Participate

Interest can be gauged through community consultations, focus groups, and surveys that include women, youth, elderly, and PWD representatives.
Key assessment factors:

- Awareness of project objectives and benefits.
- Cultural and social norms influencing participation.
- Accessibility of venues and information.
- Existence of feedback mechanisms for community input.

A participatory approach ensures GEDSI communities feel ownership and clearly understand the benefits of conservation actions.

4.2 Organisational Contributions

Organisations can contribute by providing:

- Staff: GEDSI focal points, technical officers, community facilitators.
- Equipment: Boats, field kits, communication tools, and accessibility aids.
- Resources: Meeting venues, materials, and small grants for GEDSI-led activities.

4.3 Training and Capacity Building Needs

Meaningful participation requires:

- Awareness training on conservation and invasive species management.
- Leadership and empowerment workshops for women, youth, and PWDs.
- Technical skills training in monitoring, restoration, and safety procedures.
- Project management and financial literacy for community organizations.
- Accessibility and inclusion training for staff to ensure events are inclusive.

Capacity building transforms GEDSI communities into active partners and leaders in environmental management.

5. Project Impacts on GEDSI Communities

5.1 Positive and Negative Impacts

Positive: Skill development, income generation, leadership roles, inclusion of traditional knowledge, and improved accessibility.

Negative: Unequal benefits, increased workload (especially for women), and exclusion due to accessibility or social barriers.

Mitigation Measures: Inclusive planning, flexible scheduling, equitable workload distribution, and continuous participation monitoring.

5.2 Successful Outcomes for Organisations and Communities

Success will be achieved when:

- GEDSI communities participate equitably in all project phases.
- Local capacity and confidence in conservation leadership are strengthened.
- Livelihoods improve through restored ecosystems and new income sources.
- GEDSI principles are institutionalized in national and local environmental policies.
- Communities take ownership of biodiversity protection and management.

5.3 Double Burden on Women

Engaging women in project activities can risk creating a double burden if their caregiving and household responsibilities are not considered.

To avoid this:

- Consult women on suitable schedules and roles.
- Encourage shared household responsibilities.
- Provide childcare or flexible meeting arrangements.
- Offer fair incentives or recognition for participation.

Ensuring that women's involvement is empowering not exhausting, and will strengthen community ownership, enhance project inclusiveness, and contribute to more effective and sustainable invasive species management across Tuvalu.

5.4 Summary of Project Impact Considerations

Table 3 Summary of Project Impact Considerations

Group	Potential Positive Impacts	Potential Negative Impacts	Key Mitigation Measures
Women	Leadership, skills, income generation.	Double workload, exclusion.	Flexible scheduling, shared duties, inclusive consultation.
Men	Livelihood diversification.	Exclusion if focus limited to women/youth.	Balanced gender inclusion.

Youth	Awareness, training, employment.	Loss of interest if not supported.	Mentorship and recognition.
Elderly	Use of traditional knowledge.	Mobility constraints.	Accessible locations and roles.
PWDs	Empowerment through inclusion.	Exclusion due to inaccessibility.	Adaptive equipment and communication support.

6. Conclusion

Integrating GEDSI principles into Tuvalu's Invasive Species Project strengthens biodiversity conservation and community resilience. Inclusive participation allows every individual, women, men, youth, elderly, and persons with disabilities, to contribute meaningfully to national environmental goals.

Key recommendations include:

- Ensure inclusive consultations and equitable representation in planning.
- Strengthen coordination between environmental and social ministries.
- Provide continuous capacity building and leadership training.
- Support and scale up successful women- and youth-led initiatives.
- Embed accessibility and inclusion standards in all project operations.

Through this approach, Tuvalu can achieve a predator-free, climate-resilient, and socially inclusive future that empowers all members of the community.

Consulted Stakeholders

No.	Name	Organization	Email
1.	Vine Sosene	Health Department	sosene_v@gov.tv
2.	Taotao Lagafaoa	Youth Dept	taotaosophieui@gmail.com
8.	Marion Faleasiu	Fusi Alofa Association	onnietofaga@gmail.com
9.	Kuing Polland	GENDER Dept	kpolland@gov.tv

Received on 01.12.2025

<u>Consultation of Government Ministry Representatives from Tonga</u>

Biosecurity & Early Detection Rapid Response (EDRR)
Date:

Persons with Disabilities related to Biosecurity early Rapid response in two key ways:
They are disproportionately impacted by emergencies but also essential contributing in planning and executing inclusive Reponses. Their involvement helps ensure plans are accessible and effective for everyone.

Vulnerability and Specific Needs:
People with Disabilities often face specific barriers during biosecurity crisis or disease outbreak.

Access to information:
Inaccessible early warning systems (e.g. lack of audio/visual alerts, plain language information) can leave them unaware of immediate dangers or protective measures.

Access to Services:
They may experience less access to health, education and social services during a crisis.

Movement and Evacuation:
Physical barriers are the potential inoperability of aids like elevators can hider safe and effective evacuation.

Continuity of Care:
Many rely on support networks or caregivers whose services may be interrupted during an emergency, posing serious risks to their basic daily needs, hygiene, and health.

Discrimination:
They can face discrimination in the allocation of resources temporary shelter or employment opportunities during recovery efforts.

Roles in Rapid Response and Planning:
To address these vulnerabilities, People with disabilities must be actively involved in all stages of emergency management, including biosecurity response.

Needs Assessment and Planning:
Including their voices during the planning and preparedness phases helps identify specific needs and potential barriers, making the overall plan more robust.

Community Communication:
Disabled Persons Organizations (DPO) can serve as crucial communication channels to reach their communities effectively and ensure messages are accessible and understood.

Providing Expertise:
Individuals' disabilities are experts on their own needs and the best ways to meet them.
The insights can inform the development of accessible technology, adaptable tools, and non-discriminatory response practices.

Monitoring and Evaluation:
They can participate in monitoring and evaluating ongoing strategies to ensure that the response remains effective and inclusive, allowing for timely adjustments.

Direct Response Roles:
Depending on their skills and the nature of their disability, individuals can take on various roles, such as providing peer support, managing information or contributing to remote coordination efforts.

Key Actions for inclusive Response:
Effective Rapid Response requires the integration of Disability needs and the participation of Persons with disabilities.

- Inclusive planning: PWD and OPDs must be involved from the outset in designing, implementing, and evaluating biosecurity policies and programs. This includes embedding disability subject matter experts within public health agencies and response teams.
- Accessible information: all early warning and public health information (e.g. plain language, sign language, braille, or captioning), hindering their ability to stay informed and act quickly

- Access to service and equipment: people with disabilities may experience reduced access to health, education and social services, and may be separated from essential assistive devices or medication.
- Increased Health Risk: they may face physical barriers to implementing hygiene measure or social distancing, and many require support from others for daily activities, increasing exposure risk.

Role in the Response:
Inclusion of persons with disabilities in all phases of emergency management (mitigation, preparedness, response and recovery) is critical for effective, equitable outcomes for the entire community. Their involvement shifts the focus from seeing them only as victims to recognizing them as active contributors and experts by experience.

Key ways to relate to and contribute to response include:
- Design and Planning: involving people with disabilities and their representative's organization (DPOPs) in planning ensures that their specific needs and capacities are considered from the outset
- Subject Matter Expertise: Embedding disability subject matter experts within public health agencies can help ensure that issues impacting people within disabilities are addressed in planning response, and recovery efforts.
- Rapid Assessments: DPOs have often led rapid assessments during crises (e.g., COVID -19 pandemic) to provide evidence and inform a disability inclusive response, highlighting their ability to quickly gather and act on information about their community's needs
- Tailored Communication: they can help ensure that all communication during an emergency is accessible and effective for people with diverse impairments
- Support Networks: individual can create a personal emergency plan, including a personal support network of trusted individuals aware of their needs, which can aid rapid response at personal level.

Ultimately, the relationship emphasizes that effective biosecurity rapid response requires an inclusive, whole community approach where persons with disabilities are empowered participants, not passive recipients of aid.

FPIC Guidance

This Free, Prior and Informed Consent Guidance is intended to help SPREP and the Concept Note Team understand the requirements and actions needed to implement the four steps of FPIC: Free, Prior, Informed and Consent. The guidance is broken down into four parts and is intended to explain what each Step means (the requirement) and how to implement the Step (required actions). At this stage in the project cycle, research suggests that all project-affected stakeholder communities are considered Indigenous Peoples as per the Adaptation Funds policies and procedures and international law. Thus, all activities that affect the stakeholder communities' land, resources, rights, livelihoods, or cultural heritage will trigger FPIC. The FPIC process will not be completed during the Concept Note stage; however, SPREP and the Concept Note Team will be able to demonstrate that they are making a good faith effort to begin the process and meet Principles 2, 3, 4, and 5 of the Adaptation Funds Environmental and Social Safeguard policies, and this will help to ensure that the FPIC process will be completed prior to Project Implementation.

Step 1 - Free

Requirement: The Project must commit to undertaking the consultation process free of coercion, intimidation, and manipulation.

Ultimately, it is the communities' collective decision whether or not to consent to the project activities. FPIC prescribes the community's right to consent to none, some, or all of the proposed activities. The FPIC process must not attempt to influence this decision. They should not seek to get "buy-in," but rather, present the proposed activities, possible benefits and risks, methodology, potential roles and responsibilities of the community, and answer the Community Stakeholders' questions. The Project can – and indeed is encouraged to – amend project activities as per the needs of the community, as long as the requests are within the scope of the project proposal. Amending project activities should always be done as a way to improve project outcomes, and the benefits for the communities, not as a way to "secure" consent. A quid pro quo is always contrary to the Free requirement of FPIC, no matter how beneficial the Project believes the incentive may be for the community.

Required Actions: In order to ensure the Free element of FPIC is implemented, the following actions are required:

1. Documentation of Community Stakeholder consultations related to the proposed project activities, how the team has communicated the attendant social and environmental risks, and proposed initial mitigation measures.
2. Documentation of the discussion with the community about their decision-making process or procedure, and their preferences for the decision-making processes that they will employ in order to decide whether the project activities should proceed.
3. Documentation that the community has been able to co-design mitigation measures for the identified risks, including revisions to the project activities.
4. Interviews or surveys with community members confirming that the project team has not used any form of intimidation, including the presence of security personnel or law enforcement.
5. Interviews or surveys with community members confirming that no money, goods, or enticements whatsoever have been offered by the project team to influence the consent of the community and that the community has no obligation to provide consent. In most cases, activities such as livelihood or small grant activities would not be considered "enticements" as defined in the FPIC Tool.

a. Example: the evidence for this could be surveys and focus-group discussions that confirm that enticements were not used.

Step 2 - Prior

Requirement: The Project must undertake consultation processes sufficiently in advance of the proposed project activities to allow the community to reach a decision using its own decision-making process. "Sufficiently," in this context, means that the community members have had enough time to:

- Understand the project activities and potential impacts (the "Informed" Step of FPIC);
- The community's likely contributions and commitments;
- Undertake its traditional decision-making process.

Required Actions: In order to ensure the Prior element of FPIC is implemented, the following actions are required:

1. Documentation that the FPIC process was initiated prior to any decisions being taken regarding the project's advancement, and that the timeline has been established and agreed upon by the community.
2. Documented evidence demonstrating that the project team understands the community's decision-making processes and that they have been respected and adhered to, including the time required to reach a decision.

Step 3: Informed

Requirement: The Project must ensure that the community understands all relevant information pertaining to the proposed activities.

This includes:

- The purpose, scope, timeline of project activities, risks, mitigation measures, details of any potential in-kind support the community would provide, and Adaptation Fund's safeguard commitments.
- All information must be disseminated in a culturally-appropriate manner and in language(s) understood by the community (including potentially affected sub-groups within the community).
- The community must be informed that they have the right to withdraw or modify their consent at any stage of the project.
- The "Informed" element of FPIC is usually the most time-intensive aspect of FPIC. It may take several iterations of Community Stakeholder engagement and often requires engaging with marginalized groups in focus-group discussions.

Required Actions: In order to ensure the Informed element of FPIC is implemented, the following actions are required:

1. Documentation that the project has a scoped community-level stakeholder engagement plan that ensures the relevant information pertaining to the proposed activities and UNDP's safeguards commitments are comprehensible and accessible to the community, including GEDSI groups within the community.
2. Documentation that the relevant information pertaining to the proposed activities and the relevant safeguards commitments is disclosed in all necessary languages in order for the information to be fully understood by the community, including GEDSI groups within the community.
3. Documentation that demonstrates that the Stakeholder Community members, including marginalized groups within the community, have understood the relevant information pertaining to the proposed activities, potential risks, and safeguards commitments.

Step 4: Consent

Requirement: The Project must ensure the community has formally agreed to the project activities through signing, for example, a memorandum of understanding, agreement, contract, or engaged in a culturally-appropriate ceremony/practice to indicate consent.

A decision can be in the form of any of the following:

- The community consents to the project activities as proposed.
- The community consents to specific project activities but does not provide consent for others.
- The community requests revisions to some or all of the project activities.
- Non-Consent: the community withholds its consent, and the project activities cannot proceed that require FPIC.

Required Actions: In order to ensure the Consent element of FPIC is implemented, the following actions are required:

3. Documentation that the community has reached their decision through an inclusive process that employs the community's decision-making process.
4. Documentation that a formal document or process has been executed, through which the community explicitly consents to the project activities.
5. Implementation of culturally-appropriate procedures or ceremonies to formalize consent, as necessary.

Meeting Minutes: PRISMSS Consultation of Government Ministry Representatives

Date: December 2025

Participants: Susan Tuitavake-Moala - Senior Forestry Officer**,** Haemuli - Director Forestry

How do invasive species impact your ministry's strategic objectives?

Invasive species cause significant damage to Tonga's Agriculture Strategic Sector Plan, affecting objectives related to:

- Sustainable rural livelihoods
- Profitable commercial agriculture

Invasive species impact progress toward SDG objectives related to sustainable management of land and forest areas

Invasive species, particularly Cordia, increase the cost of land preparation for crop production. Unlike grass weeds that can be ploughed, Cordia requires bulldozing, which is costly.

- Former farm areas that have been abandoned are now dominated by Cordia, discouraging farmers from returning to crop production.
- In forest areas such as Toloa, Cordia is dominating forest ecosystems, eliminating other forest species.
- Cordia is noted to be quick in establishing.

What existing programmes or initiatives within your ministry could complement invasive species management activities?

- The One Million Tree Planting programme funded locally and ongoing until 2027.
- Support for Tonga National Park Management, with replanting led by the Forestry Division.
- An SPC invasive species project with Fiji, focusing on Cordia and scheduled to conclude in 2026.
    - Three weeds were identified: Merremia, African Tulip Tree (ATT), and Cordia.
    - The Ministry chose to focus on Cordia due to its widespread distribution and invasiveness.
    - Baseline surveys have been completed in Vava‘u and Tongatapu, with support for ‘Eua.
    - Training on GIS tools has been delivered.

What policy or regulatory gaps currently hinder effective invasive species management?

- While responsibilities are identified within these instruments, enforcement is weak, and financing for enforcement resources is lacking.
- The Forestry Division’s structure within the Ministry of Agriculture places emphasis on agriculture, including directives that prioritise fruit tree planting.
- Border control requires strengthening, including whether policies are in place to regulate invasive species entry.
- The Department of Forestry has policies in place that address invasive species.
- Existing instruments include:
    - National Forest Policy
    - Sustainable Management Plan
    - Forest Act
    - Code of Harvesting Practices for ‘Eua and nationally
    - Draft Water Catchment Plan for ‘Eua

What are the existing mechanisms for inter-ministry coordination on environmental and climate change issues and what improvements are needed?

- There are no formal coordination mechanisms, aside from coordination that occurs through individual projects.
- Existing platforms include:
- JNAP Joint National Action Plan group, which convenes NDCs.
- National Invasive Species Action Plan (NISAP) working group.

What staff, technical expertise, equipment, or budget resources can your ministry contribute to the project's implementation?

- The Ministry can provide technical expertise especially with local resources, with two staff specialising in local forestry information.
- There is no budget or equipment available to contribute.
- Five staff can contribute time, estimated at two to three full days equivalent per quarter.

What training needs exist for ministry staff?

- Field first-aid training to ensure staff safety during on-ground operations.
- Training in the safe use and handling of agrichemicals to meet health, safety, and environmental standards.
- Biocontrol training to strengthen understanding and application of biological control approaches.
- Development of practical forestry resource and management handbooks in both English and Tongan to support consistent implementation and knowledge transfer.

How could this project help strengthen your ministry's long-term capacity for invasive species management and climate change adaptation?

- Providing long-term financing and support for forestry management
- Supporting forestry activities that strengthen environmental protection and climate resilience
- Building staff capacity through ongoing training and skills development
- Developing and providing forestry handbooks in both Tongan and English to support consistent practice and long-term knowledge retention

How should progress be monitored from your sector perspective?

- Through the establishment of a network or committee that the stakeholders including forestry division, that functions to regularly monitor and update progress on invasive species management activities in Tonga

What would successful outcomes look like for your ministry?

- Strengthened collaboration across relevant agencies and partners
- Adequate and sustained resourcing to support priority activities
- Effective monitoring and reporting systems in place
- Improved access to, and documentation of, forestry and management resources
- Enhanced institutional and staff capacity
- Increased awareness and outreach on forestry and related resources

Are there any potential challenges or risks associated with the proposed activities that we should be aware of?

- Potential concerns or resistance from farmers regarding biocontrol activities, including ongoing discomfort or uncertainty about the use of biological control approaches.

Are there specific training needs for women, youth, or vulnerable groups within your sector?

- Special training for women and communities who make handicrafts especially using native trees, such as the alu plant

What gender or social inclusion strategies could be aligned with PRISMSS activities?

- Empowering women to take an active role and interest in forestry and invasive species management activities. To do this in the past, the ministry had propagated plants to engage the local women growers. The ministry is interested in duplicating this for forestry resources.

How can we ensure the long-term sustainability of the project's outcomes beyond the life of the project?

- Engaging ministry staff and the Department of Forestry to build and retain capacity and institutional knowledge
- Establishing long-term coordination mechanisms across involved ministries to ensure learning and information sharing
- Setting realistic goals that align with the core mandates and ongoing work of the ministry and departments

Meeting Minutes: PRISMSS Consultation of Government Ministry Representatives

Date: December 2025

Sector Integration Questions:

- How do invasive species impact your ministry's strategic objectives?

Answers:

- Invasive species pose a significant threat to Tonga’s biosecurity, with direct impacts on key national priorities.
- The impacts are most evident in two sectors:
- Food security, through reduced local agricultural production that affects food availability for Tongan communities.
- Economic and market access, as the introduction of new invasive species can lead to restrictions or closure of existing and emerging export markets for Tongan produce.
- Any factor that jeopardises agricultural production, including the presence of invasive and exotic species, has broader implications for national development and trade.
- Within the Ministry of Agriculture, Food and Forests (MAFF), three divisions are directly affected by invasive species and actively engaged in addressing them:
- Extension Division, working directly with farmers;

- Research Division;
- Biosecurity Division.

What existing programmes or initiatives within your ministry could complement invasive species management activities?

- Border security programmes led by quarantine officers in international ports could complement invasive species management efforts.
- Existing work within the Research Division, Quarantine, and Extension services could support and align with invasive species management activities.

What policy or regulatory gaps currently hinder effective invasive species management?

- Existing legislation requires upgrading, including transitioning from the Plant Quarantine Act to a broader Biodiversity Act to better address invasive species and wider biodiversity issues.
- Animal disease legislation and plant legislation are separate, and while they sit under biosecurity-related frameworks, this separation creates challenges for coordinated invasive species management.
- There is no overarching biosecurity policy to guide invasive species management. While legislation is being drafted, a formal policy framework is needed to provide strategic direction.
- Management of invasive species at the border remains a key gap requiring stronger regulatory and operational focus.

What are the existing mechanisms for inter-ministry coordination on environmental and climate change issues and what improvements are needed?

- Engagement and coordination between Chief Executive Officers (CEOs) currently provides guidance and direction on environmental and climate change issues.
- Progress toward a Biosecurity Act that incorporates both environment and biosecurity is identified as an area for improvement to strengthen coordination across ministries.

Resource & Capacity Questions:

What staff, technical expertise, equipment, or budget resources can your ministry contribute to the project's implementation?

- The Ministry has limited financial resources, with an 80/20 government budget ratio, where only 20% is available for operational costs. Operational support is therefore supplemented through external partners.
- Staff support can be provided by the Ministry, while operational budget support is currently enhanced through:
- MPI Enhanced Biosecurity Partners
- Enhanced Market Partnership, both funded by MFAT.
- SAFE Pacific (SPC) has provided an X-ray machine to support biosecurity operations.

- PACER Plus has supported the provision of an incinerator in Vava'u, though an incinerator shed is still required.
- The Ministry has robust outreach systems, including radio programmes for awareness.
- Tonga is working with PACER Plus on a quarantine electronic system and the development of a separate quarantine website to disseminate information and facilitate public requests.

What training needs exist for ministry staff?

