**Using standards for coastal nature-based solutions in the climate commitments: applying the IUCN Global Standard to the case of Pacific Small Island Developing States**

**SUPPLEMENTARY MATERIAL**

**Appendix A: Criteria and indicators of the IUCN Global Standard for Nature-based Solutions**

**Table A.1**. Criteria and indicators of the IUCN Global Standard for Nature-based Solutions. From: “IUCN (2020). Guidance for using the IUCN Global Standard for NbS. A user-friendly framework for the verification, design and scaling up of nature-based solutions. First edition. Gland, Switzerland: IUCN.”

|  |  |
| --- | --- |
| CRITERIA | INDICATORS |
| Criterion 1: Societal challenges | * 1.1. The most pressing societal challenge(s) for rights-holders and beneficiaries are prioritized;
* 1.2. The societal challenge(s) addressed are clearly understood and documented;
* 1.3. Human well-being outcomes arising from the NbS are identified, benchmarked and periodically assessed Guidance: NbS must deliver tangible and substantive benefits to human well-being. Specific, measurable, attainable, realistic and timely (SMART) targets should be used as appropriate, as they are important for accountability and informing adaptive management.
 |
| Criterion 2: Design at scale | * 2.1. The design of the NbS recognizes and responds to interactions between the economy, society and ecosystems;
* 2.2. The design of the NbS is integrated with other complementary interventions and seeks synergies across sector;
* 2.3. The design of the NbS incorporates risk identification and risk management beyond the intervention site.
 |
| Criterion 3: Biodiversity net gain | * 3.1. The NbS actions directly respond to evidence-based assessment of the current state of the ecosystem and prevailing drivers of degradation and loss;
* 3.2. Clear and measurable biodiversity conservation outcomes are identified, benchmarked and periodically assessed;
* 3.3. Monitoring includes periodic assessments of unintended adverse consequences on nature arising from the NbS;
* 3.4. Opportunities to enhance ecosystem integrity and connectivity are identified and incorporated into the NbS strategy.
 |
| Criterion 4: Economic feasibility | * 4.1. The direct and indirect benefits and costs associated with the NbS, who pays and who benefits, are identified and documented;
* 4.2. A cost-effectiveness study is provided to support the choice of NbS including the likely impact of any relevant regulations and subsidies;
* 4.3. The effectiveness of the NbS design is justified against available alternative solutions, taking into account any associated externalities;
* 4.4. NbS design considers a portfolio of resourcing options such as market-based, public sector, voluntary commitments and actions to support regulatory compliance.
 |
| Criterion 5: Inclusive governance | * 5.1. A defined and fully agreed upon feedback and grievance resolution mechanism is available to all stakeholders before an NbS intervention is initiated;
* 5.2. Participation is based on mutual respect and equality, regardless of gender, age or social status, and upholds the right of Indigenous Peoples to Free, Prior and Informed Consent;
* 5.3. Stakeholders who are directly and indirectly affected by the NbS have been identified and involved in all processes of the NbS intervention;
* 5.4. Decision-making processes document and respond to the rights and interests of all participating and affected stakeholders;
* 5.5. Where the scale of the NbS extends beyond jurisdictional boundaries, mechanisms are established to enable joint decision-making of the stakeholders in the affected jurisdictions.
 |
| Criterion 6: Balance trade-offs | * 6.1. The potential costs and benefits of associated trade-offs of the NbS intervention are explicitly acknowledged and inform safeguards and any appropriate corrective actions;
* 6.2. The rights, usage of and access to land and resources, along with the responsibilities of different stakeholders, are acknowledged and respected;
* 6.3. The established safeguards are periodically reviewed to ensure that mutually-agreed trade-off limits are respected and do not destabilize the entire NbS.
 |
| Criterion 7: Adaptive management | * 7.1. A NbS strategy is established and used as a basis for regular monitoring and evaluation of the intervention;
* 7.2. A monitoring and evaluation plan is developed and implemented throughout the intervention lifecycle;
* 7.3. A framework for iterative learning that enables adaptive management is applied throughout the intervention lifecycle.
 |
| Criterion 8: Mainstreaming and sustainability | * 8.1. The NbS design, implementation and lessons learnt are shared to trigger transformative change;
* 8.2. The NbS informs and enhances facilitating policy and regulation frameworks to support its uptake and mainstreaming;
* 8.3. Where relevant, the NbS contributes to national and global targets for human well-being, climate change, biodiversity and human rights, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).
 |