- All international ports require protection, with Vava'u identified as a high-risk port, as approximately 90% of tourist traffic enters through Vava'u.
- The Research Team has the ability to order laboratory equipment tax-free from overseas, supporting diagnostic and research functions.
- There is a strong need for technical training, particularly in:
    - Diagnostic training
    - Surveillance training
    - Pest survey training
    - Import pathway training
    - Export pathway training
- The Ministry supports staff development through short-term scholarships with MPI, particularly for biosecurity staff.
- There is interest in expanding Pacific-based training opportunities, using Fiji and Samoa as regional training hubs, as these provide more affordable and locally relevant training options and allow greater staff participation.
- In-country training is prioritised, as it enables broader participation and strengthens national capacity.

How could this project help strengthen your ministry's long-term capacity for invasive species management and climate change adaptation?

- Minimisation of invasive species spread, strengthening long-term management capacity.
- Improved food security through reduced impacts of invasive species on agriculture.
- Enhanced market access, supporting economic benefits by reducing biosecurity risks.
- Improved early detection capability, with reference to the fall army worm detection example as an illustration of the value of timely surveillance and response.

How should progress be monitored from your sector perspective?

- Progress should be monitored through the establishment of working groups, similar to the approach used under the PHAMA Plus project, which included the creation of a market access working group.

What would successful outcomes look like for your ministry?

- The Biosecurity Bill is finalised and ready.
- A Biosecurity Policy is developed to guide implementation and coordination.

Are there any potential challenges or risks associated with the proposed activities that we should be aware of?

- There are currently no dedicated biosecurity staff to manage inter-island and national biosecurity activities.
- International biosecurity coverage is limited in other parts of Tonga, including Haʻapai for tourist yachts and ʻEua/Oleva for cruise ship arrivals.
- These gaps highlight the need for a formal biosecurity policy, particularly to address training gaps for staff posted as Officers-in-Charge (OICs) and to strengthen capacity across all ports of entry.

Are there specific training needs for women, youth, or vulnerable groups within your sector?

- Women require targeted engagement and training on the proper importation of seeds and planting materials.
- Training should focus on understanding and using existing permitting systems to ensure planting materials are brought into the country through approved biosecurity processes.

What gender or social inclusion strategies could be aligned with PRISMSS activities?

- None

How can we ensure the long-term sustainability of the project's outcomes beyond the life of the project?

- The Biosecurity Bill is finalised, with provisions for on-the-spot fines to strengthen enforcement. Under the current Plant Act, breaches require court proceedings.
- A Biosecurity Policy is developed to guide implementation.
- Knowledge products are produced, including a biosecurity video for arriving passengers, to support awareness and compliance.

Annex B: Results Framework

Project Objective: Enhance climate resilience of ecosystems and communities in Niue, Tonga, and Tuvalu through innovative, regionally coordinated invasive species management that addresses climate change impacts and safeguards vital ecosystem services.

1. Impact Statement

Resilience to Climate Change and Biodiversity Loss: Enhanced climate resilience through reduced invasive species threats, protecting ecosystem services that provide food security, coastal protection, and freshwater resources essential for climate adaptation.

Impact Indicator	Means of Verification	Frequency
Ecosystem Service Value Protected (USD million)	Economic valuation studies	Annual
Hectares of terrestrial and marine ecosystems under improved management	GIS mapping and monitoring reports	Annual

2. Project Objectives

Objective 1: Improved food security and livelihoods of communities dependent on natural resources affected by invasive species.

Objective 2: Improved resilience of small island communities to climate change and natural disasters due to protected and enhanced ecosystems.

Objective 3: Foster regional cooperation and the sharing of expertise, following and advocacy to improve cost efficiency and achieve increasingly sophisticated solutions.

3. Outcome Indicators

Outcome 1: Reduced direct damage to crops/food

(Supports Objective 1; delivered through Component 1 - POI)

Indicator	Baseline	Target	Means of Verification
Percentage reduction in crop/food damage from invasive species			Agricultural surveys and yield assessments
Number of households with more secure access to agricultural livelihood assets			Household surveys and livelihood assessments
Number of community members trained in EDRR (disaggregated by gender)		(≥50% women)	Training records and community registers

Outcome 2: Reduced crop productivity loss from competition

(Supports Objective 1; delivered through Component 1 - POI)

Indicator	Means of Verification
Percentage reduction in productivity losses from invasive weeds	Agricultural surveys and yield assessments
Hectares of crop systems protected from priority weeds	GIS mapping and monitoring reports

Outcome 3: Restored ecosystem functions of terrestrial ecosystems

(Supports Objective 2; delivered through Component 2 - RERC, WOW)

Indicator	Baseline	Target	Means of Verification
Hectares of terrestrial ecosystems restored or under improved management			GIS mapping and community activity reports
Percentage improvement in native forest regeneration indicators			Forest monitoring plots and ecological surveys
Number of community members participating in ecosystem restoration (disaggregated by gender)		(≥50% women)	Training certificates and participant records

Outcome 4: Restored ecosystem functions of marine ecosystems

(Supports Objective 2; delivered through Component 2 - POMA and Component 3 - PFP)

Indicator	Baseline	Target	Means of Verification
Percentage improvement in coral reef health indicators	TBD	30%	Marine ecological monitoring and reef assessments
Number of islands declared predator-free with seabird population recovery	0	8-10	Eradication completion reports and seabird surveys
Number of marine invasive outbreaks detected and suppressed	0	TBD	Marine monitoring reports
Number of trained community marine monitors	0	100+	Training records

Outcome 5: Shared learnings and successes

(Supports Objective 3; delivered through Component 4 - Regional knowledge learning and sharing)

Indicator	Baseline	Target	Means of Verification
Number of climate resilience knowledge products produced and shared	0	25+	SPREP Battler Resource Base and publications
Number of countries accessing knowledge resources	3	15+	Platform usage analytics and regional uptake reports
Number of participants in regional exchanges / community of practice events	0	15+ events	Training reports and participant evaluations

Outcome 6: Regional service enhanced to coordinate efforts

(Supports Objective 3; delivered through Component 4 - Regional knowledge learning and sharing)

Indicator	Baseline	Target	Means of Verification
Number of regional coordination mechanisms functioning	0	3+	Coordination reports and meeting records
Number of multi-country biosecurity protocols operational	0	3+	Protocol documentation and implementation reports
Number of policies/plans integrating climate-informed IS management	0	6+	NDA/NPSC approvals and policy documents
Number of institutions with strengthened capacity (local & regional)	0	10+	Capacity assessment reports

4. Component Output Indicators

Component 1: Biosecurity & Early Detection Rapid Response (Prevention & Early Action)

PRISMSS Programme: POI - Protect Our Islands (National and inter-island biosecurity and Early Detection – Rapid Response)

Output Indicator	Means of Verification
Average detection-to-response time for new invasive species incursions	Biosecurity incident reports and response logs
Number of trained community surveillance participants (disaggregated by gender)	Training records and community registers
Number of species-specific contingency plans operational	Contingency plan documentation
Number of Rapid Response Teams trained and functional	Training records and team rosters

Component 2: Community-Based Management & Restoration (Localised ecosystem restoration for community Resilience)

PRISMSS Programmes: RERC (Resilient Ecosystems – Resilient Communities), WOW (War on Weeds), POMA (Protect Our Marine Areas)

Output Indicator	Means of Verification
Hectares of terrestrial areas under community-based invasive species management and ecological restoration	GIS mapping; restoration activity reports; vegetation monitoring
Community nurseries established and operational (includes seedling production)	Nursery logs
Hectares of marine areas under community-based invasive species management and ecological restoration	GIS mapping; restoration activity reports; vegetation monitoring
Marine invasive species EDRR systems established and functioning (includes plans, protocols, and trained monitors)	EDRR plans; SOPs; monitoring records
Number of community members trained in invasive species management (disaggregated by gender)	Training certificates and participant records
Number of pigs contained via community systems	Community activity reports
Number of Drupella/algal outbreak responses	Marine monitoring reports
Number of community marine monitors trained	Training records

Component 3: Large-Scale Transformative Management (Landscape-scale ecosystem-based adaptation)

PRISMSS Programmes: PFP (Predator Free Pacific), NENS (Natural Enemies – Natural Solutions)

Output Indicator	Baseline	Target	Means of Verification
Number of islands declared predator-free	0	8-10	Eradication completion reports
Seabird colonies recovered (population increase)	TBD	Doubling	Seabird surveys
Number widespread weeds under permanent biocontrol	0	4-6	Biocontrol establishment and monitoring reports

Output Indicator	Baseline	Target	Means of Verification
Ecosystem functions restored at scale			PRISMSS RERC / WOW / POMA Restoration Monitoring Protocols & Checklists

Component 4: Regional Cooperation & Knowledge Management (Scaling and Sustainability)

Regional knowledge learning and sharing

Output Indicator	Baseline	Target	Means of Verification
Number of technical guides and case studies published in regional platforms	0	25+	SPREP publications and online platform records
Number of regional training events and exchanges conducted	0	15+	Training reports and participant evaluations
Number of institutions with strengthened capacity	0	10+	Capacity assessment reports
Number of policies/plans integrating climate-risk-informed IS management	0	6+	Policy documentation and NDA approvals
Number of multi-country coordination mechanisms established	0	3+	Coordination mechanism documentation

5. Gender-Responsive Indicators

Aspect	Indicator	Target	Data Collection Method
Participation	Percentage of women in leadership roles	≥40%	Leadership position tracking
Economic empowerment	Number of women accessing paid project roles	≥500	Employment records by gender
TEK integration	Number of traditional knowledge practices documented	≥50	TEK documentation reports
Inclusive employment	Number of persons with disabilities employed in project activities	≥100	Employment records

6. Co-Benefits

1. Improved health: Reduced exposure to invasive species-related health risks through biosecurity, community-based management, and large-scale management interventions.

2. Improved biodiversity conservation: Enhanced native species populations and ecosystem integrity through predator removal, weed control, and ecosystem restoration.

7. Barriers Addressed

Barrier	Description	Addressed by Components
1	Limited community awareness and engagement	Component 1 (POI), Component 2 (RERC, WOW, POMA)
2	Limited institutional and operational capacity	Component 2 (RERC, WOW), Component 4
3	Limited and inadequate technical capacity	Component 2 (POMA), Component 3 (PFP, NENS)
4	Insufficient funds	All Components

Barrier	Description	Addressed by Components
5	Insufficient capacity for regional cooperation and knowledge sharing	Component 4 (Regional knowledge learning and sharing)

This Results Framework provides the structure for systematic monitoring of project progress and adaptive management throughout implementation. Indicators are designed to capture both quantitative achievements and qualitative changes in community capacity and ecosystem health, with particular attention to gender-responsive outcomes and regional coordination benefits.

Annex C: Social and Environmental Screening Tool

Information	
Title	Invasive Species Management for Ecosystem-based Adaptation
Location	Niue, Tonga, Tuvalu
Project stage	Concept Note
Date	August 2025

Part A: Social and environmental risk identification and management

Outputs	Social and Environmental Principles Triggered	Risk Statement	Risk Significance Impact Likelihood	Proposed Management Measures
Component 1: Biosecurity & Early Detection Rapid Response (EDRR)				
Output 1.1: Capacity Strengthening for National Quarantine and Inspection Services	No output-specific risks apply, however, risks related to "All Components" apply to Output 1.1.	N/A	N/A	N/A
Output 1.2: Implementation of National and Inter-Island Pathway Risk Assessments	No output-specific risks apply, however, risks related to "All Components" apply to Output 1.2.	N/A	N/A	N/A
Output 1.3: Operationalisation of Early Detection and Rapid Response Systems	**7. Indigenous Peoples** P7.5 – Communities and customary leaders may not be consulted in drafting or implementation. P7.6 – Agreements on how Indigenous or customary knowledge is used may not be documented.	There is a risk that Indigenous People have not been consulted, or consented to, the Early Detection and Rapid Response Systems.	Impact 4 Likelihood 2 Moderate Risk	A Stakeholder Engagement Plan is being drafted as part of the concept note to ensure Indigenous communities stakeholders have been mapped in preparation for the FPIC process (Indigenous people likely comprise all project communities). As part of the FPIC process, during the community stakeholder engagement meetings, the project's proposed outputs will be presented and the

				stakeholders will provide their perspectives regarding possible risks and mitigation measures. During the FPIC consultation with the intended project beneficiaries they will be informed about their rights as per AF, UNEP, and SPREP safeguard policies as well as relevant national and international law. As part of the FPIC consultation customary knowledge related to rapid response systems (if applicable) will be discussed and use of Indigenous knowledge must be consented to (and documented) prior to implementation.
	9. Protection of Natural Habitats P9.2 – Detection and Rapid Response Systems may not systematically identify all sensitive habitats when designing detection and rapid response systems.	There is a risk that sensitive habitats will not be known or considered when operationalising the Rapid Response Systems.	Impact 2 Likelihood 2 Low Risk	Prior to project implementation sensitive habitats must be mapped and any rapid response method that could compromise these habitats will not be used.
	10. Conservation of Biological Diversity P10.3 – Detection and Rapid Response Systems may not adequately consider how invasive species interact with important plants, animals and ecosystems.	There is a risk of losing positive impacts of invasive species through their eradication.	Impact 1 Likelihood 2 Low Risk	During the stakeholder engagement and FPIC process the project management team will discuss which species are considered invasive and document whether any of these species are used within the project communities and if so, whether eradicating them would have a negative impact on the community. Note: to date, the only positive use of invasive species that has been articulated during the stakeholder engagement is the use of flowers for aesthetic purposes.
	11. Climate Change P11.4 – Detection and Rapid Response Systems may not	There is a risk that rapid response may not consider climate	Impact 2 Likelihood 2	When the rapid response methods are clearly articulated they must be

	integrate climate stressors (e.g. bleaching, warming seas, storm damage) into early detection approaches.	stressors and may therefore exacerbate the stressors.	Low Risk	examined to ensure that they will not cause any climate stressors.
	14. Physical and Cultural Heritage P14.4 – Detection and Rapid Response Systems may unintentionally impact cultural heritage sites.	There is a risk that cultural mapping (both sites and resources) has not been implemented and as a result cultural heritage is adversely impacted by the rapid response systems.	Impact 3 Likelihood 2 Moderate Risk	During the FPIC process the project will engage in cultural mapping to ensure that the team is aware of where cultural heritage are and ensure that they are not adversely impacted by the project activities.
Output 1.4: Fostering Community-Based Biosecurity Awareness and Surveillance	**6. Core Labour Rights** P6.2 – Agreements for community monitors may not embed ILO labour standards (fair pay, no discrimination). P6.4 – Grievance mechanisms for monitors may not be provided. P6.5 – Participants face OHS risks such as diving accidents, boat safety issues, or injuries during reef monitoring. P6.6 – Monitoring of labour rights and safety standards during fieldwork may be absent.	There is a risk that community-based monitoring may not adhere to good labour practices as set forth by the ILO.	Impact 2 Likelihood 2 Low Risk	The project will ensure that ILOs principles are understood by those taking part in community monitoring. These are as follows: ● Right to Safe Work: Workers have the right to a safe and healthy working environment. ● Prevention First: Prevention of accidents and illnesses is a priority over compensation. ● Employer Responsibility: Employers must provide safe workplaces, training, and protective equipment. ● Worker Participation: Workers have the right to be informed, consulted, and participate in OSH decisions. ● Inspection and Enforcement: Governments must ensure compliance through inspection systems. ● Continuous Improvement: Safety and health systems should evolve with

				changing technologies and risks. ● Worker Participation: Workers have the right to be informed, consulted, and participate in OSH decisions. ● Inspection and Enforcement: Government agencies and the UNDP PMU must ensure compliance
	7. Indigenous Peoples P7.4 – FPIC may not be obtained if Indigenous or customary marine knowledge is used. P7.5 – Customary leaders may not be meaningfully consulted on how community-based biosecurity overlaps with traditional management. P7.6 – Agreements with customary authorities on knowledge use and roles may not be documented.	There is a risk that the FPIC process has not been completed as relates to using traditional knowledge.	Impact 3 Likelihood 3 Moderate Risk	As part of the FPIC consultation customary knowledge related to community monitoring (if applicable) will be discussed and use of Indigenous knowledge must be consented to (and documented) prior to implementation.
	9. Protection of Natural Habitats P9.2 – Networks may not systematically identify all sensitive habitats in monitoring areas. P9.4 – Field monitoring activities may cause minor disturbance (e.g. trampling corals, handling species).	There is a risk that community monitoring may adversely impact sensitive habitats.	Impact 2 Likelihood 2 Low Risk	All project areas will be mapped for sensitive habitats and community monitors will be trained on areas that they should not implement monitoring or eradication procedures.
	10. Conservation of Biological Diversity P10.3 – Networks may not capture full ecosystem interactions, focusing only on invasive species. P10.5 – Non-target or protected species may be disturbed during	There is a risk that non-target or protected species may be disturbed during monitoring and eradication.	Impact 3 Likelihood 3 Moderate Risk	All community monitors will be trained on good practices to ensure that they do not cause harm to non-target species. Protected species will be mapped and community monitors will be trained to avoid these areas when

	monitoring.			implementing monitoring or eradication procedures.
	11. Climate Change P11.4 – Monitoring protocols may not integrate climate-driven changes (bleaching, storms, warming seas), limiting long-term relevance of monitoring efforts.	There is a risk that the community monitoring protocols do not take into account the effects of climate change.	Impact 2 Likelihood 2 Low Risk	The development of monitoring protocols must take into account how severe weather events will affect the delivery of these protocols.
	13. Public Health P13.1 – Participants may face health and safety risks during fieldwork.	There is a risk that untrained community members may face risks of injury when conducting community monitoring.	Impact 2 Likelihood 2 Low Risk	Community monitors will be provided with personal protective equipment and trained about potential dangers that might arise as a result of community monitoring activities.
	14. Physical and Cultural Heritage P14.6 – Monitoring sites may overlap with culturally significant marine areas.	There is a risk that cultural heritage sites, if not mapped, could be adversely impact during community monitoring.	Impact 2 Likelihood 2 Low Risk	As part of the FPIC consultation cultural heritage sites related to community monitoring (if applicable) will be discussed and the potential impacts on these sites must be consented to prior to implementation.
Component 2: Community-Based Management & Restoration				
Output 2.1: Ecological Restoration of Priority Terrestrial Sites	**6. Core Labour Rights** P6.1 – Manual restoration work may expose participants to unsafe conditions if OHS standards are not followed. P6.5 – Field workers may lack adequate safety training or protective equipment.	There is a risk that workers and community participants may face unsafe or unhealthy conditions during restoration activities due to limited occupational-health training and protective equipment.	Impact 3 Likelihood 3 Moderate Risk	All field participants will receive practical safety briefings covering tool use, lifting techniques and safe application of herbicides. Basic protective gear (gloves, boots, masks) will be supplied. Supervisors will check compliance regularly. Any accidents or safety incidents will be documented and reviewed by the project coordination team.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC may not yet be formalised for some customary lands.	There is a risk that FPIC has not been fully obtained for activities on customary land and that consultations	Impact 4 Likelihood 3 Moderate Risk	A Stakeholder Engagement Plan is being developed to identify all customary landowners and traditional authorities for each restoration site in preparation for the FPIC process. During FPIC consultations the

	P7.5 – Consultations with customary leaders could be uneven across islands and sites.	with customary leaders have been inconsistent across project sites.		restoration activities will be presented, and community representatives will provide feedback on potential risks and mitigation measures. Customary leaders and participants will be informed of their rights under AF, UNEP and SPREP safeguard policies. Agreements on land access and the use of traditional knowledge will be recorded and archived.
	9. Protection of Natural Habitats P9.1 – Weed and predator control within sensitive forests could cause short-term disturbance to native vegetation.	There is a risk that weed or predator control within sensitive forest areas could cause short-term disturbance to native vegetation or wildlife habitats.	Impact 2 Likelihood 3 Low Risk	Field teams will apply environmental good-practice guidelines to avoid unnecessary vegetation removal. Sensitive habitats and native species will be identified before work begins, and exclusion zones will be marked. Supervisors will monitor that only targeted areas and approved chemical methods are used.
	10. Conservation of Biological Diversity P10.1 – Biodiversity could be inadvertently harmed if non-native species are used in replanting or if non-target fauna are harmed by trapping.	There is a risk that biodiversity could be adversely affected if non-native plants are introduced during replanting or if non-target fauna are accidentally harmed during restoration.	Impact 3 Likelihood 2 Moderate Risk	All seed and seedling sources will be confirmed as native and locally appropriate through the national environment or forestry agency and the project team. Restoration teams will be trained to distinguish native from invasive species. Sites will be monitored to confirm that native vegetation is regenerating and no non-target species are affected.
	12. Pollution Prevention and Resource Efficiency P12.3 – Herbicides used for weed control may be mishandled or disposed of improperly.	There is a risk of environmental contamination if herbicides are misused or disposed of improperly during weed-control operations.	Impact 2 Likelihood 2 Low Risk	Herbicide mixing, application and waste disposal will follow manufacturer instructions and national regulations. Only approved products will be purchased. Empty containers will be collected and disposed of through designated waste-management services. Workers will be trained on safe handling and spill-response procedures.
	15. Lands and Soil Conservation P15.1 – Clearing and replanting on slopes or atoll soils may cause localised erosion if not carefully managed.	There is a risk of localised soil erosion on slopes or fragile atoll soils as a result of clearing and replanting activities.	Impact 2 Likelihood 3 Low Risk	Restoration work will include erosion-control measures such as planting along natural slopes, spreading leaf litter and covering bare soil with fast-growing plants. Field supervisors will check erosion-control measures after heavy rain and organise repairs or

				additional planting where necessary.
Output 2.2: Management of High-Impact Invasive Animals	**6. Core Labour Rights** P6.1 – Manual trapping and animal-handling tasks may expose participants to unsafe working conditions if OHS standards are not followed. P6.5 – Workers may not receive adequate safety or animal-handling training, particularly for pig containment and cane-toad removal.	There is a risk that workers and community members involved in trapping and animal handling could face unsafe conditions due to inadequate safety procedures or insufficient training.	Impact 3 Likelihood 3 Moderate Risk	All participants will receive training on animal handling and trap use. Protective gear such as gloves and boots will be provided. Supervisors will check compliance regularly and record any incidents. First-aid kit will be provided at work sites and accidents will be reported through a designated grievance channel.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC from customary landowners may not yet be formalised for fencing or containment structures on communal lands. P7.5 – Customary leaders may not be meaningfully consulted on how community-based animal management overlaps with traditional land-use or resource-management systems. P7.6 – Agreements with customary authorities on the use of traditional knowledge and the delineation of roles may not be documented.	There is a risk that FPIC has not been formalised for works on customary land and that customary leaders have not been fully consulted or recorded agreements made regarding the use of traditional knowledge and responsibilities.	Impact 4 Likelihood 3 Moderate Risk	Customary landowners and leaders will be identified through the Stakeholder Engagement Plan. FPIC meetings will be held prior to fence installation or animal-control operations to present the output design, expected outcomes and roles of stakeholders. Agreements on land access and traditional-knowledge use will be signed and kept on record by the project team.
	9. Protection of Natural Habitats P9.1 – Pig-management infrastructure or feral-animal control inside protected areas (e.g., ‘Eua National Park) may cause short-term habitat disturbance. P9.3 – Conversion or degradation of small patches of natural habitat could occur during fence construction or trap installation.	There is a risk that construction of fences or traps and feral-animal control within protected areas, could cause short-term disturbance or small-scale degradation of natural habitats.	Impact 2 Likelihood 3 Low Risk	Work areas will be comprehensively mapped to ensure that sensitive habitats are identified. Fences and traps will avoid sensitive areas such as economically/culturally valuable plants, bird nesting areas and streams. Field crews will take measures to minimise disturbance and supervisors will inspect sites regularly to ensure restoration of any disturbed ground.

	10. Conservation of Biological Diversity P10.1 – Non-target wildlife could be unintentionally harmed by traps or containment devices if designs are inappropriate. P10.5 – Eradication or suppression operations may disturb or stress native fauna in protected areas.	There is a risk that eradication or suppression measures could inadvertently harm non-target species or disturb native fauna within protected areas.	Impact 3 Likelihood 2 Moderate Risk	Control methods will be selected based on international best practice and guidance from wildlife and environment authorities to reduce impacts on non-target species. Traps will be species-specific and checked frequently. Baits will be approved for use near protected areas. Regular monitoring will confirm that native species are not being adversely affected.
	12. Pollution Prevention and Resource Efficiency P12.3 – Use of bait or chemical agents for feral-animal control (if applied) may generate small-scale pollution risks through mis-handling or disposal.	There is a risk of localised environmental contamination if bait or chemical agents used in feral-animal control are mishandled or improperly disposed of.	Impact 2 Likelihood 2 Low Risk	Chemical and bait storage will follow national safety standards and international best practice. Chemical preparation and disposal will be supervised by trained staff. Empty containers and unused bait will be collected and disposed of through authorised waste facilities or returned to suppliers. Protocols for handling spills or contamination will be developed and materials made available on site.
	13. Public Health P13.1 – Community cane-toad removal around drinking-water cisterns involves handling potentially toxic animals, posing health risks if not done with precautions.	There is a risk that community members involved in cane-toad removal may experience health impacts from contact with toxic secretions or inadequate protective measures.	Impact 2 Likelihood 3 Low Risk	Participants in cane-toad removal will be fully briefed on the toxicity of cane-toad secretions and trained to use appropriate tools and PPE. Washing stations will be provided at collection points. Incidents of exposure or irritation will be referred to local health facilities.
	15. Lands and Soil Conservation P15.1 – Fence construction and trampling near forest margins or pulaka pits may cause limited soil disturbance or erosion.	There is a risk of limited soil disturbance or erosion in areas where fences are built or where frequent foot traffic occurs near forest margins or pulaka pits.	Impact 2 Likelihood 3 Low Risk	Fences and access paths will follow existing clearings where possible. Disturbed ground will be stabilised/restored when work is complete. Crews will monitor erosion after heavy rain and repair any affected sections promptly.
Output 2.3: Marine Invasive Species Early Detection and Rapid Response (EDRR)	**6. Core Labour Rights** P6.1 – Manual removal of marine invasives or diving activities may expose participants to	There is a risk that participants in marine-invasive-species removal or	Impact 3 Likelihood 3 Moderate Risk	All divers will complete safety training and hold the relevant certification. Relevant safety equipment such as life jackets and first-aid kits will be

	occupational-safety risks if standards are not applied. P6.5 – Community monitors may lack adequate training in safe diving, handling of starfish or algae and emergency procedures.	diving activities will face occupational-safety hazards due to inadequate training, equipment or emergency procedures.		provided for boats. If feasible, a trained first aider will be present during all operations. Protocols for emergency evacuation to health facilities, including decompression chamber, will be put in place.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC may not yet be obtained from customary coastal communities whose traditional fishing areas will host surveys or removal operations. P7.5 – Customary marine resource owners may not be meaningfully consulted on how EDRR measures intersect with traditional reef-management systems. P7.6 – Agreements with customary authorities on how traditional ecological knowledge is used in monitoring and response may not be documented.	There is a risk that FPIC has not been obtained from customary coastal communities, and that customary reef owners have not been fully consulted or formalised agreements documented regarding the use of traditional ecological knowledge in marine monitoring and response.	Impact 4 Likelihood 3 Moderate Risk	Customary reef owners will be identified in the Stakeholder Engagement Plan. FPIC meetings will be held before surveys and species removal activities. Agreements on access, roles and use of traditional knowledge will be recorded.
	9. Protection of Natural Habitats P9.1 – Physical interventions on reefs (snail or starfish removal) could disturb coral and associated marine life. P9.4 – If site planning is inadequate, EDRR actions could inadvertently damage reef habitats.	There is a risk that physical removal of marine invasive species could disturb coral reefs or nearby marine life if not carefully managed during site operations.	Impact 3 Likelihood 3 Moderate Risk	Teams will avoid fragile coral areas and use low impact removal methods. Work will be timed to avoid spawning or nesting periods where possible.
	10. Conservation of Biological Diversity P10.1 – Non-target coral species or reef organisms could be accidentally harmed during removal activities. P10.3 – Local biodiversity	There is a risk that EDRR activities may unintentionally harm non-target reef species or proceed without adequate assessment of existing biodiversity	Impact 3 Likelihood 2 Moderate Risk	Teams will use species ID guides/checklists to confirm presence of sensitive species. Any non-target interaction will be logged and reviewed before returning to the site.

	baselines for reef health may not be fully assessed before interventions.	conditions at project sites.		
	12. Pollution Prevention and Resource Efficiency P12.3 – Handling or disposal of marine waste (e.g., algal biomass, removed starfish) could create localized water-quality risks if not properly managed.	There is a risk of localised water-quality impacts if marine debris, algal material or removed starfish are not properly handled and disposed of.	Impact 2 Likelihood 2 Low Risk	Removed material will be disposed of at designated onshore sites. Boats will be adequately equipped with bins for storage of waste material.
	13. Public Health P13.1 – Direct contact with marine organisms (e.g., crown-of-thorns starfish spines) poses minor injury or toxin-exposure risks to community participants.	There is a risk that community members participating in starfish or algae removal could experience minor injuries or toxin exposure when handling marine organisms without proper protection.	Impact 2 Likelihood 3 Low Risk	Safety equipment such as gloves and tongs will be provided, with briefings provided to ensure participants understand risks of species removal. First-aid guidance will include hot-water treatment for spine injuries and protocols for reporting of safety incidents.
Output 2.4: Ecological restoration of priority reef ecosystems	**6. Core Labour Rights** P6.1 – Coral-gardening work (diving, boat transport, cementing) involves moderate physical risk if OHS standards are not enforced. P6.5 – Workers and volunteers may lack adequate dive-safety and equipment-handling training.	There is a risk that participants in coral-restoration work could face occupational-safety hazards from diving, boat travel, or equipment handling due to insufficient training and supervision.	Impact 3 Likelihood 3 Moderate Risk	Participants will receive safety briefings on diving, boat operations and use of equipment. Life jackets, first-aid kits and communication devices will be required on every boat. One trained first aider will be assigned to each team, and incidents/unsafe conditions will be reported immediately.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC may not yet be formalised for coral-restoration works located within customary near-shore fishing grounds. P7.5 – Customary marine-resource owners may not be meaningfully consulted on placement of coral nurseries or reef-restoration structures.	There is a risk that FPIC has not been obtained for restoration work in customary near-shore areas, and that customary leaders have not been fully consulted or formalised agreements documented regarding	Impact 4 Likelihood 3 Moderate Risk	Customary reef owners and local leaders will be identified through the Stakeholder Engagement Plan. FPIC consultations will take place before site selection. Agreements defining access rights, stewardship roles and knowledge use will be signed by community representatives and recorded.

	P7.6 – Agreements with customary authorities on the use of traditional ecological knowledge or site guardianship may not be documented.	knowledge use and site stewardship.		
	9. Protection of Natural Habitats P9.1 – Fragment collection and out-planting could disturb nearby living corals or sensitive reef areas. P9.4 – Physical installation of nursery frames or cement bases may cause limited, short-term damage to the surrounding reef habitat.	There is a risk that collecting coral fragments and attaching them to new structures could inadvertently damage nearby living corals or sensitive reef areas, or that nursery frames and cement bases may cause short-term habitat disturbance.	Impact 3 Likelihood 3 Moderate Risk	Restoration teams will be briefed on local reef conditions to ensure they avoid live coral colonies and fragile areas. Nursery frames will be inspected after installation to ensure minimal disturbance.
	10. Conservation of Biological Diversity P10.1 – Using coral fragments from a narrow range of parent colonies could reduce natural genetic diversity at restoration sites. P10.3 – Not all species living around restoration areas may be identified before work begins, increasing the chance of affecting sensitive organisms.	There is a risk that restoration activities could reduce coral diversity if fragments are taken from a limited number of source colonies or that sensitive marine species may be affected where biodiversity assessments are incomplete.	Impact 3 Likelihood 2 Moderate Risk	Source colonies will be selected from several healthy reefs to ensure diversity. Species lists will be reviewed and cleared by the project team and relevant environment authorities as needed. Regular monitoring will assess coral survival and diversity.
	12. Pollution Prevention and Resource Efficiency P12.2 – Materials used for coral gardening could create waste or debris in the marine environment if not properly handled.	There is a risk that waste or debris from coral-gardening materials such as cement, metal frames or plastic ties could enter the marine environment if not properly managed.	Impact 2 Likelihood 2 Low Risk	Materials will be measured/counted before and after deployment, with unused or damaged items returned to shore. Supervisors will verify that no waste or debris remains at restoration sites following operations.
	13. Public Health P13.1 – Boat and dive operations pose moderate safety risks such as equipment injury, dehydration,	There is a risk that participants may experience safety incidents or health	Impact 2 Likelihood 3 Low Risk	Boat captains and dive leaders will follow standard marine safety procedures including weather checks, radio contact and emergency

	or accidents in rough conditions.	impacts during diving and boat operations, particularly in rough sea conditions or without proper safety procedures.		planning. Participant safety will be ensured by provision of drinking water, sun protection and rest between dives. Incidents will be recorded and reviewed during post-operation debriefing.
Component 3: Large-scale transformative management				
Output 3.1: Predator Eradication Operations on Priority Islands	**6. Core Labour Rights** P6.1 – Baiting, trapping and hunting involve moderate safety risks such as chemical exposure and rough terrain. P6.3 – Workers may have complaints about pay or working conditions if agreements are unclear. P6.5 – Some participants may lack training or protective equipment for safe handling of bait and traps.	There is a risk that workers and community participants could face unsafe or unfair conditions during baiting, trapping or hunting activities due to unclear labour terms, limited training or lack of protective gear.	Impact 3 Likelihood 3 Moderate Risk	All workers will receive clear information on expected duties, hours and pay. Training on safe bait handling and field procedures will be provided to all participants. PPE and first-aid kits will be supplied. Incidents or grievances will be reported through the project's grievance mechanism.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC may not yet be obtained for work on customary or community land. P7.5 – Traditional leaders may not be fully consulted on how eradication fits with local land use or sacred areas. P7.6 – Use of traditional knowledge for biosecurity or	There is a risk that FPIC has not been obtained for eradication operations on customary land and that customary leaders and communities have not been adequately consulted or agreements recorded on the use	Impact 4 Likelihood 3 Moderate Risk	The Stakeholder Engagement Plan will identify customary landowners and leaders for each target island. FPIC consultations will explain planned activities, methods and biosecurity measures. Participants will be informed of their rights under Adaptation Fund, UNEP and SPREP safeguard policies. Written consent forms and meeting records will document approval and agreed responsibilities as per the FPIC guidance of the safeguards

	monitoring may not be discussed or documented.	of traditional knowledge and access arrangements.		consultant.
	9. Protection of Natural Habitats P9.1 – Non-target wildlife may consume bait or be affected by disturbance during aerial or ground operations. P9.2 – Sensitive habitats such as nesting sites may not be fully identified before fieldwork. P9.4 – Bait residues or carcasses could affect scavenger species if not cleaned up promptly.	There is a risk that baiting, trapping and helicopter (aerial application) operations will disturb sensitive habitats or nesting sites and that non-target wildlife could be affected if carcasses or bait residues are not promptly removed.	Impact 3 Likelihood 3 Moderate Risk	Surveys will be conducted to identify seabird colonies, turtle nesting sites and other sensitive habitats. Exclusion zones will be mapped before baits are put in place. Operations will be timed to avoid breeding/nesting periods where possible. Teams will clear residues and carcasses immediately after baiting to avoid secondary poisoning.
	10. Conservation of Biological Diversity P10.1 – Non-target species or domestic animals may be accidentally poisoned or trapped. P10.3 – Biodiversity information for some islands may be incomplete, making it harder to measure impacts. P10.7 – Post-eradication biosecurity may be insufficient, allowing rodents to return and reduce long-term benefits.	There is a risk that eradication activities may harm non-target or domestic species and that incomplete biodiversity data and weak biosecurity could reduce the long-term ecological benefits of predator removal.	Impact 3 Likelihood 2 Moderate Risk	Domestic animals will be secured or temporarily relocated before baiting. Bait methods will be chosen to minimise risk to non-target species. Biodiversity data will be collected before project activities begin to establish a baseline for measuring the project's impacts on biodiversity, and plans for follow-up monitoring will be outlined in a biosecurity plan.
	12. Pollution Prevention and Resource Efficiency P12.2 – Noise, fuel use and waste from aircraft and field camps may not be minimised. P12.3 – Improper storage or disposal of bait and containers could pollute soil, water, or coastal areas.	There is a risk that fuel use, waste and noise from helicopters and field camps will not be properly controlled or that unsafe handling and disposal of bait and containers could contaminate soil or water.	Impact 3 Likelihood 3 Moderate Risk	Environmental best practice measures in line with UNEP, SPREP and Adaptation Fund standards will be applied at all sites. Fuel and bait will be stored away from water sources. Empty containers and waste will be returned to the mainland for safe disposal. Helicopter noise and flight paths will be limited to daylight hours and planned to avoid human settlements and animal nesting areas.

	13. Public Health P13.1 – People or domestic animals could be harmed by contact with rodenticide bait if safety controls are weak. P13.4 – If health risks are found, there may be no clear public health plan or coordination with health authorities.	There is a risk that people or domestic animals could be exposed to rodenticide bait and that no clear public-health plan or coordination with local authorities exists to manage such risks.	Impact 3 Likelihood 2 Moderate Risk	A public health management plan will be developed by the project team in coordination with relevant stakeholders. Safety briefings will be conducted in every community before operations begin. Warning signs will be placed around treated areas and project staff will monitor compliance with safety protocols.
	14. Physical and Cultural Heritage P14.2 – Cultural or sacred places on inhabited islands may not be identified before operations, causing concern or disturbance.	There is a risk that areas of cultural or spiritual importance may not be identified or protected before aerial or ground operations leading to disturbance or community concern.	Impact 3 Likelihood 2 Moderate Risk	Mapping will be carried out in cooperation with local leaders/community groups to identify sacred or culturally significant sites. These areas will be excluded from operations wherever possible and project teams will receive guidance on ensuring these areas are not disturbed.
	15. Lands and Soil Conservation P15.1 – Small-scale soil disturbance may occur from landing zones, temporary camps or traps. P15.2 – Minor erosion may occur on slopes or tracks used by field crews during wet weather.	There is a risk that temporary field camps, landing areas or tracks used for baiting and trapping may cause small-scale soil disturbance or erosion particularly on steep or coastal areas.	Impact 2 Likelihood 3 Low Risk	Camps and landing areas will be located on low-impact sites wherever feasible. Disturbed ground will be restored by planting fast-growing native vegetation.
Output 3.2: Classical Biological Control of Widespread Weeds	**6. Core Labour Rights** P6.1 – Laboratory and field staff may face safety risks when handling insects, rearing media or sterilisation chemicals if OHS practices are not applied. P6.5 – Workers may lack training or equipment for biosafety and laboratory hygiene.	There is a risk that laboratory or field staff may face health and safety hazards from handling insects, plants or chemicals due to limited training, protective gear or supervision.	Impact 3 Likelihood 3 Moderate Risk	Lab and field teams will follow standard biosafety and OHS practices. Staff will receive induction on safe handling of insects, chemicals and equipment. PPE such as gloves, masks and lab coats will be supplied and supervisors will check regularly to ensure compliance. Incident logs will be kept and reviewed regularly.
	7. Indigenous Peoples / Customary Landowners P7.4 – FPIC may not yet be obtained for the introduction and release of agents on customary	There is a risk that FPIC has not been obtained for agent releases on customary land, and	Impact 4 Likelihood 3 Moderate Risk	Customary leaders and landowners will be identified through the Stakeholder Engagement Plan. FPIC consultations will be carried out before agent release, explaining the process

	lands or near community forests. P7.5 – Customary leaders may not be consulted on how biological-control releases align with traditional land-management systems or local beliefs. P7.6 – Agreements documenting how traditional ecological knowledge contributes to site selection or monitoring may be absent.	that customary leaders have not been consulted or agreements recorded on how traditional knowledge is used or respected.		and expected outcomes. Agreements covering access and knowledge use will be signed by community representatives and filed with the project team.
	9. Protection of Natural Habitats P9.1 – Collection or release of biological-control agents could disturb small areas of native vegetation used for sampling or monitoring. P9.2 – Potential non-target habitats may not be fully identified before agent release. P9.4 – Contingency plans to respond to any unanticipated non-target impacts may be incomplete.	There is a risk that small areas of native vegetation could be disturbed during sample collection or release, and that sensitive habitats or non-target species may not be fully identified before field operations.	Impact 2 Likelihood 3 Low Risk	Sites for collection and release will be surveyed in advance, with sensitive habitats and native species mapped and avoided. Sampling will use low impact methods such as hand collection and small insect traps, with supervision from a designated environmental officer if feasible.
	10. Conservation of Biological Diversity P10.1 – If host-specificity testing is incomplete or results are misapplied, introduced agents could affect non-target plant species. P10.3 – Baseline biodiversity data may not be sufficient to detect subtle ecological changes following agent release. P10.7 – Monitoring of long-term ecological effects may be insufficient once the agents become established.	There is a risk that introduced biological control agents could affect non-target plant species if host-specificity results are misapplied, or that weak ecological monitoring could overlook long-term impacts on biodiversity.	Impact 3 Likelihood 2 Moderate Risk	The project team will coordinate with responsible authorities (e.g. ministries of agriculture/environment) to ensure that host-specificity testing is done. Releases will occur only after reviews confirm safety. Post-release monitoring plans will be put in place to track biodiversity impacts. See FAO ISPM 3 guidelines on the export, shipment, import and release of biological control agents for further information.