|  |  |
| --- | --- |
| **Elements of the global stocktake (UNFCCC, 2018)** | **Relevant indicators of the IUCN Global Standard for NbS** |
| (a) The state of greenhouse gas emissions and removals | * 1.3 Human well-being outcomes arising from the NbS are identified, benchmarked and periodically assessed
 |
| (b) The overall effect of countries’ NDCs and overall progress made towards the implementation of NDCs | * 1.3 Human well-being outcomes arising from the NbS are identified, benchmarked and periodically assessed
* 3.2 Clear and measurable biodiversity conservation outcomes are identified, benchmarked and periodically assessed
* 3.3 Monitoring includes periodic assessments of unintended adverse consequences on nature arising from the NbS
* 7.1 NbS strategy is established and used as a basis for regular monitoring and evaluation of the intervention
* 7.2 A monitoring and evaluation plan is developed and implemented throughout the intervention lifecycle
 |
| (c) The state of adaptation efforts, support, experience and priorities | * 1.1 The most pressing societal challenge(s) for rights-holders and beneficiaries are prioritized
* 1.3 Human well-being outcomes arising from the NbS are identified, benchmarked and periodically assessed
 |
| (d) Finance flows | * 4.1 The benefits and costs associated with the NbS, who pays and who benefits, are identified and documented
* 4.4 NbS design considers a portfolio of resourcing options
 |
| (e) Efforts to enhance understanding, action and support to minimize loss and damage | * 2.3 The design of the NbS incorporates risk identification and risk management beyond the intervention site
* 6.1 The potential costs and benefits of associated trade-offs of the NbS intervention are explicitly acknowledged and inform safeguards and any appropriate corrective actions
 |
| (f) Barriers and challenges | * 1.2 The societal challenges addressed are clearly understood and documented
* 4.1 The benefits and costs associated with the NbS, who pays and who benefits, are identified and documented
 |
| (g) Sharing good practices to enhance international cooperation | * 8.1 The NbS design, implementation and lessons learnt are shared to trigger transformative change
* 8.2 The NbS informs and enhances facilitating policy and regulation frameworks to support its uptake and mainstreaming
 |
| (h) Fairness consideration, including equity, as communicated by countries in their NDCs | * 5.2 Participation is based on mutual respect and equality
* 5.3 Stakeholders who are affected by the NbS have been identified and involved in all processes of the NbS intervention
* 5.4 Decision-making processes document and respond to the rights and interests of all participating and affected stakeholders
* 6.2 The rights, usage of and access to land and resources of different stakeholders are acknowledged and respected
 |

**Table A.2**. Links between the elements required for the global stocktake (UNFCCC, 2018) and the indicators of the IUCN Global Standard for Nature-based Solutions.

UNFCCC (2018). Decision 19/CMA.1. Matters relating to Article 14 of the Paris Agreement and paragraphs 99–101 of decision 1/CP.21

**Appendix B: Statistical analysis to test the robustness of results**

We applied statistical tests to our results to test their robustness. Results are in Table B.1 below. We wanted to know if there was a significant difference regarding the alignment with the IUCN Global Standard for NbS, between coastal nature-based solutions (NbS) included in the original Nationally Determined Contributions (NDCs) of Pacific Small Island Developing States (PSIDS), versus those included in their revised NDCs. We also tested the significance of the differences in alignment found between the four categories of solutions (see Table 1 in the Materials and Method section of the paper. The statistical tests applied were student tests.

Student tests (“t.test” in excel) are used as followed: t.test(sample 1; sample 2; uni/bilateral; variance type). We selected the bilateral distribution (“2” in the equation), and the unequal variance distribution (heteroscedastic, “3” in the equation). We applied the following equations:

t.test(sample 1; sample 2; 2; 3)

t.test(sample 3 ; sample 4 ; 2 ; 3)

t.test(sample 3 ; sample 5 ; 2 ; 3)

t.test(sample 3 ; sample 6 ; 2 ; 3)

t.test(sample 4 ; sample 5 ; 2 ; 3)

t.test(sample 4 ; sample 6 ; 2 ; 3)

t.test(sample 5 ; sample 6 ; 2 ; 3)

Sample 1 is composed of the coastal NbS included in the original NDCs of PSIDS; it contains 12 observations (i.e., 12 coastal NbS). Sample 2 is composed of the coastal NbS included in the revised NDCs of PSIDS and contains 10 observations. Sample 3, sample 4, sample 5 and sample 6 refer to coastal NbS from category A (6 observations), category B (8 observations), category C (3 observations) and category D (5 observations), respectively.