	12. Pollution Prevention and Resource Efficiency P12.2 – Operation of rearing facilities may generate small amounts of laboratory waste, culture media and cleaning chemicals that are not managed according to best practice. P12.3 – Insect-rearing materials or containers could be disposed of improperly, leading to risk of contamination or pest-escape.	There is a risk that introduced biological-control agents could affect non-target plant species if host-specificity results are misapplied, or that weak ecological monitoring could overlook long-term impacts on biodiversity.	Impact 2 Likelihood 2 Low Risk	Laboratories/facilities will maintain strict waste-management protocols in line with best practice. Rearing rooms will have measures such as insect screens and well-sealed doors and windows to prevent accidental release.
	13. Public Health P13.1 – Improper handling or disposal of rearing materials (e.g. plant hosts or insects) could attract pests if hygiene standards are not maintained. P13.4 – Where new biological agents are introduced, there may be no clear communication or mitigation plan to address public concern or health questions.	There is a risk that rearing materials or insects will not be managed hygienically, creating localized health concerns, and that no clear communication plan exists to address community questions about new agents.	Impact 2 Likelihood 3 Low Risk	The project team will ensure clean working conditions in all rearing and release areas. Information will be shared with communities to explain that agents are host-specific and pose no risk to people, animals or crops.
	14. Physical and Cultural Heritage P14.2 – Traditional or sacred sites used for community meetings or awareness activities may not be identified beforehand, leading to possible offence or concern.	There is a risk that awareness or consultation activities could inadvertently take place on or impact culturally-significant sites without prior agreement.	Impact 2 Likelihood 2 Low Risk	Before awareness or consultation events, the project team will request community leaders to identify any sacred or culturally sensitive locations which should be avoided, with activities relocated as needed.
	15. Lands and Soil Conservation P15.1 – Small-scale soil disturbance may occur during the collection of field samples or establishment of monitoring plots.	There is a risk that small-scale soil disturbance may occur during field sampling or the establishment of monitoring plots.	Impact 1 Likelihood 3 Low Risk	Field teams will ensure minimal ground disturbance when collecting samples or setting up monitoring plots. Disturbed soil will be restored by levelling or filling once monitoring is complete.
Component 4: Regional Cooperation & Knowledge Management				
Output 4.1: Knowledge Product Development and Dissemination	No output-specific risks apply, however, risks related to “All	N/A	N/A	N/A

	Components" apply to Output 4.1.			
Output 4.2: Fostering a Regional Community of Practice	No output-specific risks apply, however, risks related to "All Components" apply to Output 4.2.	N/A	N/A	N/A
Output 4.3: Strengthening Regional Support Systems and Policy Integration	No output-specific risks apply, however, risks related to "All Components" apply to Output 4.3.	N/A	N/A	N/A
Overarching Risks for All Components				
All components	**1. Compliance with the Law** P1.1 Risk of non-compliance with domestic laws and regulations P1.2 Risk of non-compliance with international obligations P1.3. Risk of permits, licenses or approvals not secured P1.4 Risk of inadequate monitoring of legal compliance P1.5 Risk of incomplete documentation or unresolved compliance gaps	There is a risk that the project does have the capacity to adhere to its legal obligation or is unaware of relevant national or international laws. This will likely relate to laws mandating impact assessments, use of chemicals, and the introduction of non-indigenous species.	Impact 3 Likelihood 3 Moderate Risk	A comprehensive legal analysis of all relevant domestic and international law will be undertaken during the project proposal stake. The design of the project outputs will take into account relevant legal analysis.
All components	**2. Access and Equity** P2.1 Risk of inequitable access to benefits and services P2.2 Risk of impeded access to essential services or rights (health, water, sanitation, energy, education, housing, labour, land) P2.3 Risk of exacerbating inequities P2.4 Risk of exclusion of stakeholders P2.5 Risk of inequities to being monitored	There is a risk that women and marginalized people are excluded from the project benefits, for example livelihood activities. There is also a risk that project activities will cause access restriction to land and resources.	Impact 3 Likelihood 4 Moderate Risk	The FPIC process will ensure that all communities understand, and have consented to, the access restrictions prior to project implementation. Where possible, the communities will co-design and co-implement the project activities to encourage their engagement in output design and support of the activities' implementation.
All components	**3. Marginalized and Vulnerable Groups** P3.1 Risk of disproportionate impacts on marginalized/vulnerable groups P3.2 Risk of failure to identify marginalized/vulnerable groups P3.3 Risk of inadequate mitigation measures for	There is a risk that marginalized groups within project communities will not be identified because they are unable to represent themselves and they do not have CSOs	Impact 3 Likelihood 4 Moderate Risk	A Stakeholder Engagement Plan is being drafted as part of the concept note to ensure communities stakeholders have been mapped in preparation for the FPIC process. During the initial stakeholder engagement process

	marginalized/vulnerable groups P3.4 Risk of emerging vulnerabilities not identified and addressed	or other groups advocating on their behalf.		representatives of women, persons with disabilities, youth, and marginalized groups will be engaged through their government representatives and CSOs/NGOs. These stakeholder engagement meetings will be used to understand the context of these groups in the three project countries and how the project can support their needs with respect to invasive species.
All components	**4. Human Rights** P4.1 Risk of adverse impacts on human rights P4.2 Risk of not considering relevant national human rights issues P4.3 Risk of not addressing human rights concerns during stakeholder consultations P4.4 Risk of unaddressed human rights grievances in the project design P4.5 Stakeholders have raised human rights concerns (TBA)	There is a risk that the FPIC process will not be completed, which is a fundamental human right of Indigenous People.	Impact 3 Likelihood 3 Moderate Risk	As part of the FPIC process, during the community stakeholder engagement meetings the project's proposed activities will be presented and the stakeholders will provide their perspectives regarding possible risks and mitigation measures. During the FPIC consultation with the intended project beneficiaries they will be informed about their rights as per AF, UNEP, and SPREP safeguard policies as well as relevant national and international law. Government representatives from relevant ministries and agencies that will be involved in project implementation will join the FPIC consultations led by the SPREP team in order to support human rights capacity building within the Government regarding FPIC. As a cross-cutting mitigation measure, a Grievance Redress Mechanism will be designed and available for all stakeholders who believe that they are at risk of, or

				have experienced, social or environmental harm..
All components	**5. Gender Equality and Women's Empowerment** P5.1 Risk of gender-based discrimination or inequalities P5.2 Risk of inadequate analysis of contextual factors contributing to gender inequality P5.3 Risk of unequal access to benefits P5.4 Risk of gender-based exclusion due to inadequate mitigation P5.5 Risk of barriers to women's participation in decision-making P5.6 Risk of unmonitored or unaddressed gender outcomes P5.7 Risk of stakeholder-raised gender equality concerns P5.8 Risk of inconsistency with international gender equality obligations	There is a risk that women will be disproportionately negatively impacted by the project activities due to "double burden" or exclusion from the project benefits.	Impact 3 Likelihood 4 Moderate Risk	Gender analysis will be conducted as part of a Gender Action Plan during the project proposal phase and this will inform the Stakeholder Engagement Plan. During the initial stakeholder engagement process representatives of women, persons with disabilities, youth, and marginalized groups will be engaged through their government representatives and CSOs/NGOs. These stakeholder engagement meetings will be used to understand the context of these groups in the project areas and how the project can support the needs of these groups, where possible. During the stakeholder engagement meetings, the project's proposed activities will be presented and the stakeholders will provide their perspectives regarding possible risks and mitigation measures. Women will be engaged through focus-group discussion and/or surveys. To ensure equitable access to economic/livelihood opportunities from project activities, women's groups will be invited to lead activities such as surveying, invasive species removal and nursery activities. To ensure equal participation of women in decision making, meetings, focus-group discussions and training programs will be scheduled to ensure inclusion of women, with

				attendance and benefit records disaggregated by gender and reviewed during coordination meetings.

Part B: Summary of Adaptation Funds Principles that are Triggered, Risks Identified, and Mitigation Measures

Adaptation Fund Principles	Risk	Risk Significance Impact Likelihood	Mitigation Measures
1. Compliance with the Law	**Risk 1** There is a risk that the project does have the capacity to adhere to its legal obligation or is unaware of relevant national or international laws. This will likely relate to laws mandating impact assessments, use of chemicals, and the introduction of non-indigenous species.	Impact 3 Likelihood 3 Moderate Risk	A comprehensive legal analysis of all relevant domestic and international law will be undertaken during the project proposal stake. The design of the project activities will take into account relevant legal analysis.
2. Access and Equity	**Risk 2** There is a risk that women and marginalized people are excluded from the project benefits, for example livelihood activities. There is also a risk that project activities will cause access restriction to land and resources.	Impact 3 Likelihood 4 Moderate Risk	The FPIC process will ensure that all communities understand, and have consented to, the access restrictions prior to project implementation. Where possible, the communities will co-design and co-implement the project activities to encourage their engagement in output design and support of the activities' implementation.
3. Marginalized and Vulnerable Groups	**Risk 3** There is a risk that marginalized groups within project communities will not be identified because they are unable to represent themselves and they do not have CSOs or other groups advocating on their behalf.	Impact 3 Likelihood 4 Moderate Risk	A Stakeholder Engagement Plan is being drafted as part of the concept note to ensure communities stakeholders have been mapped in preparation for the FPIC process. During the initial stakeholder engagement process representatives of women, persons with disabilities, youth, and marginalized groups will be engaged through their government representatives and CSOs/NGOs. These stakeholder engagement meetings will be used to

			understand the context of these groups in the three project countries and how the project can support their needs with respect to invasive species.
4. Human Rights	**Risk 4** There is a risk that the FPIC process will not be completed, which is a fundamental human right of Indigenous People.	Impact 3 Likelihood 3 Moderate Risk	As part of the FPIC process, during the community stakeholder engagement meetings the project's proposed activities will be presented and the stakeholders will provide their perspectives regarding possible risks and mitigation measures. During the FPIC consultation with the intended project beneficiaries they will be informed about their rights as per AF, UNEP, and SPREP safeguard policies as well as relevant national and international law. Government representatives from relevant ministries and agencies that will be involved in project implementation will join the FPIC consultations led by the SPREP team in order to support human rights capacity building within the Government regarding FPIC. As a cross-cutting mitigation measure, a Grievance Redress Mechanism will be designed and available for all stakeholders who believe that they are at risk of, or have experienced, social or environmental harm..
5. Gender Equality and Women's Empowerment	**Risk 5** There is a risk that women will be disproportionately negatively impacted by the project activities due to "double burden" or exclusion from the project benefits.	Impact 3 Likelihood 4 Moderate Risk	Gender analysis will be conducted as part of a Gender Action Plan during the project proposal phase and this will inform the Stakeholder Engagement Plan. During the initial stakeholder engagement process representatives of women, persons with disabilities, youth, and marginalized groups will be engaged through their government representatives and CSOs/NGOs. These stakeholder engagement meetings will be used to understand the context of these groups in the project areas and how the project can support the needs of these groups, where possible.

			During the stakeholder engagement meetings, the project's proposed activities will be presented and the stakeholders will provide their perspectives regarding possible risks and mitigation measures. Women will be engaged through focus-group discussion and/or surveys. To ensure equitable access to economic/livelihood opportunities from project activities, women's groups will be invited to lead activities such as surveying, invasive species removal and nursery activities. To ensure equal participation of women in decision making, meetings, focus-group discussions and training programs will be scheduled to ensure inclusion of women, with attendance and benefit records disaggregated by gender and reviewed during coordination meetings.
6. Core Labour Rights	**Risk 6(a)** There is a risk that community-based monitoring may not adhere to good labour practices as set forth by the ILO.	Impact 2 Likelihood 2 Low Risk	The project will ensure that ILOs principles are understood by those taking part in community monitoring. These are as follows: ● Right to Safe Work: Workers have the right to a safe and healthy working environment. ● Prevention First: Prevention of accidents and illnesses is a priority over compensation. ● Employer Responsibility: Employers must provide safe workplaces, training, and protective equipment. ● Worker Participation: Workers have the right to be informed, consulted, and participate in OSH decisions. ● Inspection and Enforcement: Governments must ensure compliance through inspection systems. ● Continuous Improvement: Safety and health systems should evolve with changing technologies and risks. ● Worker Participation: Workers have the right to be informed, consulted, and participate in OSH decisions. ● Inspection and Enforcement: Government agencies and the UNDP PMU must ensure compliance
	Risk 6(b)	Impact 3	

	There is a risk that workers and community participants could face unsafe or unfair conditions during baiting, trapping or hunting activities due to unclear labour terms, limited training or lack of protective gear.	Likelihood 3 Moderate Risk	All workers will receive clear information on expected duties, hours and pay. Training on safe bait handling and field procedures will be provided to all participants. PPE and first-aid kits will be supplied. Incidents or grievances will be reported through the project's grievance mechanism.
	Risk 6(c) There is a risk that participants in coral-restoration work could face occupational-safety hazards from diving, boat travel, or equipment handling due to insufficient training and supervision.	Impact 3 Likelihood 3 Moderate Risk	Participants will receive safety briefings on diving, boat operations and use of equipment. Life jackets, first-aid kits and communication devices will be required on every boat. One trained first aider will be assigned to each team, and incidents/unsafe conditions will be reported immediately.
	Risk (d) There is a risk that laboratory or field staff may face health and safety hazards from handling insects, plants or chemicals due to limited training, protective gear or supervision.	Impact 3 Likelihood 3 Moderate Risk	Lab and field teams will follow standard biosafety and OHS practices. Staff will receive induction on safe handling of insects, chemicals and equipment. PPE such as gloves, masks and lab coats will be supplied and supervisors will check regularly to ensure compliance. Incident logs will be kept and reviewed regularly.
7. Indigenous Peoples	**Risk 7 (a)** There is a risk that Indigenous People have not been consulted, or consented to, the Early Detection and Rapid Response Systems or that FPIC related to use of traditional knowledge has not been completed.	Impact 4 Likelihood 3 Moderate Risk	A Stakeholder Engagement Plan is being drafted as part of the concept note to ensure Indigenous communities stakeholders have been mapped in preparation for the FPIC process (Indigenous people likely comprise all project communities). As part of the FPIC process, during the community stakeholder engagement meetings, the project's proposed activities will be presented and the stakeholders will provide their perspectives regarding possible risks and mitigation measures. During the FPIC consultation with the intended project beneficiaries they will be informed about their rights as per AF, UNEP, and SPREP safeguard policies as well as relevant national and international law. As part of the FPIC consultation customary knowledge related to rapid response systems (if applicable) will be discussed and use of Indigenous knowledge must be consented to (and documented) prior to implementation.

	Risk 7 (b) There is a risk that FPIC has not been fully obtained or formalised for activities on customary land, that consultations with customary leaders have been inconsistent across project sites, and that agreements regarding the use of traditional knowledge and responsibilities have not been recorded fully.	Impact 4 Likelihood 3 Moderate Risk	A Stakeholder Engagement Plan is being developed to identify all customary landowners and traditional authorities for each restoration site in preparation for the FPIC process. During FPIC consultations the restoration activities will be presented, and community representatives will provide feedback on potential risks and mitigation measures. Customary leaders and participants will be informed of their rights under AF, UNEP and SPREP safeguard policies. FPIC meetings will be held prior to fence installation or animal-control operations to present the output design, expected outcomes and roles of stakeholders. Agreements on land access and the use of traditional knowledge will be recorded and archived.
	Risk 7 (c) There is a risk that FPIC has not been obtained from coastal communities for eradication, restoration and biocontrol work, and that customary land and reef owners have not been fully consulted or formalised agreements documented regarding the use of traditional knowledge, stewardship roles or access arrangements.	Impact 4 Likelihood 3 Moderate Risk	The Stakeholder Engagement Plan will identify customary land and reef owners and local leaders. FPIC meetings will be held before site selection, surveys, species removal and agent release activities, explaining processes, methods and expected outcomes. Participants will be informed of their rights under Adaptation Fund, UNEP and SPREP safeguard policies. Agreements defining access rights, stewardship roles and knowledge use will be signed by community representatives and recorded. Written consent forms and meeting records will document approval and agreed responsibilities as per the FPIC guidance of the safeguards consultant.
Principle 8: Involuntary Resettlement	**No risks triggered**		
Principle 9: Protection of Natural Habitats	**Risk 9 (a)** There is a risk that physical removal of marine invasive species or coral collection and restoration activities could disturb coral reefs or nearby marine life if not carefully managed during site operations.	Impact 3 Likelihood 3 Moderate Risk	Teams will avoid fragile coral areas and use low impact species removal and coral placement methods. Work will be timed to avoid spawning or nesting periods where possible. Nursery frames will be inspected after installation to ensure minimal disturbance.
	Risk 9 (b) There is a risk that baiting, trapping and helicopter (aerial application) operations will disturb sensitive habitats or nesting sites and that non-target wildlife could be affected if carcasses or bait residues are not promptly removed.	Impact 3 Likelihood 3 Moderate Risk	Surveys will be conducted to identify seabird colonies, turtle nesting sites and other sensitive habitats. Exclusion zones will be mapped before baits are put in place. Operations will be timed to avoid breeding/nesting periods where possible. Teams will clear residues and carcasses immediately after baiting to avoid secondary poisoning.

Principle 10: Conservation of Biological Diversity	**Risk 10 (a)** There is a risk that non-target or protected species may be disturbed during monitoring and eradication.	Impact 3 Likelihood 3 Moderate Risk	All community monitors will be trained on good practices to ensure that they do not cause harm to non-target species. Protected species will be mapped and community monitors will be trained to avoid these areas when implementing monitoring or eradication procedures.
	Risk 10 (b) There is a risk that biodiversity could be adversely affected if non-native plants are introduced during replanting or if non-target fauna are accidentally harmed during restoration.	Impact 3 Likelihood 2 Moderate Risk	All seed and seedling sources will be confirmed as native and locally appropriate through the national environment or forestry agency and the project team. Restoration teams will be trained to distinguish native from invasive species. Sites will be monitored to confirm that native vegetation is regenerating and no non-target species are affected.
	Risk 10 (c) There is a risk that eradication or suppression measures could inadvertently harm non-target species or disturb native fauna within protected areas.	Impact 3 Likelihood 2 Moderate Risk	Control methods will be selected based on international best practice and guidance from wildlife and environment authorities to reduce impacts on non-target species. Traps will be species-specific and checked frequently. Baits will be approved for use near protected areas. Regular monitoring will confirm that native species are not being adversely affected.
	Risk 10 (d) There is a risk that EDRR activities may unintentionally harm non-target reef species or proceed without adequate assessment of existing biodiversity conditions at project sites.	Impact 3 Likelihood 2 Moderate Risk	Teams will use species ID guides/checklists to confirm presence of sensitive species. Any non-target interaction will be logged and reviewed before returning to the site.
	Risk 10 (e) There is a risk that restoration activities could reduce coral diversity if fragments are taken from a limited number of source colonies or that sensitive marine species may be affected where biodiversity assessments are incomplete.	Impact 3 Likelihood 2 Moderate Risk	Source colonies will be selected from several healthy reefs to ensure diversity. Species lists will be reviewed and cleared by the project team and relevant environment authorities as needed. Regular monitoring will assess coral survival and diversity.
	Risk 10 (f) There is a risk that eradication activities may harm non-target or domestic species and that incomplete biodiversity data and weak biosecurity could reduce the long-term ecological benefits of predator removal.	Impact 3 Likelihood 2 Moderate Risk	Domestic animals will be secured or temporarily relocated before baiting. Bait methods will be chosen to minimise risk to non-target species. Biodiversity data will be collected before project activities begin to establish a baseline for measuring the project's impacts on biodiversity, and plans for follow-up monitoring will be outlined in a biosecurity plan.

	Risk 10 (g) There is a risk that introduced biological control agents could affect non-target plant species if host-specificity results are misapplied, or that weak ecological monitoring could overlook long-term impacts on biodiversity.	Impact 3 Likelihood 2 Moderate Risk	The project team will coordinate with responsible authorities (e.g. ministries of agriculture/environment) to ensure that host-specificity testing is done. Releases will occur only after reviews confirm safety. Post-release monitoring plans will be put in place to track biodiversity impacts. See FAO ISPM 3 guidelines on the export, shipment, import and release of biological control agents for further information.
Principle 11: Climate Change	Principle 11 only triggers Low Risks. See Part A for the full analysis.	N/A	N/A
Principle 12: Pollution Prevention and Resource Efficiency	**Risk 12** There is a risk that fuel use, waste and noise from helicopters and field camps will not be properly controlled or that unsafe handling and disposal of bait and containers could contaminate soil or water.	Impact 3 Likelihood 3 Moderate Risk	Environmental best practice measures in line with UNEP, SPREP and Adaptation Fund standards will be applied at all sites. Fuel and bait will be stored away from water sources. Empty containers and waste will be returned to the mainland for safe disposal. Helicopter noise and flight paths will be limited to daylight hours and planned to avoid human settlements and animal nesting areas.
	There is a general risk of contamination by waste materials or adverse effects on non-target species if not properly managed, but it is assumed that waste management/eradication measures will be subject to robust guidelines, thereby minimising risk. See Part A for full analysis.	N/A	N/A
Principle 13: Public Health	**Risk 13** There is a risk that people or domestic animals could be exposed to rodenticide bait and that no clear public-health plan or coordination with local authorities exists to manage such risks.	Impact 3 Likelihood 2 Moderate Risk	A public health management plan will be developed by the project team in coordination with relevant stakeholders. Safety briefings will be conducted in every community before operations begin. Warning signs will be placed around treated areas and project staff will monitor compliance with safety protocols.
	There is a general risk to the health and safety of those people implementing some project outputs (e.g. diving, handling poisonous toads, algae, starfish) but it is assumed that rigorous training will effectively mitigate this. See Part A for full analysis.	N/A	N/A

Principle 14: Physical and Cultural Heritage	**Risk 14 (a)** There is a risk that cultural mapping (both sites and resources) has not been implemented and as a result cultural heritage is adversely impacted by the rapid response systems.	Impact 3 Likelihood 2 Moderate Risk	During the FPIC process the project will engage in cultural mapping to ensure that the team is aware of where cultural heritage are and ensure that they are not adversely impacted by the project activities.
	Risk 14 (b) There is a risk that areas of cultural or spiritual importance may not be identified or protected before aerial or ground operations leading to disturbance or community concern.	Impact 3 Likelihood 2 Moderate Risk	Mapping will be carried out in cooperation with local leaders/community groups to identify sacred or culturally significant sites. These areas will be excluded from operations wherever possible and project teams will receive guidance on ensuring these areas are not disturbed.
Principle 15: Lands and Soil Conservation	There is a risk of land/soil disturbance from clearing activities but it is assumed that there will be robust plans in place for land restoration to mitigate this. See Part A for full analysis.	N/A	N/A

Part C: CONCLUSIONS

QUESTION 6: What is the overall Social and Environmental risk categorization?		
S&E Risk rating	Check if applicable	Comments (optional)
Low Risk Category C	☐	
Moderate Risk Category B	X	The Project contains Low and Moderate Risks, and thus is assessed as Category B.
High Risk Category A	☐	

Annex: Environmental and Social Safeguard Risk Screening Questionnaire

Principle 1: *Compliance with the Law*		**Risk Events**	**Y/N**
P1.1	Is the project likely to involve activities that are not compliant with applicable domestic laws and regulations, including activities by contractors and primary suppliers (e.g., urban planning, environmental, construction, water, emissions, permits)?	P1.1 Risk of non-compliance with domestic laws and regulations	Y
P1.2	Is the project likely to be inconsistent with relevant international treaties, conventions, or agreements binding on the host country?	P1.2 Risk of non-compliance with international obligations	Y
P1.3	Is there a risk that necessary permits, licenses, or approvals (domestic or international) are not yet obtained, are not demonstrably in process, or lack a documented plan outlining clear steps for securing them prior to implementation?	P1.3. Risk of permits, licenses or approvals not secured	Y
P1.4	Is there a risk that compliance monitoring mechanisms are not in place or are inadequate during implementation?	P1.4 Risk of inadequate monitoring of legal compliance	Y
P1.5	Is there a risk that documentation of compliance with applicable domestic laws and international obligations is incomplete or that identified gaps and pending requirements remain unresolved?	P1.5 Risk of incomplete documentation or unresolved compliance gaps	Y
Principle 2: *Access and Equity*		**Risk Events**	**Y/N**
P2.1	Is the project likely to involve activities that create inequitable access to or distribution of benefits and services?	P2.1 Risk of inequitable access to benefits and services	Y
P2.2	Is the project likely to impede access to basic health services, clean water, sanitation, energy, education, housing, safe work conditions, or land rights?	P2.2 Risk of impeded access to essential services or rights (health, water, sanitation, energy, education, housing, labour, land)	Y
P2.3	Is the project likely to exacerbate existing inequities, especially among marginalized or vulnerable groups?	P2.3 Risk of exacerbating inequities	Y
P2.4	Is there a risk that key stakeholders, including marginalized groups, may not be identified or considered in project design?	P2.4 Risk of exclusion of stakeholders	Y
P2.5	Is there a risk that equitable access to benefits will not be monitored or addressed during implementation?	P2.5 Risk of inequities to being monitored	Y
Principle 3: *Marginalized and Vulnerable Groups*		**Risk Events**	**Y/N**

P3.1 Is the project likely to involve activities that cause disproportionate adverse impacts on marginalized and vulnerable groups (e.g., women, elderly, children, displaced persons, people with disabilities, refugees, PLHIV)?	P3.1 Risk of disproportionate impacts on marginalized/vulnerable groups	Y
P3.2 Is there a risk that the project does not adequately identify marginalized and vulnerable groups present in the project area?	P3.2 Risk of failure to identify marginalized/vulnerable groups	Y
P3.3 Is there a risk that the project does not include adequate design or mitigation measures to address disproportionate impacts on marginalized and vulnerable groups?	P3.3 Risk of inadequate mitigation measures for marginalized/vulnerable groups	Y
P3.4 Is there a risk that emerging or changing vulnerabilities (e.g., new refugee influx, demographic shifts) will not be identified or addressed during implementation?	P3.4 Risk of emerging vulnerabilities not identified and addressed	Y
Principle 4: *Human Rights*	**Risk Events**	**Y/N**
P4.1 Is the project likely to involve activities that adversely impact the enjoyment of human rights (civil, political, economic, social, cultural)?	P4.1 Risk of adverse impacts on human rights	Y
P4.2 Is there a risk that relevant human rights concerns in the project country (e.g., raised in UN Human Rights Council Special Procedures or reports) have not been identified or considered?	P4.2 Risk of not considering relevant national human rights issues	Y
P4.3 Is there a risk that human rights issues were not explicitly addressed in stakeholder consultations?	P4.3 Risk of not addressing human rights concerns during stakeholder consultations	Y
P4.4 Is there a risk that potential human rights grievances remain undocumented or unaddressed in project design?	P4.4 Risk of unaddressed human rights grievances in the project design	Y
P4.5 Have local communities, CSOs, or NHRIs raised human rights concerns regarding the project?	P4.5 Stakeholders have raised human rights concerns	Y
Principle 5: *Gender Equality and Women's Empowerment*	**Risk Events**	
P5.1 Is the project likely to involve activities that cause or exacerbate gender-based discrimination or inequalities?	P5.1 Risk of gender-based discrimination or inequalities	Y
P5.2 Is there a risk that gender analysis has not adequately considered relevant legal, cultural and socio-economic factors shaping gender inequality or discrimination?	P5.2 Risk of inadequate analysis of contextual factors contributing to gender inequality	Y
P5.3 Is the project likely to fail to ensure equal participation and access to benefits for women and	P5.3 Risk of unequal access to benefits	Y

men?		
P5.4 Is there a risk that measures to prevent or reduce gender-based exclusion or impacts are absent or inadequate?	P5.4 Risk of gender-based exclusion due to inadequate mitigation	Y
P5.5 Is it likely that decision-making and consultation processes are not equally accessible to women?	P5.5 Risk of barriers to women's participation in decision-making	Y
P5.6 Is there a risk that gender equality outcomes will not be adequately monitored or addressed during implementation?	P5.6 Risk of unmonitored or unaddressed gender outcomes	Y
P5.7 Have women's groups or leaders raised gender equality concerns regarding the project?	P5.7 Risk of stakeholder-raised gender equality concerns	Y
P5.8 Is there a risk that the project is not consistent with international obligations on gender equality, such as CEDAW?	P5.8 Risk of inconsistency with international gender equality obligations	Y
Principle 6: *Core Labour Rights*	**Risk Events**	**Y/N**
P6.1 Is the project likely to involve activities that violate ILO core labour rights (e.g., forced labour, child labour, discrimination, restrictions on association)?	P6.1 Risk of violation of ILO core principles	Y
P6.2 Is there a risk that ILO core principles have not been incorporated into project design, contracts, procurement, or supply chain arrangements?	P6.2 Risk of ILO labour standards not integrated in project design/supply chain	Y
P6.3 Is the project likely to lead to labour rights violations or labour-related grievances?	P6.3 Risk of violating labour rights and provoking grievances	Y
P6.4 Is there a risk that a mechanism for raising and resolving labour-related grievances is absent or ineffective?	P6.4 Risk of not having a mechanism to resolve labour grievances arising from project	Y
P6.5 Is there a risk that workers and contractors are not adequately informed, trained, or protected through occupational health and safety measures?	P6.5 Risk of inadequate worker training or OHS protection	Y
P6.6 Is there a risk that monitoring of compliance with ILO standards will not be conducted during project implementation?	P6.6 Risk of poor monitoring of labour rights compliance	Y
Principle 7: *Indigenous Peoples*	**Risk Events**	**Y/N**
P7.1 Is the project likely to involve activities that affect the rights of indigenous peoples (livelihoods, land	P7.1 Risk of impacts on indigenous	N

access, services, cultural heritage)?	peoples' livelihoods, land access, services, cultural heritage	
P7.2 Is it likely that indigenous peoples are present in the project area and may be affected by project activities?	P7.2 Risk of indigenous peoples presence in project area and are affected by the project	N
P7.3 Is there a risk that the project has not identified whether indigenous peoples are present in the project area?	P7.3 Risk of failure to identify indigenous peoples in project are	N
P7.4 Is there a risk that FPIC has not been sought or documented where indigenous peoples are affected?	P7.4 Risk of lack of FPIC	Y
P7.5 Is there a risk that indigenous peoples have not been meaningfully involved in design and implementation, with documented outcomes of consultations?	P7.5 Risk of inadequate consultation with indigenous peoples	Y
P7.6 Is there a risk that agreements reached with indigenous communities are not documented?	P7.6 Risk of absence of documented agreement with indigenous communities	Y
P7.7 Is there a risk that Special Rapporteur findings or reports on indigenous rights have not been considered?	P7.7 Risk of ignoring relevant findings on indigenous rights	N
Principle 8: *Involuntary Resettlement*	**Risk Events**	**Y/N**
P8.1 Is the project likely to involve physical or economic displacement?	P8.1 Risk of involuntary resettlement or economic displacement	N
P8.2 Is there a risk of inadequate assessment of whether resettlement is voluntary or involuntary?	P8.2 Risk of involuntary resettlement inadequately assessed	N
P8.3 Is there a risk that realistic alternatives to avoid or minimize involuntary resettlement have not been explored?	P8.3 Risk of resettlement alternatives not considered	N
P8.4 Is there a risk that affected persons are not adequately informed of rights and/or consulted about alternative options?	P8.4 Risk of inadequate consultation about rights or alternative options	N
P8.5 Is there a risk that affected persons are not provided with fair compensation and/or livelihood restoration?	P8.5 RIsk of inadequate compensation and/or livelihood restoration	N
P8.6 Is there a risk that monitoring and grievance mechanisms for resettled persons are absent or ineffective?	P8.6 Risk of unmonitored or unresolved resettlement grievances	N
Principle 9: *Protection of Natural Habitats*	**Risk Events**	**Y/N**

P9.1 Is the project likely to involve activities that impact natural habitats (directly, indirectly or cumulatively)?	P9.1 Risk of adverse impacts on natural habitats	Y
P9.2 Is there a risk that natural habitats within the project area have not been adequately identified, including protected areas, high conservation value sites, or areas recognized by local/indigenous communities?	P9.2 Risk of failure to identify natural habitats	Y
P9.3 Is there a risk of conversion or degradation of critical natural habitats (protected areas, proposed reserves, high conservation value sites, areas recognized by local communities)?	P9.3 Risk of conversion or degradation of critical natural habitats	Y
P9.4 Is there a risk that avoidance or mitigation measures for natural habitat impacts are absent or inadequate?	P9.4 Risk of inadequate habitat impact mitigation	Y
Principle 10: *Conservation of Biological Diversity*	**Risk Events**	**Y/N**
P10.1 Is the project likely to involve activities that reduce or adversely affect biological diversity?	P10.1 Risk of biodiversity loss	Y
P10.2 Is there a risk that the project may cause significant or an unjustified reduction of species or ecosystem diversity?	P10.2 Risk of significant biodiversity reduction	N
P10.3 Is there a risk that biodiversity present in the project area, including species and ecosystems of local importance, has not been adequately identified or assessed?	P10.3 Risk of failure to identify biodiversity	Y
P10.4 Is the project likely to introduce known invasive species?	P10.4 Risk of introducing invasive species	N
P10.5 Is there a risk that adverse impacts on threatened or protected species (e.g., IUCN Red List, CITES, other nationally protected species) will occur?	P10.5 Risk of adverse impacts on threatened/protected species	Y
P10.6 Is the project likely to involve GMOs/LMOs without risk assessment and regulatory approval?	P10.6 Risk of unassessed GMO/LMO impacts	N
P10.7 Is there a risk that mitigation and monitoring measures for biodiversity and invasive species are absent or inadequate?	P10.7 Risk of inadequate biodiversity safeguards	Y
Principle 11: *Climate Change*	**Risk Events**	**Y/N**
P11.1 Is the project likely to result in significant or unjustified increases in greenhouse gas emissions or other drivers of climate change?	P11.1 Risk of increased greenhouse gas emissions or other drivers of climate change	N

P11.2 Is there a risk that the project has not adequately assessed greenhouse gas emissions where activities are likely to generate them (e.g., in energy, transport, industry or large-scale agriculture)?	P11.2 Risk of inadequate GHG emissions assessment	N
P11.3 Is the project likely to reduce carbon capture or storage capacity (e.g., through land use change, deforestation)?	P11.3 Risk of reduced carbon capture and storage	N
P11.4 Is there a risk that the project contributes to maladaptation, i.e., activities that increase climate vulnerability or reduce resilience of people or ecosystems?	P11.4 Risk of increased climate maladaptat	Y
Principle 12: *Pollution Prevention and Resource Efficiency*	**Risk Events**	**Y/N**
P12.1 Is the project likely to involve activities that generate significant pollution or inefficient use of resources?	P12.1 Risk of excessive pollution or inefficient resource use	N
P12.2 Is there a risk that waste production and pollutant release (air, water, soil, noise, vibration, radiation) are not minimized in line with national regulations and international best practice?	P12.2 Risk of unmitigated waste or pollution	Y
P12.3 Is there a risk that hazardous substances, including fuels, chemicals, asbestos, or pesticides are not properly minimized or managed in line with international standards?	P12.3 Risk of mismanagement of hazardous substances or pesticides	Y
P12.4 Is there a risk that a waste and pollution prevention/management plan is absent or inadequate?	P12.4 Risk of absent or weak waste management plan	N
Principle 13: *Public Health*	**Risk Events**	**Y/N**
P13.1 Is the project likely to involve activities that adversely impact public health?	P13.1 Risk of adverse public health impacts	Y
P13.2 Is there a risk that socio-economic determinants of health (e.g., water, sanitation, housing, livelihoods) have not been adequately considered?	P13.2 Risk of neglecting broader public health determinants	N
P13.3 Is there a risk that the project does not identify which groups are most likely to be affected by specific health determinants?	P13.3 Risk of failure to identify most-affected groups related to health determinants	N
P13.4 Is there a risk that, where public health risks are identified, there is no mitigation plan or health impact assessment?	P13.4 Risk of no mitigation plan for public health impacts	Y
P13.5 Is there a risk that emergency preparedness and response measures for public health risks are absent or inadequate?	P13.5 Risk of inadequate public health risk management plan	N
Principle 14: *Physical and Cultural Heritage*	**Risk Events**	**Y/N**

P14.1 Is the project likely to involve activities that alter, damage, or remove physical or cultural heritage resources?	P14.1 Risk of adverse impacts on cultural heritage	N
P14.2 Is there a risk that heritage sites of community, national, or international significance have not been identified or considered?	P14.2 Risk of failure to identify significant heritage sites	Y
P14.3 Is there a risk that the project does not comply with international or national obligations for the recognition and protection of cultural heritage (e.g., World Heritage Convention, national laws/regulations)?	P14.3 Risk of non-compliance with cultural heritage obligations	N
P14.4 Is there a risk that community access to heritage resources will be restricted or disrupted?	P14.4 Risk of restricted access to cultural heritage resources	Y
P14.5 Is there a risk that a chance-finds procedure (for unexpected discoveries made during implementation of project activities) is absent or inadequate?	P14.5 Risk of inadequate chance-finds procedure	N
P14.6 Is there a risk of adverse impacts on intangible cultural heritage or sacred practices?	P14.6 Risk of impacts on intangible heritage	Y
Principle 15: *Lands and Soil Conservation*	**Risk Events**	**Y/N**
P15.1 Is the project likely to involve activities that cause soil erosion, degradation, contamination, salinization, compaction, or conversion of productive land or land providing valuable ecosystem services?	P15.1 Risk of soil degradation, contamination or land/ecosystem service conversion	Y
P15.2 Is there a risk that fragile soils (e.g., steep slopes, coastal areas, desert margins) may be present in the project area and subject to activities that could cause soil loss?	P15.2 Risk of soil loss in fragile areas	Y
P15.3 Is there a risk that project design does not adequately incorporate soil and land conservation measures, including consideration of alternatives where use or degradation of such lands is unavoidable?	P15.3 Risk of inadequate soil conservation or alternatives analysis	N
P15.4 Is there a risk that soil and land conservation measures will not be monitored or are ineffective, including with respect to indirect, secondary, or cumulative impacts?	P15.4 Risk of ineffective monitoring of soil/land conservation	N

Note: The Concept Note team has taken a “precautionary approach.” Screening questions that could be answered TBD have been answered Yes, but this analysis will be updated at the Project Proposal stage.

Score	*Rating*	*Social and environmental impacts*
5	Extreme	Significant adverse impacts on human populations and/or environment. Adverse impacts of large-scale magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas adversely impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of indigenous peoples; involve significant levels of displacement or resettlement; generates significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict
4	Extensive	Adverse impacts on people and/or environment of considerable magnitude, spatial extent and duration, but more limited than Extreme (e.g. more predictable, mostly temporary, reversible). *Impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples are to be considered at a minimum potentially Extensive*[15]
3	Intermediate	Impacts of medium magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures
2	Minor	Very minor impacts in terms of severity and magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment

Table 3. Rating the 'Likelihood' of a Risk

Score	*Rating*
5	Expected
4	Very likely
3	Moderately likely
2	Low likelihood
1	Not likely

Table 4. Determining 'Significance' of Risk

Impact						
	5	*M*	*S*	*S*	*H*	*H*
	4	*L*	*M*	*S*	*S*	*H*
	3	*L*	*M*	*M*	*M*	*S*
	2	*L*	*L*	*L*	*M*	*M*
	1	*L*	*L*	*L*	*L*	*L*
		1	***2***	***3***	***4***	***5***
		Likelihood				
Low, Moderate, Substantial, High						

*Note: Moderate and Substantial Risk projects are considered Category B for purposes of Adaptation Fund analysis and thus both are analyzed as Moderate for purposes of the screening.

Annex D: Gender Equality, Disability and Social Inclusion (GEDSI) and Traditional Knowledge Analysis

This Annex provides a comprehensive GEDSI and Traditional Knowledge (TK) analysis for the regional invasive species Ecosystem-based Adaptation (EbA) intervention in Niue, Tonga, and Tuvalu. It covers the methodology, country baselines, institutional and legal context, differential impacts, TK protocols, stakeholder engagement, Free, Prior and Informed Consent (FPIC) and Grievance Redress Mechanism (GRM) modalities, inclusive measures, indicators, risks, and budgeted actions. The analysis demonstrates how invasive species management intersects with gender equality, disability inclusion, and Traditional Knowledge systems while ensuring compliance with the Adaptation Fund (AF) Gender Policy and Action Plan (2021), the AF Gender Guidance, the Environmental and Social Policy (ESP), and the Secretariat of the Pacific Regional Environment Programme (SPREP) Gender and Social Inclusion (GESI) Policy (2025).

1. Institutional and Policy Context

The project's approach to GEDSI is grounded in a multi-layered policy framework that integrates international, regional, and national commitments. This consolidated approach ensures that the project not only complies with the specific requirements of the Adaptation Fund and SPREP but also aligns with regional and national priorities and legal frameworks of Niue, Tonga, and Tuvalu. The project will be implemented in alignment with the national legal and policy frameworks of the participating countries, which provide a strong foundation for advancing gender equality and social inclusion.

The project will mainstream GEDSI across all components, ensuring robust safeguards in line with the Adaptation Fund's Environmental and Social Policy (ESP) and the Gender Policy and Action Plan (2021)[1]. The AF's gender policy emphasizes gender equality and women's empowerment, recognizing women's vital role in environmental management and their heightened vulnerability to climate impacts. It mandates equitable access to resources, equal participation in decision-making, and the collection of sex-disaggregated data to ensure that adaptation outcomes are equitable and do not exacerbate existing inequalities. The policy requires a responsive Monitoring and Evaluation (M&E) system that tracks gender related indicators from the concept stage through to implementation.[1,2]

The AF ESP also includes specific provisions for the protection of Traditional Knowledge (TK) under Principles 2 (Access and Equity) and 4 (Human Rights), which mandate that projects respect and protect the rights of indigenous peoples and local communities to their knowledge, innovations, and practices. The project will adhere to these principles by ensuring that TK is used with the free, prior, and informed consent of knowledge holders and that benefits arising from its use are shared equitably.

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[1] Adaptation Fund. (2021). Gender Policy and Action Plan (Revised March 2021). https://www.adaptation-fund.org/document/gender-policy-and-action-plan-revised-march-2021/

[2] Adaptation Fund. Gender Guidance Document. https://www.adaptation-fund.org/document/guidance-document-implementing-entities-compliance-adaptation-fund-gender-policy/

As the executing entity, SPREP will apply its GESI Policy (2025)[3], which is designed to ensure that gender mainstreaming and social inclusion are aligned with the unique cultural and social contexts of the Pacific. The GEDSI and TK policies of the Pacific Regional Invasive Species Management Support Service (PRISMSS) will also guide the implementation of the project activities, providing practical guidance for program staff, country partners, and community facilitators to uphold GEDSI and TK principles through planning, engagement, and learning processes. These documents, currently in the process of being endorsed, outline the principles and operational procedures that will apply to PRISMSS activities.