The null hypothesis was that the means of the two samples are not significantly different. We rejected the null hypothesis if the student test was less or equal to 5%. The number of stars in Table B.1 represents the significance level of the test: one star (\*) if significant at 5%; two stars (\*\*) if significant at 1%; and three stars (\*\*\*) if significant at 1‰.

**Table B.1**: Statistical tests (*t*.test) across the four categories of coastal nature-based solutions, and between coastal nature-based solutions included in the original Nationally Determined Contributions of the Pacific Small Island Developing States versus those included in their revised ones. C1 to C8 correspond to the eight criteria of the IUCN Global Standard for NbS (see Table A.1 for detail on these criteria). Ov. (“overall match”) corresponds to the average of the criteria.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **Ov.** |
| **Original NDCs mean**  | 1.75 | 2.06 | 1.44 | 1.33 | 1.46 | 1.19 | 1.36 | 2.11 | 1.59 |
| **Revised NDCs mean**  | 2.23 | 2.63 | 1.83 | 1.35 | 1.90 | 1.23 | 1.53 | 2.37 | 1.88 |
| **T.test NDCs origina *vs*. revised**  | **.0004\*\*\*** | **.0005\*\*\*** | **.0129\*** | .8716 | .7263 | .7263 | .2260 | .2415 | **.0019\*\*** |
| **Cat. A mean** | 1.83 | 2.17 | 1.58 | 1.33 | 1.63 | 1.17 | 1.33 | 2.28 | 1.66 |
| **Cat. B mean**  | 2.13 | 2.38 | 1.53 | 1.41 | 1.66 | 1.21 | 1.33 | 2.25 | 1.74 |
| **Cat. C mean** | 2.11 | 2.56 | 1.83 | 1.25 | 1.67 | 1.33 | 1.44 | 2.11 | 1.79 |
| **Cat. D mean** | 1.80 | 2.27 | 1.65 | 1.30 | 1.70 | 1.20 | 1.73 | 2.20 | 1.73 |
| **T.test cat. A *vs*. B** | 0.0863 | 0.4847 | 0.7835 | 0.5833 | 0.8636 | 0.7384 | 1.000 | 0.9244 | 0.5874 |
| **T.test cat. A *vs*. C** | 0.0680 | 0.2048 | 0.4273 | 0.6149 | 0.8315 | 0.3955 | 0.6038 | 0.6343 | 0.3199 |
| **T.test cat. A *vs*. D** | 0.8468 | 0.6618 | 0.7520 | 0.8180 | 0.7506 | 0.8468 | 0.0600 | 0.8079 | 0.6961 |
| **T.test cat. B vs. C** | 0.9383 | 0.5327 | 0.3224 | 0.3323 | 0.9563 | 0.5160 | 0.6045 | 0.6684 | 0.6973 |
| **T.test cat. B *vs*. D** | 0.1143 | 0.6111 | 0.5382 | 0.4431 | 0.8500 | 0.9608 | 0.0460 | 0.8634 | 0.9804 |
| **T.test cat. C *vs*. D** | 0.1023 | 0.3301 | 0.5609 | 0.7680 | 0.8904 | 0.5531 | 0.2307 | 0.7982 | 0.7415 |
| **T.test cat. C *vs*. A, B, D** |  | 0.3113 |  |  |  |  |  |  |  |
| **T.test cat. D *vs*. A, B, C** |  |  |  |  |  |  | **0.0362\*** |  |  |