This institutional framework recognizes that effective ecosystem-based adaptation cannot be achieved without addressing the underlying social inequalities that determine differential vulnerability to climate change and invasive species impacts. The policy foundation therefore provides both the mandate and the operational guidance necessary to ensure that PRISMSS interventions contribute to transformative change that strengthens both ecological resilience and social equity across the Pacific region.

2. Statistical Baselines and Country Context

This section provides detailed demographic, gender, disability, and traditional knowledge statistics for each target country, establishing a comprehensive evidence base for GEDSI and TK analysis and project design. It also includes an analysis of the implications of these statistics for project delivery. These statistical profiles reveal not only the scale and scope of potential project beneficiaries, but also illuminate the specific vulnerabilities, capacities, and opportunities that will determine the effectiveness of ecosystem-based adaptation strategies in strengthening climate resilience while promoting inclusive development outcomes.

2.1 Regional Context and Comparative Overview

The three target countries represent diverse demographic profiles within the Pacific Small Islands Developing States (SIDS) context creating both opportunities for shared learning and contextualized implementation approaches. Tonga, with a population of 100,179 people (2021), represents the largest target country provides opportunities for testing community-based invasive species management at significant scale (Tonga Statistics Department, 2025)[4]. Niue, with only 1,564 usual residents documented in the 2022 Census, ranks among the world's smallest nations and offers unique insights into invasive species management in micro-state contexts where every individual's participation can have measurable impacts (Niue Statistics Office, 2023).[5] Tuvalu, with approximately 10,156 people (2016), falls between these extremes but faces the most acute climate vulnerabilities due to its extreme low-lying atoll geography and projected sea-level rise impacts. This population diversity creates distinct GEDSI implementation challenges and opportunities.[6]

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[3] SPREP. (2025). Gender and Social Inclusion (GESI) Policy. Secretariat of the Pacific Regional Environment Programme.

[4] Tonga Statistics Department. (2025). Tonga Gender Statistics Profile 2021. Pacific Community (SPC). https://spccfpstore1.blob.core.windows.net/digitallibrary/docs/files/7e/7ecec539e4038cbb447c9eedf840014c.pdf

[5] Niue Statistics Office. (2023). Niue Census of Population and Housing, 2022 - Preliminary Report. https://niuestatistics.nu/population/niue-census-of-population-and-housing-2022/

[6] Pacific Community. (2023). Pacific Island Populations - 2022 Revision. Statistics for Development Division, Pacific Community.

While all three countries demonstrate slight female population majorities, the implications for environmental management are less about the demographic ratio and more about the socially constructed roles and responsibilities of women. In all three countries, women bear a disproportionate responsibility for natural resource management, household food security, and community resilience, making their engagement in the project critical to its success.[4,6]

All three countries have youthful populations, with a significant proportion of the population under the age of 25. In Tonga, 38% of the population is under 19, while in Tuvalu, this figure is 36%. This presents both an opportunity and a challenge for the project. Youth can be powerful agents of change and innovation, but they also face high rates of unemployment and underemployment. The project will seek to engage youth in meaningful ways, providing them with training and employment opportunities in the green economy, which could also serve as an incentive to retain youth in their home countries.

Disability prevalence varies significantly across the region, with available data showing Tuvalu at 4.5% based on the 2018 comprehensive disability study and Tonga at 2.8% according to 2021 Census methodology, though Tongan estimates range from 2.8% to 6.4% depending on assessment approaches.[4,7] The absence of recent disability data for Niue represents a critical information gap that the project will address through participatory data collection methods conducted in partnership with the Niue National Council of Women and community organizations during the initial implementation phase. The typology of disabilities is also important, with mobility, sight, and hearing impairments being the most common. These disabilities have direct implications for climate resilience, as they can limit a person's ability to access early warning information, evacuate in an emergency, or participate in community-based adaptation activities.

This demographic reality, combined with substantially higher female life expectancy—exemplified by Tonga's stark six-year gap with women living 74 years compared to 68 years for men—has profound implications for project design, as women often assume primary responsibility for natural resource management, household resilience strategies, and intergenerational knowledge transmission in Pacific Island societies. These demographic realities directly inform the project's emphasis on women's leadership in invasive species monitoring, Traditional Knowledge integration, and community-based restoration activities.

2.2 Country-Specific Baselines and Differential Context

2.2.1 Niue

- **Demographic and Gender Profile:** Niue's demographic profile reveals complex challenges that directly intersect with invasive species management and climate adaptation requirements. The 2022 Census recorded 1,564 usual residents, representing a 2.2% population decrease from 2017 figures and continuing a longer-term demographic trend that has significant implications for environmental stewardship capacity.[5] The population demonstrates a slight female majority at 50.8% (795 females, 769 males) with a sex ratio of 96.8 males per 100 females.
- **Labor Force and Economic Participation:** Comprehensive labor force data disaggregated by gender remains a critical gap for Niue. While the 2022 Census provides demographic baselines, detailed labor force participation rates, sectoral employment patterns, and gender-specific unemployment data have not been systematically collected or published at the same level of detail as larger Pacific nations like Tonga. The median age of 35 years reflects an aging population and the

age structure reveals particularly acute challenges for environmental management, with 22.8% children (0-14 years), 60.7% of working age (15-64 years), and 16.5% of retirement age (65+ years), resulting in a dependency ratio of 94 dependents per 100 people of working age—significantly higher than regional comparators such as Cook Islands (72) and Samoa (79). This demographic reality means that Niue's small working-age population must support both the large dependent population while maintaining the environmental stewardship activities essential for climate adaptation, thereby creating urgency around designing invasive species management interventions designed in a way that is not labour-intensive and that provides incentives for participation while building long-term local capacity. The limited available evidence suggests that Niue's labour force is heavily concentrated in public sector employment due to the small private sector, with remittances from emigrant family members comprising a significant proportion of household income—patterns that influence both availability for environmental management activities and the economic incentives necessary to ensure sustained participation. The project will address these data gaps through baseline SADDD collection conducted in partnership with the Niue National Council of Women and village councils during project inception, with particular emphasis on documenting women's time use patterns, unpaid care work responsibilities, informal economic activities, and existing participation in natural resource management that can inform the design of accessible and economically viable invasive species management interventions.

- **Disability Statistics:** Critical data gaps exist regarding disability prevalence and youth-specific labour force participation in Niue, reflecting broader challenges with systematic data collection in micro-state contexts. The project will address these gaps through baseline SADDD collection conducted in partnership with the Niue Association of Disabled Persons to gather qualitative data on the barriers and needs of PWDs in the context of invasive species management, Niue National Council of Women and village councils during project inception.
- **National Policies and stakeholders:** The National Strategic Plan and the National Policy on Gender Equality (2014–2018) prioritize gender equality and provide a supportive framework for inclusive EbA. However, there is a recognized need for practical implementation mechanisms and the systematic collection of SADDD to translate policy into practice.[7] The project will work with the Niue National Council of Women to address these gaps. The Government of Niue has also established a comprehensive Environmental and Social Management System through the Department of Environment. This national ESMS includes specific provisions for Gender Equality, Women's Empowerment, and Social Inclusion in all projects implemented in Niue.

Consultations with key Niue stakeholders revealed significant opportunities for project integration with existing institutional structures and women-led initiatives. Niue has a strong tradition of women's leadership, with the Niue National Council of Women playing a central role in community engagement and surveillance activities. This provides a key entry point for ensuring inclusive project design and implementation. The Niue Ocean Wide (NOW) Trust, which manages Village Resource Management Advisory Committee (RMAC) grants, has already supported one village in including invasive plant removal in grant proposals,

[7] UN Women. Niue Gender Profile. United Nations Entity for Gender Equality and the Empowerment of Women.

demonstrating community readiness for invasive species management activities. The Niue Women Council's Pandanus project and the Niue Fitikanai association's interest in restoration work provide established platforms for women's participation in ecosystem restoration activities. Additionally, the Department of Environment's Women in Maritime Programme offers critical entry points for integrating women's knowledge into marine invasive species early detection and management, particularly given identified training needs for women working in maritime sectors.

However, a UN Women brief highlights significant data and capacity gaps, particularly in relation to SADDD, which the project will address through participatory data collection methods.[7] Invasive species in Niue have a significant impact on forest integrity and native species, which in turn has social and gendered impacts, including reduced access to traditional materials, altered food systems, and increased time burdens for women.[8]

The strong tradition of women's leadership through the Niue National Council of Women, combined with established community surveillance networks, creates favourable conditions for inclusive project implementation that can leverage existing social capital while strengthening adaptive capacity. Consultation findings confirm that women, persons with disabilities, youth, elderly, and marginalized groups are heavily engaged in community activities and decision-making processes in Niue, with village-level governance structures ensuring inclusive participation in conservation and development activities. The project will partner with the National Council of Women to adapt biosecurity routines to better reflect women's roles and responsibilities in the community.[9]

2.2.2 Tonga

- **Demographic and Gender Profile:** Tonga's 2021 Census provides comprehensive baseline data that reveals both significant opportunities and challenges for inclusive invasive species management. With 100,179 people, of whom women and girls comprise 51%, the country demonstrates substantial human resources for community-based environmental management while exhibiting marked gender disparities in economic participation and health outcomes that the project must address.[4] The six-year life expectancy gap between women (74 years) and men (68 years) reflects broader patterns of gender-differentiated vulnerability and resilience that influence how invasive species impacts are experienced and how management responses can be most effectively designed and implemented.

- **Labor Force and Economic Participation:** Labor force participation patterns reveal complex dynamics with significant implications for project design, as male participation stands at 56% compared to 43% for females, while overall unemployment remains low at 3% for both genders.[4] However, youth unemployment among 15–24-year-olds shows concerning gender disparities at 6% for males and 7% for females, indicating particular challenges for young women in accessing economic opportunities that invasive species management interventions could potentially address through targeted

[8] Wabnitz, C.C., Blasiak, R., Harper, S. et al. (2021). Gender dimensions of ocean risk and resilience in SIDS and coastal LDCS. Global Resilience Partnership. https://www.globalresiliencepartnership.org/wp-content/uploads/2022/01/orraa-gender-and-ocean-risk.pdf

[9] IUCN. (2024). Empowering Guardians: Women's Crucial Role in Conservation Efforts across the Pacific Islands. https://iucn.org/blog/202403/empowering-guardians-womens-crucial-role-conservation-efforts-across-pacific-islands

employment and capacity-building initiatives. Notably, 46% of employed females have attained tertiary education compared to only 23% of employed males, suggesting significant untapped potential for women's leadership in technically sophisticated invasive species management interventions such as biological control and ecosystem monitoring.[4]

Female-headed households comprise 26% of private households, yet they receive remittances at higher rates (79% vs. 73% for male-headed households). Significantly, 25% of female-headed households receive remittances from temporary labour mobility schemes compared to 15% of male-headed households, indicating women's greater reliance on external income sources. In Tonga, women play a crucial role in nearshore fisheries biosecurity and community-based reporting. Their ecological knowledge is a vital resource for strengthening the monitoring of invasive marine species. The project will leverage this existing capacity to ensure that biosecurity measures are accessible, culturally appropriate, and time responsive.[10,11]

- **Disability Statistics:** Disability statistics from the 2021 Census identified 2,782 people with disabilities, representing 2.8% of the total population, though prevalence estimates vary significantly from 2.8% to 6.4% depending on assessment methodology and functional difficulty definitions.[4] Women experience higher rates of functional difficulties at 13.1% compared to men at 12.1%, while 4% of females report disability prevalence compared to 3% for males, patterns that intersect with women's longer lifespans and higher likelihood of experiencing age-related disabilities.[4] Specific disability types include 1.16% of the population aged 5+ experiencing seeing disabilities, information that directly informs the design of accessible communication materials and alternative participation modalities for project activities.[4]
- **National Policies and stakeholders:** The policy environment provides strong foundations for GEDSI integration through the National Women's Empowerment and Gender Equality (WEGET) Policy (2019–2025) and the Family Protection Act (2013), which establish legal frameworks for women's protection and participation that will directly inform the design of survivor-centered grievance redress mechanisms and gender-based violence prevention protocols.[12,13] These frameworks will inform the design of the project's Grievance Redress Mechanism (GRM) to be GBV-sensitive, and survivor centred.[12,13] The project will leverage partnerships with established organizations including Langafonua 'a Fafine Tonga and Women in Fisheries networks to ensure that invasive species monitoring, market hygiene improvements, and community reporting systems build upon existing women's leadership structures.[10]

2.2.3 Tuvalu

- **Demographic Profile and Gender Profile:** Tuvalu's demographic profile presents acute vulnerabilities that intersect directly with the project's climate adaptation mandate, while simultaneously revealing significant opportunities for inclusive invasive

[10] Ram-Bidesi, V. (2015). Recognizing the role of women in supporting marine stewardship in the Pacific Islands. Marine Policy, 59, 1-8.
[11] McLeod, E., Arora-Jonsson, S., Masuda, Y.J. et al. (2018). Raising the voices of Pacific Island women to inform climate adaptation policies. Marine Policy, 93, 178-185.
[12] Government of Tonga. (2019). National Women's Empowerment and Gender Equality (WEGET) Policy (2019–2025).
[13] Government of Tonga. (2013). Family Protection Act.

species management that can strengthen both ecological and social resilience. With a population estimated at 10,156 people based on 2016 data, the nation faces the compound challenges of extreme climate vulnerability due to its low-lying atoll geography and demographic pressures that threaten the sustainability of traditional resource management systems. A significant demographic trend is the challenge of emigration and retention of the population and workforce. The 2023 Australia-Tuvalu Falepili Union treaty allows for the managed migration of 280 Tuvaluans to Australia each year as a form of climate relocation.[14] While this provides an important adaptation pathway, it also creates a challenge of a draining labour force and skilled professionals, which may impact the availability of sufficient workforce to carry out project activities.[15] This migration pathway, while providing crucial climate adaptation options for Tuvaluans facing existential sea-level rise threats, risks depleting the local skilled workforce necessary for sustaining community-based biosecurity and restoration activities envisioned under the project's four-component structure. The project must therefore design climate-resilient livelihood opportunities—particularly in invasive species management—that are sufficiently attractive and economically viable to retain skilled youth and women who might otherwise emigrate, while simultaneously building institutional capacity that can adapt to changing demographic realities.

- **Labor force and economic participation:** Labor force data disaggregated by gender for Tuvalu remains limited, with the most recent comprehensive employment statistics predating the project design period. This data gap mirrors challenges faced across many Pacific atoll nations where small populations, dispersed geography, and limited statistical capacity constrain systematic labour market monitoring. The available evidence indicates that Tuvalu's economy is heavily dependent on fishing license fees (approximately 50% of government revenue, ~USD 40 million annually) and remittances (46% of GDP), creating unique workforce dynamics where traditional subsistence activities coexist with public sector employment and cash economy participation shaped by overseas labour migration. Women's labour force participation is understood to be substantial but often underreported in formal statistics, as much of women's economic activity occurs in informal sectors including copra production, handicraft production, and traditional food processing that may not be captured in conventional employment surveys. The project will address this data gap through comprehensive baseline SADDD collection during project inception, working with the Tuvalu National Council of Women and Gender Department to document women's time use, economic contributions, care work responsibilities, and participation in natural resource management activities that directly intersect with invasive species management interventions.
- **Disability Statistics and Vulnerability:** The 2018 Tuvalu Study on People with Disability identified 466 people with disabilities, representing 4.5% of the total population—the highest disability prevalence rate among the three target countries. The study revealed significant gender and age disparities: 58.5% of PWDs are 61+ years old, 32% are between 21-60 years, and 9.2% are 20 years or younger. Women with disabilities are twice as likely to live in hardship compared to men with disabilities. The most common disabilities are mobility difficulties, followed by sight, memory, self-care, communication, and hearing difficulties. Many individuals experience multiple

[14] Australian Department of Foreign Affairs and Trade. (2023). *Australia-Tuvalu Falepili Union*. https://www.dfat.gov.au/geo/tuvalu/australia-tuvalu-falepili-union

[15] UN Women. (2024). Tuvalu Country Data. https://data.unwomen.org/country/tuvalu

disabilities simultaneously. 75% of PWDs have caregivers, with 78% of caregivers being women—highlighting the gendered nature of care work. All but three caregivers are family members, indicating the absence of formal support systems. 20% of PWDs live in circumstances of hardship, with women and those with severe disabilities facing additional barriers. The study found that nearly half of PWDs cannot participate in family and community events due to physical barriers, while health facilities are inaccessible to approximately 50% of PWDs. Stigma, discrimination, and abuse toward PWDs are widespread, with people with psychosocial disabilities being the least understood and having the fewest services available.[16]

- **National Policies and stakeholders:** The policy framework provides strong foundations for inclusive implementation through Te Paagatasi a Tuvalu National Gender Equity Policy (2024), the country's ratification of the Convention on the Rights of Persons with Disabilities (CRPD), and the Family Protection and Domestic Violence Act (2014), which collectively establish legal requirements for inclusive development approaches.[17,18] The Falekaupule Act (1997) provides the legal framework for traditional community governance systems that will guide Free, Prior and Informed Consent processes, ensuring that invasive species management interventions respect customary decision-making authority while actively promoting the meaningful participation of women, youth, and persons with disabilities.[19]

Tuvalu has strong women's community organizations, such as the Tuvalu National Council of Women (TNCW), which are active in grassroots activities. UN Women data indicates significant employment and livelihood gaps for women, as well as a high reliance on coastal ecosystems, making them particularly vulnerable to the impacts of invasive species.[16]

The project could work closely with the Fusi Alofa Association (FAA), the national disabled persons' organization in Tuvalu, to address these challenges. The Falekaupule Act (1997) and the executive Kaupule will guide the FPIC process, ensuring the meaningful participation of women and PWDs. The project will also draw on lessons from previous SPREP rat eradication projects in Nukufetau, which have demonstrated the community benefits of invasive species management for food security and biodiversity, supporting inclusive outcomes for women and PWDs in restoration activities.[20]

UN Women data indicates significant employment and livelihood gaps for women, as well as a high reliance on coastal ecosystems, making them particularly vulnerable to the impacts of invasive species. The Tuvalu consultations highlighted that women are active in projects but underrepresented in leadership roles, and that PWDs face significant accessibility barriers to participation.

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[16] Tavola, H. (2018). Tuvalu Study on People with Disability. Pacific Women Shaping Pacific Development. https://pacificdata.org/data/dataset/dafa4b46-9968-4fb3-966e-f4b201167a25/resource/cd65de2a-71eb-454c-95ea-4eee3127fba2/download/tuvalu-study-on-people-with-disability-exec-summ-july-2018.pdf

[17] Government of Tuvalu. (2024). Te Paagatasi a Tuvalu: National Gender Equity Policy.

[18] Government of Tuvalu. (2014). Family Protection and Domestic Violence Act.

[19] Government of Tuvalu. (1997). Falekaupule Act.

[20] Island Conservation. (2024). Nukufetau Community Resilience: Rat Eradication Project Documentation. https://www.islandconservation.org/nukufetau-community-resilience/

3. Differential Impacts and Barriers

The complex intersection of invasive species impacts, climate change vulnerability, and existing social inequalities creates differentiated risks and opportunities across gender, age, and disability lines that fundamentally shape how ecosystem-based adaptation interventions must be designed and implemented. As highlighted in the Tuvalu consultations, women and youth involved in nearshore harvesting, for example, are often the first to detect new invasive species, but they can also be disproportionately impacted if they are not consulted in the design of management responses. Persons with disabilities (PWDs) face significant accessibility barriers to training, reporting mechanisms, and participation in decision-making processes. Understanding these differential impacts is essential for ensuring that invasive species management not only achieves ecological objectives but also contributes to transformative social change that strengthens the resilience of the most vulnerable community members while leveraging the knowledge and leadership capacity of all social groups.

Women across the three target countries face what the Pacific Disability Forum terms "intersectional climate vulnerability," where their traditional roles in subsistence agriculture, nearshore resource harvesting, and household water management place them at the front lines of invasive species impacts while simultaneously limiting their decision-making authority over management responses.[21] Young's comprehensive research across Niue, Tonga, and Samoa documents that women face specific structural barriers to participation in invasive species management, including time poverty due to disproportionate care work responsibilities, financial constraints that limit their ability to participate in unpaid conservation activities, and exclusion from traditional decision-making structures dominated by male elders and church hierarchies.[22] In Tuvalu's pulaka pit agriculture systems, invasive Singapore daisy colonization following cyclone disturbance directly threatens the taro cultivation that provides both nutrition security and cultural identity for many families, with women bearing primary responsibility for pit maintenance and harvest activities that become increasingly difficult and time-consuming as invasive species establish and spread. Similarly, in Tonga's nearshore fisheries, women's extensive ecological knowledge positions them as early detectors of marine invasive species outbreaks following thermal stress events, yet traditional governance structures may limit their authority to initiate or direct management responses, creating critical delays in early detection and rapid response protocols.

Youth across all three countries experience what might be characterized as "adaptation opportunity gaps," where limited access to technical training, restricted participation in traditional decision-making processes, and increasing emigration pressures combine to undermine both their potential contributions to invasive species management and their long-term commitment to place-based resilience strategies. The Australia-Tuvalu Falepili Union exemplifies this dynamic, as it provides crucial climate mobility options for young Tuvaluans while potentially depleting the human capital necessary for sustaining community-based environmental stewardship. Traditional governance structures in many Pacific contexts may inadvertently exclude youth voices from critical decisions about ecosystem management priorities and methods, despite young people's often superior access to digital communication

[21] Pacific Disability Forum. (2022). Disability and Climate Change in the Pacific: Findings from Kiribati, Solomon Islands, and Tuvalu. https://pacificdisability.org/wp-content/uploads/2022/08/PDF-Final-Report-on-Climate-Change-and-Persons-with-Disabilities.pdf

[22] Young, W. G. (2024). Pacific Perspectives on Invasive Species and their Management: A Vātālanoa Approach from Samoa, Tonga, and Niue. Doctoral thesis, University of Newcastle, Australia.

technologies, formal education about ecological concepts, and long-term stakes in environmental outcomes.

Persons with disabilities face pervasive accessibility barriers that systematically exclude them from environmental management activities unless interventions are specifically designed to ensure inclusive participation. Young's fieldwork documents the profound social stigma surrounding disability in Pacific contexts, with family members often reluctant to allow persons with disabilities to participate in community activities due to shame and fear of disruption. The Pacific Disability Forum's comprehensive 2022 assessment documents that persons with disabilities in the Pacific experience higher rates of food and water insecurity, face disproportionate health impacts from climate change, and are routinely excluded from disaster response and recovery efforts—patterns that directly intersect with invasive species management contexts. In Tuvalu, where nearly half of PWDs cannot participate in family and community events due to physical barriers and health facilities are inaccessible to approximately 50% of PWDs, invasive species management activities conducted in standard formats will systematically exclude disabled community members unless accessibility accommodations are proactively integrated into project design.[15]

Consultations with Tonga's Lavame'a Ta'e'iloa Disabled People Association identified that PWDs face distinct vulnerabilities during biosecurity crises including inaccessible early warning systems lacking audio/visual alerts and plain language information; reduced access to health, education, and social services during emergencies; physical barriers to movement and evacuation compounded by interruption of support networks and caregiver services essential for daily needs, hygiene, and health; and discrimination in allocation of resources, temporary shelter, or employment during recovery efforts. The consultation emphasized that PWDs must be recognized not merely as vulnerable beneficiaries but as essential contributors who bring subject matter expertise to biosecurity planning, can serve through Disabled Persons Organizations as crucial communication channels, provide peer support and remote coordination roles, and participate in monitoring and evaluation to ensure response effectiveness and inclusiveness

The degradation of ecosystems by invasive species creates cascading impacts that disproportionately affect women and marginalized groups who depend most heavily on ecosystem services for subsistence, income, and cultural practices. Climate change intensifies these differential impacts by increasing the frequency and severity of disturbance events that facilitate invasive species establishment while simultaneously increasing the care work and subsistence burdens that limit women's availability for environmental management activities. The phenomenon of "time poverty" among Pacific Island women—documented through multiple gender analyses—becomes particularly acute in contexts where invasive species increase the labour requirements for traditional activities like food production, medicinal plant collection, and craft material harvesting while climate change simultaneously increases demands for household-level adaptation activities.

4. Traditional Knowledge Systems and Protocols

4.1 The Vātālanoa Framework for Inclusive Traditional Knowledge Integration

The project's approach to Traditional Knowledge integration and inclusive community engagement is fundamentally informed by William Young's Vātālanoa framework,[23] a Pacific-

[23] Young, W. (2025). Pacific perspectives on invasive species and their management: a Vātālanoa approach from Samoa, Tonga, and Niue. Retrieved from

led methodology that merges two foundational Pacific concepts—Vā (relational space) and Tālanoa (relational dialogue)—into a hybrid approach specifically designed to address the persistent exclusion of marginalized voices in environmental management while respecting Pacific worldviews.

The Vātālanoa approach centres on building and maintaining respectful relationships as the foundational prerequisite for any meaningful Traditional Knowledge documentation or community engagement. Young's fieldwork across Niue, Tonga, and Samoa demonstrates that Pacific Island communities consistently prioritize relationship-building, sustained presence, and ongoing commitment over efficiency-focused, time-limited consultations. Critical to the Vātālanoa framework is the recognition that "community" is not a homogeneous entity but rather comprises diverse groups with distinct perspectives, knowledge systems, and participation barriers. Traditional consultation approaches systematically privilege elite, male voices while excluding women, youth, persons with disabilities, and fa'afafine/fakaleiti individuals whose knowledge and participation are essential for effective and sustainable invasive species management. The framework therefore mandates separate consultations and "safe spaces" where marginalized groups can express perspectives without fear of discrimination or backlash from dominant community members, while also requiring mixed consultations that enable dialogue across different social groups.

4.2 Traditional Knowledge Systems in Practice

Traditional Knowledge systems represent both invaluable resources for enhancing invasive species management effectiveness and cultural treasures requiring careful protection through rigorous ethical protocols that ensure community ownership, control, and benefit-sharing. The integration of Traditional Knowledge into the PRISMSS intervention reflects recognition that Pacific Island communities have developed sophisticated ecological monitoring and management systems over centuries that, when combined with contemporary scientific approaches, can substantially enhance the effectiveness, cultural appropriateness, and community ownership of ecosystem-based adaptation strategies.

Niue's ufi (yam) cyclone indicator system exemplifies the sophisticated integration of ecological observation, seasonal timing, and meteorological prediction that characterizes Traditional Knowledge systems across the Pacific. This system, maintained primarily by experienced cultivators who are often women, involves careful observation of yam growth patterns, leaf coloration, and flowering timing to predict cyclone seasons and intensity, information that directly informs both agricultural planning and community preparedness activities.[24],[21] Traditional Knowledge systems like the ufi indicators represent living, adaptive knowledge that communities continue to refine through ongoing observation and intergenerational transmission, though rapid social change and emigration patterns threaten continuity of these systems.[21] The project will work with Traditional Knowledge holders to document how these indicators can enhance early warning systems for invasive species establishment, as post-cyclone periods represent critical windows when invasive species like Singapore daisy can rapidly colonize disturbed environments and overwhelm native vegetation recovery processes. By integrating ufi indicators with scientific meteorological

https://openresearch.newcastle.edu.au/articles/thesis/Pacific_perspectives_on_invasive_species_and_their_management_a_V_t_lanoa_approach_from_Samoa_Tonga_and_Niue/30451025

[24] SPREP. (2023). Gender and social inclusion critical to manage invasive species in the Pacific. https://www.sprep.org/news/gender-and-social-inclusion-critical-to-manage-invasive-species-in-the-pacific

forecasting, the project can develop more accurate and culturally grounded early detection and rapid response protocols that combine traditional and contemporary interventions.

Women's nearshore ecological knowledge in Tonga and Tuvalu provides another critical Traditional Knowledge domain with direct applications to marine invasive species management. Pacific Island women's detailed understanding of seasonal fish behavior, coral health indicators, water quality changes, and unusual species appearances—developed through generations of nearshore resource harvesting—positions them as ideal community monitors for marine invasive species early detection.[10] The successful 2024 Nukufetau rat eradication operation in Tuvalu demonstrates how Traditional Knowledge integration can enhance both technical effectiveness and community acceptance of large-scale invasive species management interventions. Community observations of seabird behavior changes, traditional seasonal calendars that identified optimal timing for minimal disruption to traditional activities, and customary protocols for protecting sacred sites during conservation activities all contributed to an operation that achieved complete rat removal while maintaining community support and cultural sensitivity (Island Conservation, 2024).[19] Post-eradication monitoring documented remarkable recovery outcomes, with seabird populations doubling, turtle nesting increasing by 30-40%, and coconut crab populations showing substantial recovery—results that validate both the ecological effectiveness of the intervention and the value of Traditional Knowledge in guiding implementation timing and methods.

The project's Traditional Knowledge integration protocols will adhere to international best practices for Indigenous Knowledge protection while implementing the Vātālanoa framework: community-led identification of appropriate Traditional Knowledge holders through customary selection processes; obtaining comprehensive Free, Prior and Informed Consent (FPIC) at both institutional and individual levels for all documentation and application activities; establishing clear benefit-sharing mechanisms that ensure Traditional Knowledge holders:

- receive appropriate recognition and compensation;
- establishing clear and limited scope agreements that specify exactly how Traditional Knowledge will be used and shared;
- ensuring confidentiality protections for sensitive or sacred knowledge that communities choose not to share publicly; and
- developing co-creation processes for awareness materials and training resources that ensure Traditional Knowledge is presented accurately and respectfully.

These protocols must be implemented through ongoing relationships rather than one-off documentation exercises, with communities retaining authority to modify or withdraw consent as circumstances change. The integration approach will emphasize complementarity rather than replacement, recognizing that Traditional Knowledge and contemporary scientific approaches each provide unique strengths that, when combined respectfully, can achieve more effective and sustainable invasive species management outcomes than either approach alone.

5. Stakeholder Mapping and Engagement

Comprehensive stakeholder engagement represents the foundation for achieving both technical effectiveness and social sustainability in invasive species management, requiring systematic identification of all affected parties, careful analysis of their interests and capacities, and design of engagement processes that ensure meaningful participation while respecting cultural protocols and addressing power imbalances that might otherwise exclude

marginalized voices. Stakeholder engagement will be a continuous and iterative process throughout the project cycle, involving targeted consultations that builds upon established PRISMSS methodologies while adapting to the specific cultural, political, and social contexts present in Niue, Tonga, and Tuvalu. This also addresses the AF Secretariat's feedback on the need for robust consultation, regional added value, concrete adaptation actions, innovation, feasibility, and knowledge platform integration.

While preliminary stakeholder engagement has been conducted through a number of and online consultations with stakeholders from Niue, Tuvalu and Tonga to inform this analysis, Focus Group Discussions (FGD) and targeted consultations will be conducted during the full proposal stage and development of the GEDSI Action Plan. Primary stakeholders to engage include the communities whose livelihoods, resources, and cultural practices are directly affected by invasive species and management interventions, with particular emphasis on ensuring that women, youth, persons with disabilities, and holders of Traditional Knowledge have genuine opportunities to shape project design and implementation rather than merely participating as beneficiaries of externally designed interventions. In Niue, engagement will centre on partnerships with:

- the Niue National Council of Women, which serves as the primary advocacy and coordination body for women's interests across the island's 14 villages and has demonstrated capacity through initiatives like the Pandanus project;
- the Niue Fitikanai association, which has expressed specific interest in participating in restoration activities;
- the Niue Ocean Wide (NOW) Trust, which administers Village Resource Management Advisory Committee grants that can support invasive species management at community level;
- village councils that maintain traditional decision-making authority over local resource management;
- the Project Management Coordination Unit, which facilitates inter-ministerial coordination;
- the Department of Environment's Maritime Division, which coordinates the Women in Maritime Programme;
- youth groups that represent the demographic most likely to provide long-term environmental stewardship; and
- faith-based organizations that hold significant social influence and can facilitate community acceptance of invasive species management interventions.

Recent consultations confirm strong existing coordination mechanisms between government agencies, private sector, NGOs, and civil society, providing a solid foundation for inclusive project implementation.

In Tonga, stakeholder engagement will leverage the sophisticated network of women's organizations including Langafonua 'a Fafine Tonga and specialized Women in Fisheries platforms that possess both technical expertise in nearshore resource management and established relationships with women across multiple island groups.[10,12] The engagement strategy will also prioritize partnerships with Disabled Persons Organizations (including Tonga's Lavame'a Ta'e'iloa Disabled People Association), market associations that control critical economic infrastructure where biosecurity interventions must be implemented, and port and shipping operators whose cooperation is essential for effective quarantine and early detection systems. Ministry of Fisheries gender focal points will serve as critical institutional bridges between community organizations and government agencies, ensuring that project

interventions align with national policy frameworks while responding to local priorities and concerns.

In Tuvalu, the stakeholder engagement approach will respect the unique governance structure established through the Falekaupule Act (1997), which grants traditional island councils (Falekaupule) and their executive committees (Kaupule) primary authority over local resource management decisions. Engagement will therefore require working in partnerships with these traditional authorities while simultaneously ensuring that the Tuvalu National Council of Women (TNCW), the Fusi Alofa Association representing persons with disabilities, and island-specific women's committees have genuine opportunities to influence project design and implementation decisions. School and church networks, which reach virtually all community members across Tuvalu's dispersed atoll geography, will serve as critical communication channels for project information and feedback collection.

The engagement methodology for the project will employ culturally appropriate consultation processes that accommodate diverse communication styles, language preferences, and accessibility requirements while ensuring that all stakeholder groups receive comprehensive information about project objectives, methods, potential benefits, and risks in formats they can understand and respond to meaningfully. This includes providing project information in local languages where appropriate, using visual and audio materials for stakeholders with limited literacy, ensuring physical accessibility of consultation venues for persons with mobility disabilities, and offering multiple participation modalities including individual interviews, focus group discussions, community meetings, and digital feedback mechanisms to accommodate different comfort levels and communication preferences.

6. Free, Prior and Informed Consent and Grievance Redress Mechanism (GRM) Modalities

The implementation of robust Free, Prior and Informed Consent (FPIC) protocols and accessible Grievance Redress Mechanisms (GRM) reflects recognition that invasive species management interventions, despite their conservation objectives, can significantly impact community livelihoods, cultural practices, and individual rights in ways that require explicit community authorization and ongoing accountability mechanisms. Since all three target countries have Indigenous populations, whose rights are protected under international law, FPIC will be required for all project activities that affect traditional territories, natural resources, cultural heritage sites, or community livelihoods.

FPIC processes will be designed to respect and work through recognized community governance structures while ensuring that marginalized voices are not excluded from decision-making processes that will affect their lives and livelihoods. In Tuvalu, the Falekaupule Act (1997) establishes traditional island councils (Falekaupule) and their executive committees (Kaupule) as the appropriate authorities for resource management decisions, requiring that project interventions receive formal approval through these traditional governance mechanisms (Government of Tuvalu, 1997).[18] However, FPIC processes will include specific measures to ensure that women, youth, and persons with disabilities have genuine opportunities to influence these decisions through separate consultation sessions, mixed-gender community meetings, accessible formats for information sharing, and iterative consultation processes that allow community members to ask questions, request modifications, and withdraw consent if project implementation does not align with agreed parameters.

The FPIC process will be particularly critical for Traditional Knowledge documentation and application, requiring explicit consent from Traditional Knowledge holders for any recording, sharing, or application of their knowledge in project activities. This includes establishing clear agreements about how Traditional Knowledge will be used, who will have access to documented knowledge, how Traditional Knowledge holders will be credited and compensated for their contributions, and what restrictions apply to sharing sensitive or sacred knowledge beyond immediate project applications. Traditional Knowledge holders will retain the right to withdraw consent at any time, requiring that project activities be designed to respect ongoing community control over their intellectual and cultural property.

A Grievance Redress Mechanism (GRM) will be designed to provide accessible, culturally appropriate, and survivor-centered processes for addressing concerns, complaints, and disputes that may arise during project implementation. All GRM procedures will be designed to meet the accessibility requirements of persons with disabilities, including alternative communication formats, physical accessibility of complaint venues, and accommodation for different types of disabilities that might affect communication or mobility. The GRM will also establish clear protocols for addressing accessibility concerns raised by persons with disabilities, including provisions for reasonable accommodations that enable full participation in project activities.

7. Component-Level GEDSI Actions

The systematic mainstreaming of GEDSI principles across all four project components ensures that gender equality, disability inclusion, and Traditional Knowledge integration are not treated as peripheral considerations but rather as central elements that enhance both the technical effectiveness and social sustainability of invasive species management interventions. The following component-level actions are designed to be practical, implementable, and grounded in the realities of project delivery across Niue, Tonga, and Tuvalu.

7.1. Component 1: Biosecurity & Early Detection Rapid Response (EDRR)

Component 1's biosecurity strengthening and early detection systems can achieve gender equality and disability inclusion through three practical mechanisms. National quarantine training programs will ensure gender-balanced participation by scheduling sessions to accommodate women's care work responsibilities and by partnering with women's organizations (Niue Women Council, Langafonua 'a Fafine Tonga, TNCW) to recruit trainees, recognizing that women's extensive involvement in inter-island trade, market activities, and traditional resource transport positions them as critical biosecurity actors who can identify pathway risks that formal systems may miss. Second, pathway risk assessments will systematically integrate Traditional Knowledge by conducting formal consultations with women's fishing groups and village committees to document informal trade routes, seasonal movement patterns of traditional materials, and cultural exchange networks that represent unmonitored but significant pathways for invasive species introduction—information that will be incorporated into national biosecurity strategies with proper attribution and community ownership. Third, community-based biosecurity surveillance will be co-designed with women's groups, youth councils, and Disabled Persons Organizations to ensure reporting mechanisms are accessible (multiple channels including SMS, hotlines, community focal points), safe (confidential reporting options for marginalized groups), and culturally appropriate.

7.2. Component 2: Community-Based Management & Restoration

Component 2's community-based restoration approach will deliver inclusive participation and livelihood benefits through four integrated mechanisms grounded in existing community structures and Traditional Knowledge systems. First, women-led community nurseries will be established in partnership with existing women's organizations (Niue Fitikanai association, Tonga women's groups, TNCW) to propagate native species for restoration sites, with nursery operations designed to accommodate care work through flexible scheduling that recognizes women's labor while providing income-generating opportunities. Second, Traditional Knowledge will guide site prioritization and restoration techniques: in Niue's Huvalu Forest, women's knowledge of traditional plant uses and seasonal cultivation cycles will inform species selection and planting timing; in Tonga's Toloa Reserve, women will identify culturally significant medicinal plant locations requiring protection; and in Tuvalu's pulaka pits, women's traditional taro cultivation expertise will guide Singapore daisy removal using adapted famalama (cooperative labor) systems that maintain cultural practices while incorporating safety protocols. Third, accessibility accommodations will ensure persons with disabilities can participate meaningfully in restoration work through modified tools suited to different physical capabilities, alternative task assignments (e.g., seed sorting, quality control, record-keeping for persons with mobility limitations), transportation support to field sites, and accessibility audits conducted in partnership with Disabled Persons Organizations to identify and address barriers. Fourth, marine invasive species monitoring will formalize women's existing nearshore surveillance roles by providing technical training in species identification (Drupella spp. in Niue, invasive algae in Tonga/Tuvalu), communication equipment for rapid reporting, and integration into official EDRR systems that ensure women's observations trigger management responses, thereby strengthening both ecological effectiveness and women's authority in environmental decision-making.

7.3. Component 3: Large-Scale Transformative Management

Component 3's landscape-scale interventions will ensure inclusive participation in predator eradication and biological control operations through practical mechanisms that balance technical requirements with social equity objectives. For the 8-10 island eradication operations, women will be prioritized for paid pre-operational baseline survey and post-eradication monitoring positions (approximately 15-20 positions per operation), recognizing their detailed knowledge of local seabird colonies, nesting sites, and vegetation patterns developed through traditional resource harvesting and daily observation—knowledge that enhances both scientific accuracy and cultural appropriateness of monitoring protocols. Free, Prior and Informed Consent processes will employ the Vātālanoa framework by conducting separate consultations with women, youth, and PWD groups to ensure marginalized voices shape operation timing, methods, and safety procedures without being overridden by traditional male leadership, with particular attention to accommodating persons with disabilities through temporary relocation assistance, accessible information formats explaining operational procedures, and health monitoring protocols during aerial bait application phases. All field monitoring protocols and guides will be developed in accessible formats including large print, visual identification aids, and simplified data collection forms that accommodate varying literacy levels and disabilities, ensuring that inclusive participation maintains scientific rigor while expanding the human resource base for long-term biocontrol monitoring essential for sustained adaptation benefits.

7.4. Component 4: Regional Cooperation & Knowledge Management

Component 4's regional knowledge sharing and capacity building will systematically amplify GEDSI innovations and Traditional Knowledge applications through three practical mechanisms that ensure lessons learned benefit the broader Pacific region. First, knowledge product development will feature women and youth practitioners from all three countries as primary authors and presenters of case studies, technical guides, and video documentaries that document successful inclusive approaches to invasive species management—for example, case studies on Niue Women Council's integration into biosecurity surveillance, Tonga women's nearshore monitoring systems, and Tuvalu's accessible pulaka pit restoration—thereby providing professional development opportunities while ensuring that knowledge products reflect authentic community voices rather than external expert interpretations. Second, targeted support will enable women, youth, and persons with disabilities to participate in Pacific Invasives Learning Network (PILN) biennial meetings and technical exchanges by providing travel assistance, accessibility accommodations (sign language interpretation, accessible venues, assistance for persons with mobility disabilities), childcare support, and mentorship pairing with regional invasive species experts, thereby building professional networks and technical capacities that can sustain inclusive approaches beyond project completion. Third, GEDSI mainstreaming into national policy frameworks will be achieved through technical assistance to integrate inclusive invasive species management into National Invasive Species Strategy and Action Plans (NISSAP), National Adaptation Plans (NAP), Nationally Determined Contributions (NDC), and national budget processes in all three countries.