**Table B.2**:Criteria scores for coastal nature-based solutions in the original *vs*. revised Nationally Determined Contributions of the Pacific Small Island Developing States. C1 to C8 correspond to the eight criteria of the IUCN Global Standard for NbS (see Table A.1 for detail on these criteria). Ov. (“overall match”) corresponds to the average of the criteria.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Original NDCs** | **Cat.** | **Coastal NbS** | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **Ov** |
| Timor-Leste original NDC (2017) | A | Mangrove planting | 2.00 | 2.00 | 1.25 | 1.25 | 1.50 | 1.00 | 1.00 | 2.00 | 1.50 |
| Kiribati original NDC (2016) | A | Mangrove, seagrass protection/enhancement | 1.67 | 2.33 | 2.00 | 1.50 | 1.75 | 1.33 | 2.00 | 2.00 | 1.82 |
| RMI original NDC (2016) | A | Mangrove rehabilitation  | 2.00 | 2.00 | 1.00 | 1.00 | 1.50 | 1.33 | 1.00 | 2.00 | 1.48 |
| Timor-Leste original NDC (2017) | B | Mangrove conservation | 2.00 | 2.00 | 1.25 | 1.25 | 1.50 | 1.00 | 1.00 | 2.00 | 1.50 |
| Solomon I. original NDC (2016) | B | Management of fisheries and marine resources  | 1.67 | 1.67 | 1.25 | 1.50 | 1.25 | 1.33 | 1.33 | 2.33 | 1.54 |
| Cook I.original NDC (2016) | B | Designate the entire EEZ as a marine park  | 1.33 | 1.67 | 1.25 | 1.25 | 1.00 | 1.00 | 1.00 | 2.33 | 1.35 |
| Tonga original NDC (2016) | B | Double the 2015 number of MPAs by 2030 | 1.67 | 2.00 | 1.50 | 1.50 | 1.75 | 1.33 | 1.33 | 2.00 | 1.64 |
| Fiji original NDC (2016) | C | Mangrove planting  | 2.00 | 2.33 | 1.50 | 1.25 | 1.25 | 1.33 | 1.33 | 2.00 | 1.63 |
| Fiji original NDC (2016) | D | Sustainable management of fisheries | 2.00 | 2.33 | 1.75 | 1.00 | 1.00 | 1.00 | 1.67 | 2.00 | 1.59 |
| Timor-Leste original NDC (2017) | D | Ecosystem management to develop nurseries | 1.33 | 1.67 | 1.50 | 1.25 | 1.50 | 1.00 | 1.00 | 2.00 | 1.41 |
| Vanuatu original NDC (2016) | D | Community-based marine resource manag. | 1.67 | 2.67 | 1.75 | 2.00 | 2.25 | 1.67 | 2.00 | 2.67 | 2.08 |
| Niue original NDC (2016) | D | Ecosystems approach to fisheries manag. | 1.67 | 2.00 | 1.25 | 1.25 | 1.25 | 1.00 | 1.67 | 2.00 | 1.51 |
| **Average** |   |   | **1.75** | **2.06** | **1.44** | **1.33** | **1.46** | **1.19** | **1.36** | **2.11** | **1.59** |
| **Revised NDCs** |   |   |   |   |   |   |   |   |   |   |   |
| Fiji revised NDC (2020) | A | Marine biodiversity protection and restoration  | 2.00 | 2.33 | 2.00 | 1.75 | 2.25 | 1.00 | 1.33 | 3.00 | 1.96 |
| PNG revised NDC (2020) | A | Include BC ecosystems in GHG inventory  | 1.67 | 2.00 | 1.25 | 1.25 | 1.75 | 1.33 | 1.33 | 2.33 | 1.61 |
| Solomon I. revised NDC (2021) | A | Sust. manag. & protect coastal ecosystems | 1.67 | 2.33 | 2.00 | 1.25 | 1.00 | 1.00 | 1.33 | 2.33 | 1.61 |
| Fiji revised NDC (2020) | B | Conservation of critical ocean ecosystems | 2.67 | 3.00 | 1.75 | 1.75 | 2.50 | 1.33 | 1.33 | 2.33 | 2.08 |
| PNG revised NDC (2020) | B | Conservation, establish MPAs and LMMAs | 2.33 | 3.00 | 1.75 | 1.25 | 1.75 | 1.33 | 1.33 | 2.33 | 1.89 |
| Nauru revised NDC (2021) | B | Implement coastal NbS to increase resilience | 2.67 | 2.67 | 1.50 | 1.50 | 1.50 | 1.00 | 1.00 | 2.00 | 1.73 |
| Tonga revised NDC (2020) | B | Expand MPAs and SMAs to 30% of the EEZ | 2.67 | 3.00 | 2.00 | 1.25 | 2.00 | 1.33 | 2.33 | 2.67 | 2.16 |
| PNG revised NDC (2020) | C | Coastal ecosystem planting/rehabilitation | 2.33 | 3.00 | 1.75 | 1.25 | 1.75 | 1.33 | 1.33 | 2.33 | 1.89 |
| Samoa revised NDC (2021) | C | Expand the area of mangrove forests | 2.00 | 2.33 | 2.25 | 1.25 | 2.00 | 1.33 | 1.67 | 2.00 | 1.85 |
| Fiji revised NDC (2020) | D | Sustainable fishing practices | 2.33 | 2.67 | 2.00 | 1.00 | 2.50 | 1.33 | 2.33 | 2.33 | 2.06 |
| **Average** |   |   | **2.23** | **2.63** | **1.83** | **1.35** | **1.90** | **1.23** | **1.53** | **2.37** | **1.88** |

**Appendix C: Detailed list of coastal NbS identified in the Nationally Determined Contributions of Pacific Small Island Developing States**

**Table C.1**. Detailed list of coastal nature-based solutions identified in the Nationally Determined Contributions of the Pacific Small Island Developing States (PSIDS). AFOLU: Agriculture, Forestry and Other Land Use. FSM: Federated States of Micronesia. PNG: Papua New Guinea. REDD+: Reducing Emissions from Forest Reduction and Forest Degradation. RMI: Republic of the Marshall Islands. Category A refers to the conservation, restoration and sustainable management of coastal vegetation for climate mitigation. Category B refers to the conservation of coastal ecosystems for climate adaptation. Category C refers to their restoration for climate adaptation. Category D refers to the community-based sustainable management of coastal fisheries for climate adaptation.

|  |  |  |
| --- | --- | --- |
| **PSIDS** | **Category** | **Coastal nature-based solutions** |
| Fiji revised NDC (2020) | A | **Marine biodiversity protection and restoration**: “Marine biodiversity (mangrove, seagrass) protection (including 30% of the exclusive economic zone in marine protected areas (MPAs) and restoration for mitigation purpose (enhance sinks of greenhouse gases).” |
| PNG revised NDC (2020) | A | **Include BC ecosystems in GHG inventory**: “Include blue carbon (BC) ecosystems in the greenhouse gas (GHG) inventory and UNFCCC reporting, including: identify pathways to incorporating blue carbon by build upon existing AFOLU and REDD+ capabilities considering how to reflect mangroves and seagrasses in climate policies, data collection, mapping and modelling.” |
| Timor-Leste original NDC (2017) | A | **Mangrove planting:** “Plant mangrove to explore carbon sequestration in mangroves and enhance coastal resilience.” |
| Solomon I. revised NDC (2021) | A | **Sust. manag. & protect coastal ecosystems:** “Enhance carbon sink through sustainable management and protection ("protect at least 15% of coastal and marine areas enabling ecological, representative and well-connected system of protected area in the country, as provided in The National Biodiversity Strategic Action Plan 2016-2020") of coastal and marine ecosystems.” |
| Kiribati original NDC (2016) | A | **Mangrove, seagrass protection/enhancement**: “Kiribati will proactively protect and sustainably manage its mangrove resources, as well as protect and enhance coastal vegetation and seagrass beds. Together these actions represent effective stewardship of more than 6 million tonnes of carbon dioxide stored, more than 100 times the current annual national emissions inventory.” |
| RMI original NDC (2016) | A | **Mangrove rehabilitation:** “Mangrove rehabilitation programs to enhance carbon sinks as well as assist with protection of water resources and the health of the RMI people.” |
| Fiji revised NDC (2020) | B | **Conservation of critical ocean ecosystems:** “Protection and conservation of critical ocean ecosystems (mangroves, coral reefs) to mitigate the impact of flooding and cyclones. / Prioritize nature-based solutions to mitigate the impact of flooding and cyclones.” |
| PNG revised NDC (2020) | B | **Conservation, Establish MPAs and LMMAs:** “Protection and promotion of biodiversity conservation through ecosystem-based approaches / Establish MPAs and locally managed marine areas (LMMAs) to reduce damage on coral reefs.” |