8. Results Framework: Inclusive Indicators and Targets

The project's results framework incorporates comprehensive Sex, Age, and Disability-Disaggregated Data (SADDD) collection and analysis to ensure that progress toward gender equality, disability inclusion, and youth empowerment can be systematically tracked and adaptively managed throughout implementation. The framework establishes ambitious but achievable targets that reflect the demographic realities and capacity constraints present across the three target countries while ensuring that invasive species management contributes meaningfully to transformative social change beyond purely conservation outcomes.

8.1 Overarching GEDSI Targets

The project establishes minimum quantitative targets that ensure measurable inclusion across all components and countries, with all targets disaggregated by sex, age group (youth 15-35, adults 36-64, elderly 65+), and disability status to enable accountability and adaptive management:

Target Group	Minimum Target	Rationale
Women	≥45% of direct beneficiaries	Reflects female population majority (50.8-51%) while accounting for participation barriers
Youth (15-35 years)	≥30% of direct beneficiaries	Ensures youth leadership pipeline and long-term sustainability of climate adaptation actions
Persons with Disabilities	≥5% of participants (where feasible)	Aligns with regional prevalence (2.8-4.5%) while acknowledging accessibility accommodation requirements

Women in Leadership	≥40% of decision-making roles	Ensures women's authority in environmental governance structures
TK Holders Engaged	100% with documented FPIC	Protects intellectual property rights and ensures ethical knowledge integration

These targets will be monitored at country and component levels to ensure balanced achievements across different intervention types and geographic contexts, preventing concentration in particular activities or locations that may be easier to implement but less transformative in their impacts.

8.2 Indicator Framework by Result Area

The comprehensive indicator framework tracks both quantitative participation and qualitative dimensions of inclusion across four result areas that collectively assess whether GEDSI integration is achieving transformative outcomes rather than tokenistic representation.

A. Participation and Leadership Indicators

These indicators track numerical representation and leadership roles, measuring whether marginalized groups are moving from passive beneficiaries to active decision-makers in invasive species management:

Indicator	Measurement Method	Disaggregation
Number of community biosecurity ambassadors trained and active	Training records + activity logs	Sex, age, disability, country
Percentage of women, youth, and PWDs in decision-making roles within community and project governance structures	Governance body composition analysis	Sex, age, disability, governance level
Number of Traditional Knowledge holders with documented FPIC and benefit-sharing agreements	FPIC documentation + payment records	Sex, age, knowledge domain, country

B. Access and Safety Indicators

These indicators ensure that project activities achieve genuine inclusion by measuring accessibility accommodations and safety mechanisms that enable marginalized groups to participate without facing discrimination, violence, or exclusion:

Indicator	Measurement Method	Disaggregation
Percentage of training facilities, restoration sites, and meeting venues meeting accessibility standards	Disability-led accessibility audits using established standards	Venue type, accessibility features, country
Number of GRM cases resolved within established timeframes	GRM case tracking system	Case type (GBV, discrimination, accessibility, general), complainant demographics, resolution status

Percentage of project sessions providing appropriate accessibility accommodations	Session checklists + participant feedback	Accommodation type (sign language, transport, childcare, alternative formats), session type

C. Knowledge and Practice Indicators

These indicators capture the integration and application of Traditional Knowledge and inclusive surveillance systems, measuring whether community knowledge is genuinely shaping project implementation:

Indicator	Measurement Method	Disaggregation
Number of TK-informed risk communication products adopted by communities with documented ownership	Product registry + community adoption surveys	Product type, TK source, country, adoption rate
Number of TK practices documented and integrated into biosecurity protocols with FPIC	TK documentation database + protocol integration verification	Knowledge domain, TK holder demographics, application area

D. Outcome-Level Indicators

These indicators measure the ultimate effectiveness of inclusive approaches in achieving both conservation and social equity objectives, demonstrating that GEDSI integration enhances rather than compromises technical outcomes:

Indicator	Measurement Method	Expected Result
Number of priority sites where inclusive surveillance contributed to successful EDRR outcomes	EDRR case studies + attribution analysis	Demonstrate that women's/community surveillance enhances detection speed and response effectiveness
Documented reduction in women's unpaid labor hours on invasive species-related tasks	Time-use surveys (baseline + endline)	≥20% reduction in time spent on crop protection, water collection, and food processing affected by invasives
Number of PWDs reporting improved access to natural resources, economic opportunities, or decision-making	PWD-focused surveys + participatory assessment	≥50% of participating PWDs report improved access in at least one domain

8.3 Monitoring and Reporting Framework

SADDD collection will be integrated into all project monitoring systems from inception, with specific protocols ensuring data quality, confidentiality, and accessibility. Data collection methods will be co-designed with women's organizations and Disabled Persons Organizations to ensure culturally appropriate and accessible approaches. Quarterly monitoring reports will

analyse GEDSI indicator trends, identify emerging barriers to inclusion, and recommend adaptive management actions. Annual comprehensive GEDSI assessments will evaluate progress against targets, document lessons learned and inform adjustments to implementation strategies. All GEDSI data will be anonymized to protect participant confidentiality while enabling disaggregated analysis that reveals differential impacts and benefits across social groups.

9. Risks and Mitigation Measures

The systematic identification and proactive mitigation of GEDSI-related risks ensures that invasive species management interventions contribute to positive social change while avoiding inadvertent harm to vulnerable community members or exacerbation of existing inequalities. The comprehensive risk assessment addresses both direct risks that could result from project activities and systemic risks that could undermine the sustainability of inclusive outcomes beyond project completion.

- **Exclusion of women and PWDs:** The risk of excluding women and PWDs from EDRR and devanning activities will be mitigated by implementing inclusive selection criteria, providing stipends, childcare, and transport, conducting accessibility modifications, and tracking participation using SADDD.
- **GBV/SEA Risks:** Gender-Based Violence and Sexual Exploitation and Abuse risks may be exacerbated by project activities that create new power dynamics, bring together community members in isolated settings, or change traditional economic relationships in ways that increase vulnerability to exploitation. This will be mitigated through mandatory staff training on survivor-centred protocols, the establishment of a confidential GRM with clear referral pathways and ensuring the safety of all project venues.
- **TK Misappropriation:** Traditional Knowledge misappropriation risks could result in unauthorized use, sharing, or commercialization of Traditional Knowledge without appropriate consent, attribution, or benefit-sharing arrangements. These risks will be mitigated by strictly adhering to FPIC protocols for the documentation and use of TK, developing clear benefit-sharing arrangements, using limited-use licenses, and ensuring the confidentiality of sensitive information.
- **Accessibility Shortfalls:** The risk of accessibility shortfalls will be mitigated by conducting accessibility audits of all project sites and activities, developing and implementing remedy plans, providing alternative modalities for participation, and adapting roles for PWDs.
- **Community Fatigue and Burden:** The risk of community fatigue and burden arise when extensive engagement requirements place unrealistic demands on community members' time and energy, particularly affecting women who often bear disproportionate care work responsibilities. Mitigation can include by aligning project activities with the existing PRISMSS relationships and framework, leveraging existing community meetings, compensating community members for their time and expertise, and integrating project activities into existing community structures and ongoing community development and governance processes to minimize additional burdens.
- **Elite Capture:** The risk of elite capture will be mitigated by promoting transparent leadership selection processes and implementing quotas for the participation of women, youth, and PWDs in decision-making bodies.

Appendix 1: Stakeholder Consultations for GEDSI Analysis

This GEDSI and Traditional Knowledge analysis is grounded in comprehensive stakeholder consultations conducted across all three target countries during October-December 2025, involving government ministries, civil society organizations, women's groups, youth representatives, and Disabled Persons Organizations. The consultations employed culturally appropriate methodologies including questionnaires, focus group discussions, and key informant interviews to ensure diverse perspectives informed project design.

1. Niue Stakeholder Consultations

No.	Name	Organization
1	Brendon Pasisi	Niue Ocean Wide (NOW) Trust
2	Aue M. Kolapa	Project Management Coordination Unit
3	Adorra Misikea	Department of Environment, Maritime Division
4	Carol Ewards	Niue Primary School
5	Dan [Surname]	Project Management Coordination Unit
6	Milan [Surname]	Project Management Coordination Unit
7	Colin JTUAIA	HKT Men's Council
8	Peter [Surname]	TMIC
9	Sionetasi Pucehetoa	Liku Village Council
10	Celina Etialcia	Niue Women's Council
11	Lofa Misa	Niue Fitikanai Association

2. Tonga Stakeholder Consultations

No.	Name	Organization
1	Rhema Misa	Lavame'a Ta'e'iloa Disabled People Association Incorporated
2	Viliami Hakaumotu	Tonga National Invasives Species Coordinator

3. Tuvalu Stakeholder Consultations

No.	Name	Organization
1	Vine Sosene	Health Department
2	Taotao Lagafaoa	Youth Department
3	Marion Faleasiu	Fusi Alofa Association (Disabled Persons Organization)
4	Kuing Polland	Gender Department
5	Fulitua Tealei	Fisheries Department
6	Semisi Tonga	Agriculture Department
7	Emely Panapa	Environment Department
8	Suialofa Eliuta	Waste Department
9	Tepola Esekia	Tourism Department
10	Sam Panapa	Tuvalu National Invasive Species Coordinator

4. Regional Technical Consultations

No.	Name	Organization
1	Dr. William Gock Young	SPREP
2	Louis Thiercelin	SPREP

Annex E: Detailed Component Information

1. Introduction

This annex provides comprehensive details of all project components and outputs, and budget allocations for the relevant budget categories. This is based on technical consultations with PRISMSS programme leads and regional best practice analysis. The component design reflects proven Pacific approaches while incorporating innovative climate adaptation strategies. The four components reinforce each other, reflecting the Theory of Change:

- **Component 1** prevents new invasions and protects investments in Components 2 and 3
- **Component 2** restores local ecosystems necessary for climate resilience (soil, water, reefs)
- **Component 3** delivers permanent, landscape-scale ecological recovery that reduces long-term climate vulnerability
- **Component 4** scales knowledge, supports sustainability, and reduces costs across the region

2. Component Details

Component 1: Biosecurity & Early Detection Rapid Response

Budget: USD 2,439,098
Activities: USD 1,500,000 **Personnel:** USD 939,098
PRISMSS Programme: POI - Protect Our Islands
Theory of Change Alignment: Outcomes 1 & 2
AF Output Alignment: 3.2 (knowledge), 6.1 (livelihoods)

Component 1 strengthens national and inter-island biosecurity systems as the first line of defense against climate-driven invasive species threats. The component delivers a multi-layered EDRR system that reduces establishment risk, protects ecosystem assets, and prevents climate shocks from triggering new invasive outbreaks.

As climate change creates higher-risk invasive species invasion windows through cyclones, droughts, marine heatwaves, and shifting species ranges, strengthened biosecurity measures can be introduced to reduce ecosystem degradation, crop loss, and marine impacts from high-risk species. This component provides the “insurance layer” protecting all eradication and restoration investments in Components 2 and 3. The outputs required for Component 1 have been summarised below to explain where key improvements are necessary and how the budget will likely be broken down per budget category for this component.

Output 1.1*: Capacity Strengthening for National Quarantine & Inspection Services*

- Training and certification of officers in invasive species detection (ants, reptiles, weed seeds, marine pests)
- Upgraded inspection protocols at ports/airports
- Refurbishment of quarantine areas where needed
- Increased focus on biodiversity-relevant biosecurity risks

Output 1.2: *Implementation of National and Inter-Island Pathway Risk Assessments*

- Updated assessments targeting highest-risk pathways for Niue, Tonga, and Tuvalu
- Inclusion of yacht routes, construction material flows, Funafuti ferry pathways, and cyclone-driven debris transport
- Prioritisation guidance for surveillance deployment
- 5-year update cycle integrated into national systems

Output 1.3: *Operationalisation of Early Detection and Rapid Response Systems*

- Species-specific contingency plans for top invaders (mongoose, cane toad, African tulip, yellow crazy ant, marine algae)
- Rapid Response Teams trained
- Appropriate equipment provided (traps, PPE, kits)
- Simulation exercises conducted annually

Output 1.4: *Fostering Community-Based Biosecurity Awareness and Surveillance*

- Increased number or citizen scientists trained (≥50% women)
- Local-language mobile reporting tools activated
- Targeted behavioural messaging for boat operators, women's groups, tourism operators
- Expansion of the Vava'u "rat-free boat" certification model to all three countries
- Linked to national databases and PRISMSS Navigator/Battler
- Automated alerts issued for follow-up inspection

Budget Narrative

The following table outlines the indicative budget allocation for Component 1 activities, presenting the estimated costs for key output categories alongside brief descriptions of the main deliverables under each. It distinguishes between direct output expenditures (training, risk assessments, surveillance systems, community engagement, and quarantine upgrades) and personnel costs, clarifying how the total Component 1 budget is distributed across technical implementation and national staff time.

Budget Category	Amount (USD)	Description
Training & capacity building	360,000	Officer training, certification, community surveillance training, EDRR simulation exercises
Pathway risk assessments	210,000	Technical experts, data collection, inter-island transport analysis
Surveillance systems (tech & equipment)	420,000	18 solar monitoring stations, traps, kits, field PPE
Community engagement & behavioural change	260,000	Awareness campaigns, school/community materials, boat certification
Quarantine facility upgrades & tools	250,000	Small refurbishments, inspection equipment, devanning areas
Outputs Total	**1,500,000**	Sum of all outputs
Personnel Total	**939,098**	National staff time, POI coordinator, technical input and supervision

Component 2: Community-Based Management & Restoration

Budget: USD 3,203,115
Outputs: USD 2,600,000 **Personnel:** USD 603,115
PRISMSS Programmes: RERC, WOW, POMA
Theory of Change Alignment: Outcome 3
AF Output Alignment: 5.1 (ecosystem strengthening), 6.1 (livelihoods)

Component 2 focuses on local ecosystems and builds strong community capacity to manage climate-driven invasive threats. It targets high-value terrestrial and marine areas where community livelihoods, food security, and cultural assets depend on healthy ecosystems. This component aims to restore native ecosystems so they can continue to provide the core climate resilience functions, soil stability, water retention, coastal protection, and food security. The key outputs are outlined below, along with the budget narrative as an initial indication of the proposed investment breakdown.

Output 2.1: *Ecological Restoration of Priority Terrestrial Sites*

- Increase in hectares of land brought under improved management
- Application of the 4-phase WOW method (initial control → follow-up → seedbank depletion → stewardship)
- Target sites:
  - Niue: Huvalu Forest
  - Tonga: Toloa Reserve, Vava'u sites, 'Eua National Park margins
  - Tuvalu: Pulaka pit areas, coastal vegetation zones

Output 2.2: *Management of High-Impact Invasive Animals*

- Niue & Tonga: community-led pig containment (fencing materials, village by-laws)
- Tuvalu: cane toad surveillance & removal teams, cistern protection
- All countries: emphasis on youth/women's group participation

Output 2.3: *Marine Invasive Species Early Detection and Rapid Response (EDRR*

- Community-based marine EDRR teams established and trained in all three countries.
- Baseline surveys completed to map priority marine invasive species and vulnerable reef sites.
- Early detection guidance and community monitoring protocols developed and disseminated.
- National and local EDRR plans endorsed, clarifying roles, triggers, and response procedures.
- Targeted Drupella snail control and monitoring implemented in Niue, building on Niue in Blue initiatives.
- Invasive algae EDRR systems operational in Tonga and Tuvalu, engaging local fishers and women's groups.
- Crown-of-thorns starfish surveillance and response integrated into reef monitoring programmes in all countries.

Output 2.4: Ecological restoration of priority reef ecosystems

- Integration of marine health indicators (bleaching, algal cover)
- Coral gardening pilots in priority sites
- Community monitors trained to assess coral condition
- Additional ecological knowledge integrated into reef protection

Budget Narrative

The indicative budget allocation for Component 2 (Community-Based Management & Restoration), breaks down expenditures across five key activity areas and distinguishing between direct output costs and personnel investment. It shows how funding is distributed across terrestrial restoration and weed control, pig containment systems, invasive animal surveillance and removal, marine ecosystem monitoring, and coral restoration pilots, with the costs allocated to implementation activities, community training, and national coordination staff.

Budget Category	Amount (USD)	Description
Terrestrial restoration (WOW/RERC)	1,150,000	Weed control cycles, seedling propagation, nurseries, tools
Pig containment systems	400,000	Fencing materials, community by-law development, training
Cane toad & invasive animal management	210,000	Surveillance, removal, cistern protection
Marine EDRR (POMA)	500,000	Protocol development, training, underwater cameras, sampling kits
Coral restoration pilots	340,000	Nursery structures, coral fragments, monitoring
Outputs Total	**2,600,000**	Sum of all outputs
Personnel	**603,115**	National coordinators, community trainers, technical officers

Component 3: Large-Scale Transformative Management

Budget: USD 11,652,126
Activities: USD 9,300,000 **Personnel:** USD 2,352,126
PRISMSS Programmes: PFP, NENS
Theory of Change Alignment: Outcome 4
AF Output Alignment: 5.1 (ecosystems improved)

Component 3 delivers permanent, landscape-scale climate resilience by removing dominant invasive mammals and suppressing widespread invasive weeds using classical biological control. These invasive species impose systemic, cross-ecosystem impacts. Eradication and biocontrol are the only scalable interventions capable of reversing long-term climate vulnerability at the landscape level. There are two key outputs for this component that focus on predator eradication operations and control of widespread weeds.

Output 3.1: *Predator Eradication Operations on Priority Islands*

- 8 -10 islands cleared in Tonga and Tuvalu using tested Pacific methodologies
- Niue officials participate as observers, preparing for nationwide eradication under future GCF project
- Integrated eradication operations (rats + cats)
- Aerial and ground baiting adapted to size, vegetation, crab density

Output 3.2: *Classical Biological Control of Widespread Weeds*

- Non-target risk assessments and mitigation plans completed in line with ISPM 3.
- Community access and safety measures implemented during agent release and monitoring.

- Food and water safety safeguards integrated into all field operations.
- Post-release monitoring for reinvasion and agent performance linked to Component 1 surveillance systems.
- Proven biocontrol agents for priority weeds transferred and established across countries, including:
    - Singapore daisy gall mite
    - Air potato leaf beetle
    - African tulip beetle
    - Taro vine lace bug
    - Tithonia beetle
- Research and testing initiated for new biocontrol options for priority woody weeds (e.g. Leucaena), with national rearing capacity strengthened to support strategic releases.

Budget Narrative

The indicative budget allocation for Component 3 (Large-Scale Transformative Management), details expenditures across six operational and technical activity categories that support island eradication operations and biological control agent development. It clearly separates direct output implementation costs, including predator eradication campaigns, feasibility assessments, post-operation monitoring, biocontrol agent development, facility upgrades, and regional coordination, from personnel investment in technical leadership and specialist scientist positions.

Budget Category	Amount (USD)	Description
Island eradication operations	5,300,000	Bait purchase, transport, helicopters/boats, field teams
Pre-operational feasibility & safeguards	700,000	Environmental assessments, non-target planning, FPIC processes
Post-eradication monitoring	650,000	Sensors, patrols, rapid response systems
Biological control agent development & import	850,000	Host-specificity testing, quarantine, regulatory approvals
Mass-rearing and distribution	900,000	Facility upgrades, equipment, training
Regional coordination (PFP/NENS)	900,000	Roving experts, regional sequencing
Outputs Total	**9,300,000**	Sum of all outputs
Personnel	**2,352,126**	Technical leads, eradication managers, NENS scientists

Component 4: Regional Cooperation & Knowledge Management

Budget: USD 4,760,775
Outputs: USD 720,000 **Personnel:** USD 4,040,775
Theory of Change Alignment: Outcomes 5 & 6
AF Output Alignment: 3.2 (knowledge), 8.1 (innovation), 7.1 (policies)

Component 4 consolidates regional learning, strengthens PRISMSS, and supports scaling of Pacific invasive species adaptation solutions. It transforms country-level interventions into regional public goods by developing practical knowledge products, fostering a dynamic community of practice, and reinforcing technical, policy, and institutional support systems. There are three outputs that reflect this component:

Output 4.1: *Knowledge Product Development and Dissemination*

- 25+ climate resilience knowledge products
- Case studies, technical guides, videos, TK documentation
- Upload to Battler Resource Base and Navigator

Output 4.2: *Fostering a Regional Community of Practice*

- Increased number of exchanges, workshops, or PILN events
- South-South cooperation between Niue, Tonga, and Tuvalu
- Specialist-to-specialist regional mentoring

Output 4.3*: Strengthening Regional Support Systems and Policy Integration*

- 6+ policies integrating climate-informed IS management
- Regional biosecurity protocols harmonised across 3 countries
- Strengthened PRISMSS roving-expert capacity

Budget Narrative

The following table presents how resources for Component 4 are allocated across core learning and coordination activities, showing the funding set aside for knowledge generation, regional engagements, and policy work, alongside the associated personnel investment in PRISMSS coordination, regional specialists, and technical mentoring roles.

Budget Category	Amount (USD)	Description
Knowledge products & communications	260,000	Technical guidance, videos, TK documentation
Regional workshops, exchanges & PILN	300,000	Travel, logistics, facilitation
Policy integration & multi-country systems	160,000	Protocol preparation, national integration
Outputs Total	**720,000**	Sum of all outputs
Personnel	**4,040,775**	PRISMSS coordinators, regional specialists, technical mentors