| Timor-Leste original NDC (2017) | B | **Mangrove conservation:** “(a): Maintain mangrove plantations and promote awareness raising to protect coastal ecosystems from impacts of sea-level rise; (b): Protect mangroves to enhance coastal resilience.” |
| Solomon I. original NDC (2016) | B | **Management of fisheries and marine resources:** “Management of fisheries and marine resources for adaptation.” |
| Nauru revised NDC (2021) | B | **Implement coastal NbS to increase resilience: “"**Implement nature-based solutions to increase the protection against coastal erosion and the resilience of coastal zone ecosystems and biodiversity" ("The protection of marine ecosystems as a nature-based solution will augment efforts to reduce coastal erosion.") |
| Cook I.original NDC (2016) | B | **Designate the entire EEZ as a marine park**: “Designating its entire exclusive economic zone of almost two million sq km as a marine park is evidence of national commitment to the global effort to building the resilience of marine ecosystems / coastal protection / marine conservation.” |
| Tonga original NDC (2016) | B | **Double the 2015 number of MPAs by 2030:** “Double the 2015 number of Marine Protected Areas by 2030 / (maintaining national parks, reserves and protected areas).” |
| Tonga revised NDC (2020) | B | **Expand MPAs and SMAs to 30% of the Tonga’s EEZ:** “Expand the area covered by Marine Protected Areas (MPAs) and Special Management Areas (SMAs) to 30% of the Tonga’s Exclusive Economic Zone (EEZ) in order to prevent any permanent loss of land to rising sea levels on Tonga's four main islands, and to Maintain the existing stocks of fish and other marine species.” |
| Fiji original NDC (2016) | C | **Mangrove planting:** “The planting of mangroves is part of ongoing initiatives to build resilience.” |
| PNG revised NDC (2020) | C | **Coastal ecosystems planting/rehabilitation**: “Plant mangrove to adapt to coastal flooding and sea-level rise/ Plant mangroves, seagrasses and corals, manage mangrove, and rehabilitate corals to reduce damage on coral reefs.” |
| Samoa revised NDC (2021) | C | **Expand the area of mangrove forests:** “Expand the area of mangrove forests in Samoa by 5 percent by 2030 relative to 2018, through mangrove restoration and planting programs in coastal areas. Increasing this area by 5 percent would require Samoa to plant 18.7 ha of new mangroves, while preventing any loss of current mangrove forests.” |
| Fiji original NDC (2016) | D | **Sustainable management of fisheries:** “Fisheries policies have been developed on the sustainable management of Fiji's natural marine resources.” |
| Fiji revised NDC (2020) | D | **Sustainable fishing practices**: “Adopt sustainable fishing practices taking climate change into account.” |
| Timor-Leste original NDC (2017) | D | **Ecosystem management to develop nurseries:** “Include ecosystem management in national planning to develop nurseries.” |
| Vanuatu original NDC (2016) | D | **Community-based marine resource management:** “Marine resource management and aquaculture to adapt to climate change (through the National Adaptation Programme of Actions)/community based marine resource management” (through the National Adaptation Programme of Actions).” |
| Niue original NDC (2016) | D | **Ecosystems Approach to fisheries management.** |

**Table C.2**:Two examples of how coastal nature-based solutions are described in Nationally Determined Contributions.

|  |  |  |
| --- | --- | --- |
| **Information in the NDC** | **Scale** | **Criteria informed** |
| **EXAMPLE 1: Conservation of critical ocean ecosystems for adaptation.** **In Fiji revised NDC (2020).****Main quote in the text:** “Protection and conservation of critical ocean ecosystems (mangroves, coral reefs) to mitigate the impact of flooding and cyclones. Prioritize nature-based solutions to mitigate the impact of flooding and cyclones.”**Other quotes in the text:**- “Fiji will take appropriate steps to protect its social infrastructure against climate change and prioritise gender, disability, and the needs of the children and elderly in disaster management and in climate action.”- “Fiji will take measures to ensure that public infrastructure is resilient to cyclones and floods.”- “Development of a monitoring and evaluation systems, the development of a communication plan and the formation of a financing plan to ensure effectiveness of its planned adaptations measures.” “Transparent communication and robust monitoring system […] to ensure […] accountability in all climate actions”.- “Fiji is facing loss and degradation of vital ecosystems […] including its coral reefs, coasts and catchments.”- “Fiji will take measures to ensure that public infrastructure is resilient to cyclones and floods, prioritizing nature-based economically viable solutions.”- “The NDC planning process was guided by the principle of gender-responsiveness as articulated in the National Climate Change Policy. The Policy emphasises and makes a specific call to ensure that all approaches and methods for adaptation and mitigation are guided by the consideration of gender issues, […] and achieve outcomes which ensure that gender is a key consideration when programming finance and capacity-building.” - “Ensure equity, justice, inclusion, transparency, and accountability in all climate actions.” |  NDCNDC NAPCountryNDC/NbSNDCNDC/NbS | C1 and C5 (indirectly)C2 (indirectly)C4 and C7 (indirectly)C3 (indirectly)C4 (directly)C5 and C6 (indirectly)C5 and C6 (directly and indirectly) |
| **EXAMPLE 2: Expand the area of mangrove forests.****In Samoa revised NDC (2021).****Main quote in the text:** “Expand the area of mangrove forests in Samoa by 5 percent by 2030 relative to 2018, through mangrove restoration and planting programs in coastal areas. Increasing this area by 5 percent would require Samoa to plant 18.7 ha of new mangroves, while preventing any loss of current mangrove forests.”**Other quotes in the text:**- “Expanding the area of mangrove forest will help to protect coastal areas and communities against coastal flooding, coastal erosion, and storm surges. It will also provide valuable habitat for fish, help to protect marine ecosystems, and enhance ecosystem services.” “Citizens rely on the productivity of primary industries such as agriculture and fishing, which have been adversely impacted by changing weather patterns and natural disasters.”- “It is expected that expansion of mangrove forests will also contribute to climate change mitigation, however, Samoa’s 2007 emissions inventory did not include data on marine sector emissions and removals, so it was not possible to set a percentage-based target for emissions reductions in this sector.”- “The success of mangrove restoration and planting […] requires external financial support.”- “The consent from various stakeholders (including coastal villages) has been identified as a key of success for mangrove enhancement.” | NbSNbSNbSNbSNbS | C2 and C3 (directly)C1 and C2 (directly and indirectly)C1 and C2 (directly)C4 (directly)C5 and C6 (indirectly) |

**Appendix D: Trends in Global Environment Facility climate and biodiversity funding for Pacific Small Island Developing States between 1994 and 2022.**

We analyzed the evolution of the Global Environment Facility (GEF) funding (amount) to PSIDS in relation to both (i) biodiversity, (ii) climate, and (iii) cross-cutting biodiversity/climate projects, between 1994 (start of GEF 1) and 2022 (end of GEF 7). An excel spreadsheet containing all GEF-funded projects is downloadable on the GEF website (<https://www.thegef.org/projects>). It contains the following information referring to funded projects: “ID”, “Title”, “Focal Areas”, “Grant and Cofinancing”, “Implementing Agencies”, “Countries”, “Fund source”, “Period”, “Status”. We only retained for analysis projects related to the fifteen PSIDS part of our scope. In most cases, the available information did not allow for a distinction between terrestrial and marine projects, so our analysis of GEF funding considers both types of projects. First, we classified projects according to their focal area (i.e., Biodiversity, Climate change, International waters, Land degradation). Sometimes a project referred to several focal areas. We only considered projects referring to biodiversity only, climate only, or both biodiversity and climate: these are the three focal areas selected for analysis. This last category (“biodiversity and climate”) is not exclusive, which means that we also considered in this category projects whose focal areas referred to, for example, "biodiversity, climate and international waters ". This is why we called this category “Biodiversity & Climate change (+ others)”. We then categorized projects by countries and GEF phases (GEF 1 to GEF 7). Sometimes projects were solely funded by the GEF, but more often they were co-financed (for instance, by the GEF and another entity such as the World Bank). If a project was co-financed, we only considered the GEF funding contribution, not the total amount of funding associated with the project. Finally, we summed the GEF contributions for each of the three focal areas examined (biodiversity, climate, biodiversity and climate change + others), by GEF phase (1-7), and by country (the 15 PSIDS). The results on GEF funding trends over time are presented below in Figure D.1.

**Fig.D.1**: Trends in Global Environment Facility (GEF) funding (in US$) between 1994 and 2022 for the Pacific Small Island Developing States. Data used for analysis is from the website <https://www.thegef.org/projects>. GEF Periods: GEF 1: 1994-1998, GEF 2: 1998-2002; GEF 3: 2002-2006; GEF 4: 2006-2010; GEF 5: 2010-2014; GEF 6: 2014-2018; GEF 7: 2018-2022.